3R-1033

Release Report/ General Correspondence

Enterprise
Madsen Gas Com #1E

Date: 2015

119

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

OIL CONS. DIV DIST. 3
DEC 21 2015

Form C-141
Revised August 8, 2011
Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

OPERATOR

☐ Initial Report ☒ Final Report

Name of Company: Enterprise Field Services LLC	Contact: Thomas Long
Address: 614 Reilly Ave, Farmington, NM 87401	Telephone No. 505-599-2286
Facility Name: **Madsen Gas Com #1E**	Facility Type: **Natural Gas Gathering Pipeline**

Surface Owner: **Private**	Mineral Owner: **BLM**	API No.

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
C	28	29N	11W	1175		1408		San Juan

Latitude 36.70080 Longitude -108.00131

NATURE OF RELEASE

Type of Release: Natural Gas Liquids	Volume of Release **Unknown**	Volume Recovered: **None**
Source of Release: Internal Corrosion	Date and Hour of Occurrence: **2/5/2015 @ 10:35 a.m.**	Date and Hour of Discovery: **2/5/2015 @ 11:20 a.m.**
Was Immediate Notice Given? ☐ Yes ☐ No ☒ Not Required	If YES, To Whom? Courtesy Notification – Cory Smith - NMOCD	
By Whom? Thomas Long	Date and	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action: On February 5, 2015, a third party reported a leak on the Madsen Gas Com #1E pipeline. Enterprise Technicians were dispatched and confirmed the leak. The pipeline was isolated, de-pressurized and lock out tag out was applied. Repairs and remediation began on February 5, 2015. As remediation activities progressed, the county road was blocked by the excavation and the excavation was backfilled as a safety precaution. A third party environmental contractor oversaw excavation activities and collected soil and groundwater samples. Groundwater impacts were confirmed and additional remediation will be required.

Describe Area Affected and Cleanup Action: On February 5, 2015, a third party reported a leak on the Madsen Gas Com #1E pipeline. Enterprise Technicians were dispatched and confirmed the leak. The pipeline was isolated, de-pressurized and lock out tag out was applied. Repairs and remediation began on February 5, 2015. As remediation activities progressed, the county road was blocked by the excavation and the excavation was backfilled as a safety precaution. A third party environmental contractor oversaw excavation activities and collected soil and groundwater samples. Groundwater impacts were confirmed and additional remediation will be required. A "Final" C-141 will be submitted upon receipt of the third party environmental contractor corrective action report.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature: Jon Fields	OIL CONSERVATION DIVISION
Printed Name: Jon Fields	Approved by Environmental Specialist:
Title: Director, Environmental	Approval Date: 12/28/15 Expiration Date:
E-mail Address:jefields@eprod.com	Conditions of Approval: Additional Ground water Remediation Required ☐ Attached
Date: 12-16-2015 Phone: (713)381-6684	

* Attach Additional Sheets If Necessary

NCS1507252223

Contact Santa Fe office
Assigned 3RP# 1035

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
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State of New Mexico
Energy Minerals and Natural Resources

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OIL CONS. DIV DIST. 3
SEP 28 2015

Form C-141
Revised August 8, 2011

Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

OPERATOR

☐ Initial Report ☒ Final Report

Name of Company: Enterprise Field Services LLC	Contact: Thomas Long
Address: 614 Reilly Ave, Farmington, NM 87401	Telephone No. 505-599-2286
Facility Name: **Madsen Gas Com #1E**	Facility Type: **Natural Gas Gathering Pipeline**

Surface Owner: **Private**	Mineral Owner: **BLM**	API No.

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
C	**28**	**29N**	**11W**	**1175**		**1408**		**San Juan**

Latitude 36.70080 Longitude -108.00131

NATURE OF RELEASE

Type of Release: Natural Gas and Natural Gas Liquids	Volume of Release **36.57 MCF Gas, 5-7 BBLs Liquids**	Volume Recovered: **None**
Source of Release: Internal Corrosion	Date and Hour of Occurrence: **2/5/2015 @ 10:35 a.m.**	Date and Hour of Discovery: **2/5/2015 @ 11:20 a.m.**
Was Immediate Notice Given? ☐ Yes ☐ No ☒ Not Required	If YES, To Whom? Courtesy Notification – Cory Smith - NMOCD	
By Whom? Thomas Long	Date and	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action: On February 5, 2015, a third party reported a leak on the Madsen Gas Com #1E pipeline. Enterprise Technicians were dispatched and confirmed the leak. The pipeline was isolated, de-pressurized and lock out tag out was applied. Repairs and soil remediation were completed on February 11, 2015. A third party environmental contractor oversaw excavation activities and collected soil and groundwater samples. Groundwater impacts were confirmed and a groundwater investigation was imitated on July 6, 2015.

Describe Area Affected and Cleanup Action: The contaminant mass was removed by mechanical excavation. The final excavations removed approximately 54 cubic yards of hydrocarbon impacted soil. Excavated soil was transported to a New Mexico Oil Conservation approved land farm facility. A groundwater investigation was initiated on July 6, 2015, confirming sample results collected from the excavation. Third party corrective action reports are included with this "Final Soils" C-141.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature:	OIL CONSERVATION DIVISION	
Printed Name: Jon Fields	Approved by Environmental Specialist: No Signature From Operator	
Title: Director, Environmental	Approval Date:	Expiration Date:
E-mail Address:jefields@eprod.com	Conditions of Approval:	Attached ☐
Date: Phone: (713)381-6684		

* Attach Additional Sheets If Necessary

ENTERPRISE PRODUCTS
MASDEN GAS COMM #1E
PIPELINE RELEASE AND SUBSURFACE WATER INVESTIGATION WORK PLAN

Latitude North 36.700959°, Longitude West -108.001644°
NE/NW (Unit K) Section 28, T29N R11W
San Juan County, New Mexico
April 17, 2015

Submitted To:
Enterprise Products
Field Environmental-San Juan Basin
614 Reilly Avenue
Farmington, NM 87401

Submitted By:
Souder, Miller & Associates
401 West Broadway
Farmington, NM 87401
(505) 325-7535

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1.0 Executive Summary

On February 10 and 11, 2015, Souder, Miller & Associates (SMA) responded to oversee the excavation of the hydrocarbon release associated with the Masden Gas Comm #1E pipeline. The release was initially reported on February 4, 2015 and is a result of internal and external corrosion of the four inch natural gas pipeline. The table below summarizes information about the pipeline remediation activities.

TABLE 1: RELEASE INFORMATION					
Name	Masden Gas Comm #1E Pipeline Release				
Location	Latitude/Longitude		Section, Township, Range		
	36.700959°	-108.001644 °	Unit D	Section 28	T 29N, R 11W
Date Reported	February 4, 2015				
Reported to	Tom Long				
Land Owner	Private				
Reported To	NM Oil Conservation Division (NMOCD)				
Diameter of Pipeline	4 inches				
Source of Release	Internal/External Corrosion				
Release Contents	Natural Gas Liquids/Condensate				
Release Volume	Unknown				
Nearest Waterway	Approximately 700 feet north the San Juan River				
Depth to Subsurface water	Subsurface water encountered at approximately 4 feet during excavation				
Nearest Domestic Water Source	No water wells within 200 feet; Three water wells (SJ02180/02188, SJ03415 and SJ02390) are within 1,000 feet of the release site. 96 water wells within a one mile radius.				
NMOCD Ranking	50				
SMA Response Dates	2/10/2015 and 2/11/2015				
Subcontractors	West States Energy Contractors (WSEC)				
Disposal Facility	Envirotech Landfarm				
Yd^3 Contaminated Soil Excavated and Disposed	54 Yd^3 and 20 bbls				

2.0 Introduction

On behalf of Enterprise Products Operating, LLC. (Enterprise), SMA has prepared this report that describes remediation of a hydrocarbon release associated with the Brookhaven A2 well tie pipeline release site. The site is located in the NW ¼ NW ¼ Section 28, T29N, R11W, San Juan County, 36.700959°, -108.001644°, San Juan County, New Mexico on privately owned land. Figure 1 illustrates the location of the site.

3.0 Site Ranking and Land Jurisdiction

The release site is located on privately owned land with an elevation of approximately 5,410 feet above sea level. During excavation subsurface water was encountered at approximately 4 feet

below ground surface (bgs). Figure 1 depicts the site vicinity and Figure 2 depicts the site location.

SMA searched the New Mexico State Engineer's Office online water well database for water wells in the vicinity of the release. No wells were located within 200 feet, three water wells were located within 1,000 feet and 96 wells within a one mile radius of the site. The nearest well (SJ02180/01288) is approximately 880 feet. The physical location of this release is within the jurisdiction of the NMOCD.

This release location has been assigned a NMOCD ranking of 50 which requires a soil remediation standard of 10 parts per million (ppm) benzene, 50 ppm combined benzene, toluene, ethyl-benzene, and total xylenes (BTEX), and 100 ppm total petroleum hydrocarbons (TPH). Table 2 illustrates site ranking rationale.

4.0 Summary of Field Activities

On February 10 and 11, 2015 Souder, Miller & Associates (SMA) responded to a hydrocarbon release associated with the Masden Gas Comm #1E pipeline release. Excavation of the pipeline began on February 10, 2015 for pipeline repairs. SMA field screened the excavation walls and base with a calibrated photoionization detector (PID) equipped with a 10.6 electron volt bulb to determine the extent of the release.

The pipeline trends generally east west then bends 90° to trend north south in the area of the release and the excavation was extended in all directions surrounding the pipeline. Field screening indicated the excavation had exceeded the extent of the hydrocarbon contamination. The final excavation for repairs measured approximately 25 feet long by 21 feet wide, segregated by a City of Bloomfield water line, then an additional 9 feet by 17 feet excavation to the east. Both excavations reached approximately 4.0 feet deep, covering an area of approximately 678 square feet. In addition, four test pits were excavated outside the main excavation; two to the north approximately 8 feet and 15 feet away and two to the south approximately 10 feet and 20 feet away. A sample was collected from the subsurface water entering the excavation at approximately 4 feet bgs. Field screening of soil samples indicated that the walls and base of the excavation and test pits were above 100 parts per million (ppm). Laboratory analysis determined the walls of the main excavation to be below NMOCD standards. The pipeline was temporarily clamped and the excavation was backfilled with clean, imported soils on February 11, 2015 as the excavation spanned County Road 5008. This road is the only residential access available for several households, so the excavation could not be left open.

Soil samples were initially field screened with a calibrated PID to determine the potential extents of the contamination and to guide the excavation activities. Prior to backfilling on February 11, 2015, soil samples were collected in laboratory provided glassware and submitted for confirmation laboratory analysis per United States Environmental Protection Agency Methods: 8021 for benzene, toluene, ethylbenzene and xylenes (BTEX) and 8015 for diesel and gasoline range organics (DRO/GRO). The subsurface water sample from the excavation, noted above, was collected in laboratory provided glassware and submitted for analysis via EPA Method 8260 for BTEX. All samples were analyzed by Hall Environmental Analytical Laboratory in Albuquerque, New Mexico. Please note the subsurface water sample was analyzed via Method 8021 due to Hall's 8021 gas chromatography unit being down for repairs. Figure 3 illustrates

the extent of the excavation, test pit locations and composite soil sample locations and laboratory results.

5.0 Conclusions and Recommendations

New Mexico Water Quality Control Commission's human health groundwater standards are as follows: 10 µg/L benzene, 750 µg/L toluene, 750 µg/L ethylbenzene, and 620 µg/L xylene. Laboratory analytical results for the single subsurface water sample collected from the excavation on February 10, 2015 detected 15,000 µg/L benzene, 71,000 µg/L toluene, 6,300 µg/L ethylbenzene and 63,000 µg/L total xylenes.

NMOCD Guidelines for Remediation of Leaks, Spills and Releases for a site ranking of 50 requires soil remediation standards of 10 ppm benzene, 50 ppm combined BTEX, and 100 ppm TPH. Laboratory analysis of the soil samples collected from the excavation sidewalls were below the NMOCD remediation standards for GRO, benzene and BTEX and below laboratory detection limits for DRO. However, the soil sample collected from the base of the excavation was substantially above the NMOCD remediation standards with concentrations for GRO of 3,500 mg/kg, DRO of 290 mg/kg, benzene of 29 mg/kg, and combined BTEX of 387 mg/kg. All other samples collected from the excavation were below laboratory detection limits.

Soil and subsurface water contaminant concentrations are illustrated in Figure 3. A summary of laboratory analysis is included in Table 3. Laboratory reports are included in Appendix C

SMA recommends further characterization of the subsurface water impacts at the Masden Gas Comm #1E pipeline release site as detailed in the enclosed work plan in section 5.1.

5.1 Subsurface water Investigation Work Plan

SMA has prepared this subsurface water investigation work plan to describe the drilling of subsurface water monitoring wells for a hydrocarbon release associated with the Masden Gas Comm #1E pipeline release site. The wells are intended to complete the subsurface water impact investigation as required by the NMOCD. Once this work plan is approved by NMOCD, Enterprise will schedule the field activities.

Proposed Monitor Well Installations

Proposed Monitoring Well Locations: Drilling access is constricted by County Road 5008 and adjacent properties. Therefore, SMA has determined that the installation of up to five soil borings is necessary in order to better identify the extent of possible subsurface water contamination at the Masden Gas Comm #1E site. It is anticipated that five soil borings will be installed with a minimum of three monitoring wells and a maximum of five monitoring wells to be installed within the soil borings. Likely, one well will be installed in the suspected upgradient direction, one near the source of the release and three in the suspected downgradient direction. A site map depicting the proposed well locations is included as Figure 4.

Well Permits: SMA will obtain monitoring well permits on behalf of Enterprise Products from the OSE. OSE will issue the well permits once land owner access has been granted and documented.

Drilling Approach and Well Completion: Drilling and well installations will be performed by a New Mexico licensed driller with and appropriate sized drilling rig, tentatively a CME 75 or similar. Soil samples will be collected during drilling as continuously as possible using a split-spoon sampler through a hollow stem auger.

The wells will be constructed with 2-inch diameter PVC threaded pipe, specifically manufactured for monitoring well construction. Well screens will be factory slotted with a 0.010 inch slot width. A well completion diagram is included as Figure 5. The wells will be installed to a maximum depth of 10 feet bgs and will be constructed as follows:

Proposed Monitor Well Completion Table

Interval (feet bgs)	2" PVC Well Casing Description	Annulus Completion Description
10-8	2' Sediment Sump (Blank w/cap)	10/20 Coarse Grain Silica Sand
8-3	0.010" Slotted Screen Interval	
3-2	Blank (solid pipe)	Hydrated 3/8" Bentonite Chips
0-1		Bentonite Grout/Cement

The wells will be completed with an aboveground locking steel well shroud cemented into a 2 feet round pad with a minimum thickness of 4-inches. Each well will also be fitted with 3 protective bollards to prevent damage from vehicle collisions, livestock or wildlife. Once approved by all agencies, SMA estimates that the well installation, development and sampling will be completed within 4 full working days.

Well Development and Sampling: Once installed, the monitoring wells will be developed by purging a minimum of three borehole volumes of water and field screening until pH, conductivity and temperature become relatively stable and turbidity is reduced as much as possible. All purge water will be collected and containerized for offsite disposal at an approved facility. Once development is complete, the wells will be left to equilibrate for 24 hours. After purging an additional 3 well volumes, SMA will collect samples for laboratory analysis via EPA Method 8021 for benzene, toluene, ethylbenzene and xylenes (BTEX), as required by NMOCD following New Mexico Water Quality Control Commission (WQCC) standards below:

WQCC/OCD Subsurface water Quality Standards	
Benzene	0.01 mg/l
Toluene	0.75 mg/l
Ethylbenzene	0.75 mg/l
Total Xylenes	0.62 mg/l

It is anticipated that well development and sampling activities will require two days. Transportation of the collected purge water will be conducted by a third party contractor who will pick up the labeled containers from the work site upon receipt of the laboratory results of the water samples.

In the event that subsurface water contaminant concentrations exceed the OCD/WQCC standards, quarterly subsurface water monitoring will be conducted in the same manner every three months or as agreed to by NMOCD.

If subsurface water monitoring does not demonstrate a decline in contaminants of concern over the monitoring period agreed to mutually by Enterprise and NMOCD, additional remediation techniques will be developed and proposed for approval by the OCD and BLM prior to implementation.

Plugging and Abandonment Activities: During the initial sampling event, if subsurface water contaminant concentrations are below the NMOCD/WQCC standards, the wells will be plugged and abandoned. Otherwise, the wells will remain in place until contaminant concentrations are below NMOCD/WQCC standards or until site closure is approved by the NMOCD. In any scenario, the wells will be abandoned in accordance to the approved Plugging and Abandonment Plan submitted to the OSE within the monitoring well permit package.

6.0 Closure and Limitations

The scope of our services consisted of the performance of a preliminary spill assessment, verification of release stabilization, regulatory liaison, oversight and control of remediation operations, project management, and preparation of this summary report. All work has been performed in accordance with generally accepted professional environmental consulting practices.

If there are any questions regarding this report, please contact either Steve Moskal or Reid Allen at 505-325-7535.

Submitted by:

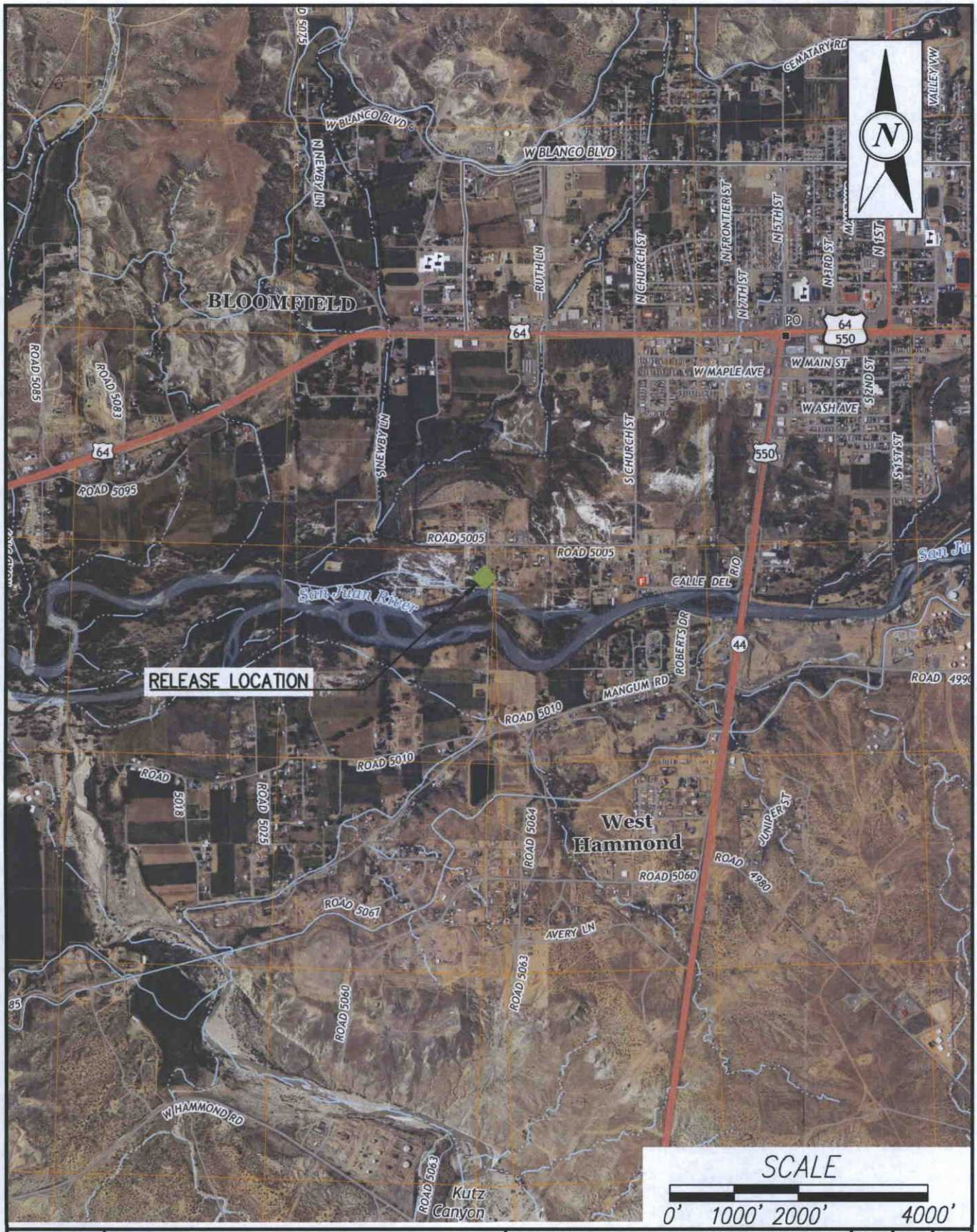
SOUDER, MILLER & ASSOCIATES

Jesse E. Sprague
Staff Scientist

Reviewed by:

Reid S. Allan, P.G.
Principal Scientist

Figures



THIS DRAWING IS INCOMPLETE AND NOT TO BE USED FOR CONSTRUCTION UNLESS IT IS STAMPED, SIGNED AND DATED	SMA Engineering Environmental Surveying SOUDER, MILLER & ASSOCIATES 401 West Broadway Avenue Farmington, NM 87401-5907 Phone (505) 325-7535 Toll-Free (800) 519-0098 Fax (505) 326-0045 www.soudermiller.com Serving the Southwest & Rocky Mountains Albuquerque, Carlsbad, Farmington, Las Cruces, Roswell, Santa Fe, NM - El Paso, TX Cortez - Grand Junction - Montrose, CO - Safford, AZ - Moab, UT	ENTERPRISE FARMINGTON, NEW MEXICO VICINITY MAP MASDEN GAS COMM #1E SECTION 28, T29N, R11W SAN JUAN COUNTY, NEW MEXICO	Designed SM / Drawn DJB / Checked RSA Date: FEBRUARY 16, 2015 Scale: Horiz: 1" = 2000' Vert: NA Project No: 5123699 Sheet: 1	

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Environmental
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SOUDER, MILLER & ASSOCIATES
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ENTERPRISE

FARMINGTON, NEW MEXICO

SITE LOCATION MAP
MASDEN GAS COMM #1E
SECTION 28, T29N, R11W

SAN JUAN COUNTY, NEW MEXICO

Designed	Drawn	Checked
SM	DJB	RSA

Date: FEBRUARY 16, 2015
Scale: Horiz: 1"=40'
Vert: N/A
Project No: 5123699
Sheet: 2

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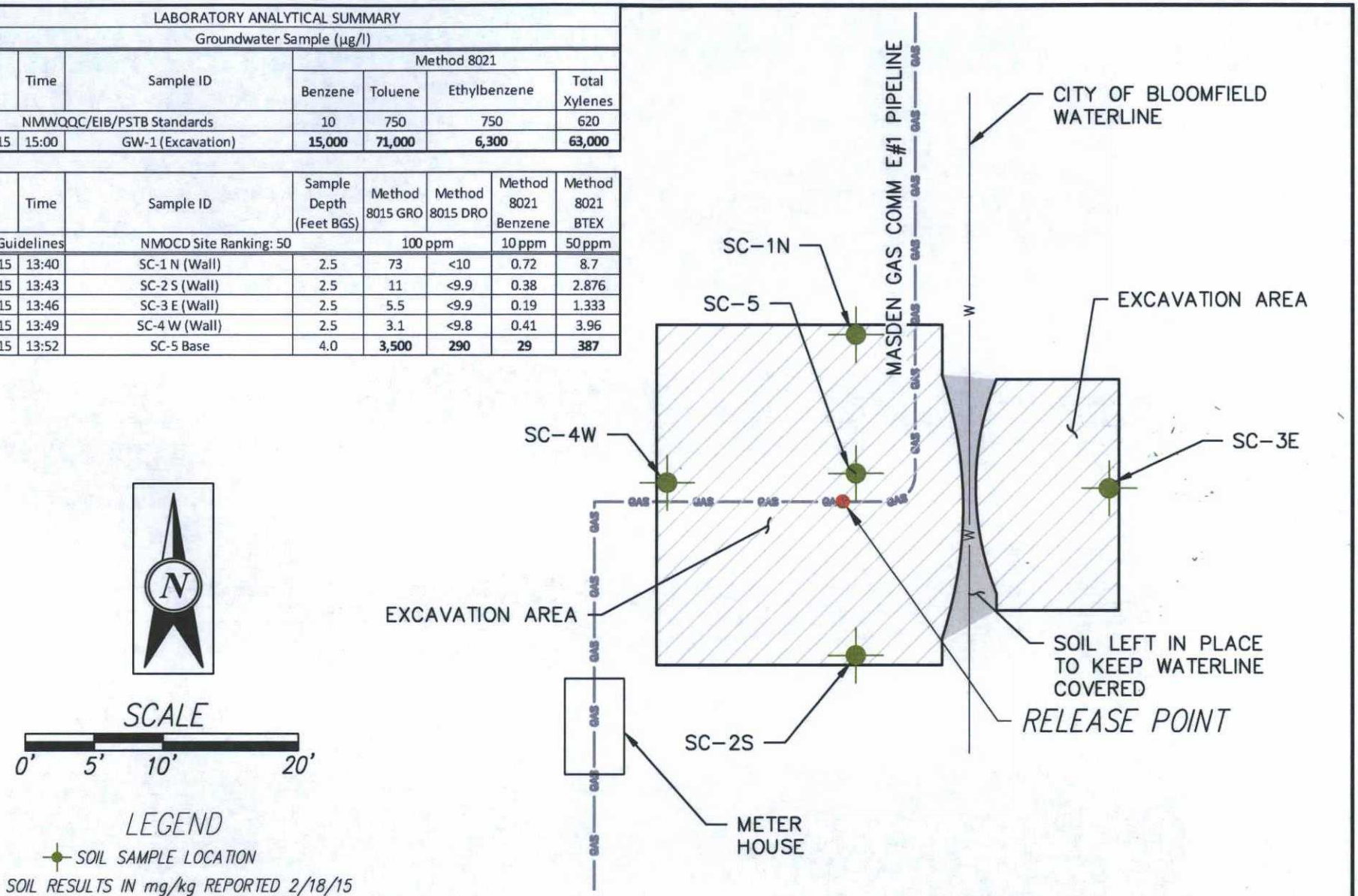
LABORATORY ANALYTICAL SUMMARY						
Groundwater Sample (µg/l)						
Date	Time	Sample ID	Method 8021			
			Benzene	Toluene	Ethylbenzene	Total Xylenes
NMWQQC/EIB/PSTB Standards			10	750	750	620
2/10/2015	15:00	GW-1 (Excavation)	**15,000**	**71,000**	**6,300**	**63,000**

Date	Time	Sample ID	Sample Depth (Feet BGS)	Method 8015 GRO	Method 8015 DRO	Method 8021 Benzene	Method 8021 BTEX
NMOCD Guidelines		NMOCD Site Ranking: 50		100 ppm		10 ppm	50 ppm
2/11/2015	13:40	SC-1 N (Wall)	2.5	73	<10	0.72	8.7
2/11/2015	13:43	SC-2 S (Wall)	2.5	11	<9.9	0.38	2.876
2/11/2015	13:46	SC-3 E (Wall)	2.5	5.5	<9.9	0.19	1.333
2/11/2015	13:49	SC-4 W (Wall)	2.5	3.1	<9.8	0.41	3.96
2/11/2015	13:52	SC-5 Base	4.0	**3,500**	**290**	**29**	**387**



SMA Engineering Environmental Surveying

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ENTERPRISE — FARMINGTON, NEW MEXICO

SOIL CONTAMINANT CONCENTRATION MAP
MASDEN GAS COMM #1E
SECTION 28, T29N, R11W
SAN JUAN COUNTY, NEW MEXICO

Designed	Drawn	Checked
SM	DJB	RSA

Date: FEBRUARY 16, 2015
Scale: Horiz: 1"=10' Vert: N/A
Project No: 5123699
Sheet: 3

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ENTERPRISE

FARMINGTON, NEW MEXICO

PROPOSED MONITORING WELL LOCATION DIAGRAM
MASDEN GAS COMM #1E
SECTION 28, T29N, R11W

SAN JUAN COUNTY, NEW MEXICO

Designed	Drawn	Checked
JES	DJB	RSA

Date: MARCH 3, 2015
Scale: Horiz: 1"=40'
Vert: N/A
Project No: 5123699
Sheet: 4

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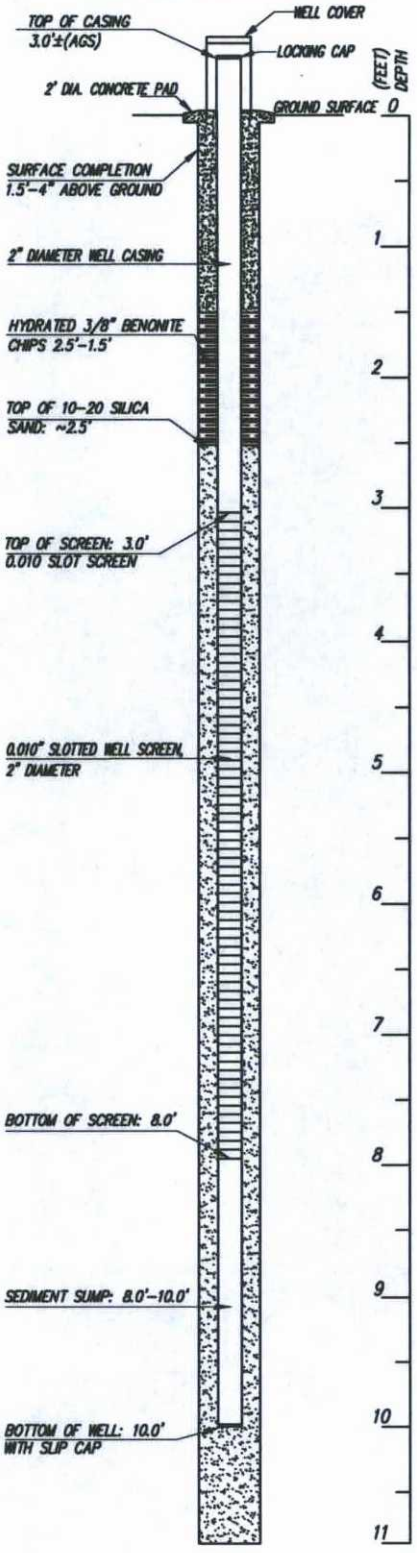
PROPOSED WELL COMPLETION DIAGRAM



DRILLER: T.B.D.
DATE COMPLETED: N/A
BOREHOLE DIAMETER: 6–8" O.D.
DRILLING METHOD: HOLLOW STEM AUGER
TOTAL BORING DEPTH: ~10.5 FT.
LOGGED BY: T.B.D.

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ENTERPRISE FARMINGTON, NEW MEXICO

PROPOSED MONITORING WELL
COMPLETION DIAGRAM
MASDEN GAS COMM #1E

SAN JUAN COUNTY

Designed	Drawn	Checked
SJM	SJM	RSA

Date: 2/20/2015
Scale: Horiz: NA Vert: NA
Project No: 5123699
Sheet: 5

P:\5-Enterprise MSA (2015) 5123699\Release Response\BG9 - Masden Gas Comm #1E\CAD\Madsen GC #1E Proposed Well Completion Diagram.dwg, ADP, 4/17/2015 1:28 PM

Tables

Enterprise Products
Table 2: Site Ranking

Masden Gas Comm #1E
Pipeline Release
4/17/2015

Depth to Groundwater	NMOCD Numeric Rank for this Site	Source for Ranking	Notes
< 50 BGS = 20	20	Field verified during excavation.	Approximately 4 feet to subsurface water, reached during excavation.
50' to 99' = 10			
>100' = 0			
Ranking Criteria for Horizontal Distance to Nearest Surface Water	**NMOCD Numeric Rank for this Site**	**Source for Ranking**	**Notes**
< 200' = 20		Verified using Topographic Maps and Google Earth; Field Verified	Approximately 700' north of the San Juan River
200' - 1000' = 10	10		
>1000' = 0			
Ranking Criteria for Horizintal Distance to a Water Well or Water Source	**NMOCD Numeric Rank for this Site**	**Source for Ranking**	**Notes**
<1000' from a water source? <200' from a private domestic water source? YES OR NO to BOTH. YES = 20, NO = 0	20	Accessed NMOSE Water Rights Reporting System	No water wells located within 200 feet of release site. Three water wells within 1,000 feet of release site. 96 water wells located within a one mile radius.
Total Site Ranking	**50**		
Soil Remedation Standards	0 to 9	10 to 19	**>19**
Benzene	10 PPM	10 PPM	**10 PPM**
BTEX	50 PPM	50 PPM	**50 PPM**
TPH	5000 PPM	1000 PPM	**100 PPM**

Enterprise Products
Table 3: Summary of Laboratory Analysis
Results in mg/Kg

Masden Gas Com #1E
Pipeline Release
4/17/2015

Date	Time	Sample ID	Sample Depth (Feet BGS)	Method 8015 GRO	Method 8015 DRO	Method 8021 Benzene	Method 8021 BTEX
NMOCD Guidelines		NMOCD Site Ranking: 50		100 ppm		10 ppm	50 ppm
2/11/2015	13:40	SC-1 N (Wall)	2.5	73	<10	0.72	8.7
2/11/2015	13:43	SC-2 S (Wall)	2.5	11	<9.9	0.38	2.876
2/11/2015	13:46	SC-3 E (Wall)	2.5	5.5	<9.9	0.19	1.333
2/11/2015	13:49	SC-4 W (Wall)	2.5	3.1	<9.8	0.41	3.96
2/11/2015	13:52	SC-5 Base	4.0	**3,500**	**290**	**29**	**387**

LABORATORY ANALYTICAL SUMMARY						
Groundwater Sample (µg/l)						
Date	Time	Sample ID	Method 8021			
			Benzene	Toluene	Ethylbenzene	Total Xylenes
NMWQQC/EIB/PSTB Standards			10	750	750	620
2/10/2015	15:00	GW-1 (Excavation)	**15,000**	**71,000**	**6,300**	**63,000**

Appendix A
Photographic Documentation

Site Photographs
Enterprise Products Masden Gas Comm #1E

Photo 1: Excavation commenced on February 10, 2015, using a rubber tire backhoe operated by West States Energy Contractors

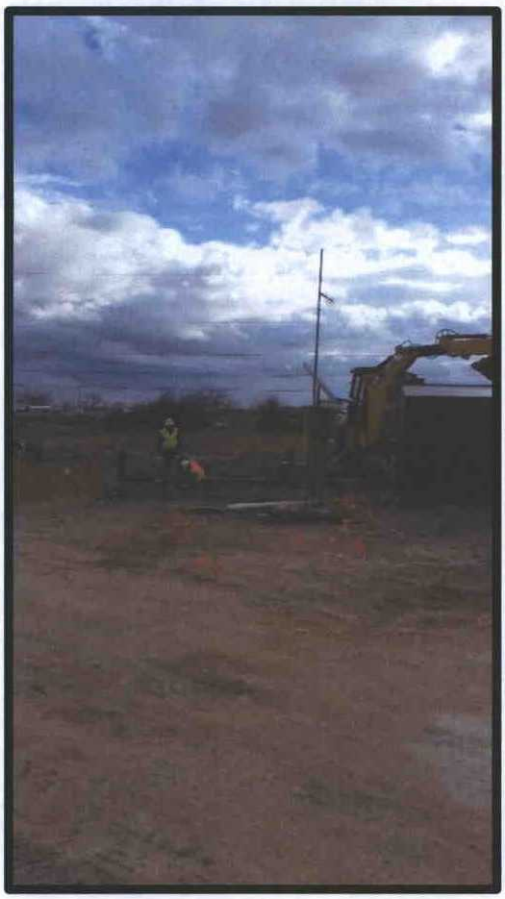


Photo 2: Excavation in progress on the east side of the meter house. Photo taken from well pad to the west of the release site.

Site Photographs
Enterprise Products Masden Gas Comm #1E

Photo 3: Contaminated soil was placed directly into dump truck for proper disposal.

Photo 4: 90 degree bend in pipeline heading north down County Road 5008 visible in right side of photo, view is to north. Also visible is the encountered subsurface water.

Site Photographs
Enterprise Products Masden Gas Comm #1E

Photo 5: City of Bloomfield waterline, running north parallel to pipeline, marked with yellow flagging. Excavating on the east side of waterline to determine extent of contamination.

Photo 6: City of Bloomfield waterline remained buried during excavation activities.

Appendix B
Soil Disposal Documentation

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
20 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

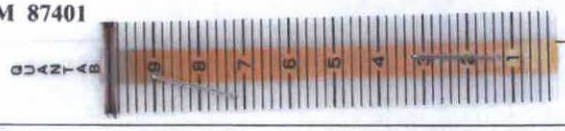
Form C-138
Revised 08/01/11

*Surface Waste Management Facility Operator and Generator shall maintain and make this documentation available for Division inspection.

REQUEST FOR APPROVAL TO ACCEPT SOLID WASTE

1. Generator Name and Address:
Enterprise Field Services, LLC, 614 Reilly Ave, Farmington NM 87401

2. Originating Site:
Madsen Gas Com 1E



3. Location of Material (Street Address, City, State or ULSTR):
NW ¼ Section 28, T29N, R11W; 36.70080, -108.00131

4. Source and Description of Waste:
Source: Contaminated soil associated with a natural gas pipeline release.
Description: Soil impacted with Natural Gas Liquids (Condensate and Water)
Estimated Volume 5 yd³ / bbls Known Volume (to be entered by the operator at the end of the haul) 5 yd / bbls

2/4/15 - 54cy
2/4/15 - 20bbls 5cy

5. GENERATOR CERTIFICATION STATEMENT OF WASTE STATUS

I, Thomas Long, representative or authorized agent for Enterprise Products Operating do hereby
Generator Signature
certify that according to the Resource Conservation and Recovery Act (RCRA) and the US Environmental Protection Agency's July 1988 regulatory determination, the above described waste is: (Check the appropriate classification)

☒ RCRA Exempt: Oil field wastes generated from oil and gas exploration and production operations and are not mixed with non-exempt waste. ***Operator Use Only: Waste Acceptance Frequency*** ☐ ***Monthly*** ☐ ***Weekly*** ☐ ***Per Load***

☐ RCRA Non-Exempt: Oil field waste which is non-hazardous that does not exceed the minimum standards for waste hazardous by characteristics established in RCRA regulations, 40 CFR 261.21-261.24, or listed hazardous waste as defined in 40 CFR, part 261, subpart D, as amended. The following documentation is attached to demonstrate the above-described waste is non-hazardous. (Check the appropriate items)

☐ MSDS Information ☐ RCRA Hazardous Waste Analysis ☒ Process Knowledge ☐ Other (Provide description in Box 4)

GENERATOR 19.15.36.15 WASTE TESTING CERTIFICATION STATEMENT FOR LANDFARMS

I, Thomas Long 2-5-15, representative for Enterprise Products Operating authorize to complete
Generator Signature
the required testing/sign the Generator Waste Testing Certification.

I, M. Marquez representative for IEI, Inc. do hereby certify that representative samples of the oil field waste have been subjected to the paint filter test and tested for chloride content and that the samples have been found to conform to the specific requirements applicable to landfarms pursuant to Section 15 of 19.15.36 NMAC. The results of the representative samples are attached to demonstrate the above-described waste conform to the requirements of Section 15 of 19.15.36 NMAC.

5. Transporter: West States Energy Contractors

OCD Permitted Surface Waste Management Facility

Name and Facility Permit #: JFJ Landfarm/Industrial Ecosystems, Inc. * **Permit #: NM 01-0010B**

Address of Facility: **#49 CR 2150 Aztec, New Mexico**

Cl = 144
PH = 9.0

Method of Treatment and/or Disposal:
☐ Evaporation ☐ Injection ☐ Treating Plant ☒ Landfarm ☐ Landfill ☐ Other

Waste Acceptance Status:

☒ **APPROVED** ☐ **DENIED** (Must Be Maintained As Permanent Record)

PRINT NAME: M. Marquez TITLE: Land Farm Administrator DATE: 2/5/15
SIGNATURE: M Marquez TELEPHONE NO.: 505-632-1782
Surface Waste Management Facility Authorized Agent

2/5/15

Appendix C
Laboratory Analytical Reports

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

February 13, 2015

Steve Moskal
Souder, Miller and Associates
401 W. Broadway
Farmington, NM 87401
TEL: (505) 325-5667
FAX

RE: Madsen GC #1E

OrderNo.: 1502459

Dear Steve Moskal:

Hall Environmental Analysis Laboratory received 1 sample(s) on 2/11/2015 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. In order to properly interpret your results it is imperative that you review this report in its entirety. 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. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. 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.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1502459**
Date Reported: **2/13/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller and Associates
Project: Madsen GC #1E
Lab ID: 1502459-001 **Matrix:** AQUEOUS

Client Sample ID: GW-1
Collection Date: 2/10/2015 3:00:00 PM
Received Date: 2/11/2015 8:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: **KJH**	
Benzene	15000	1000		µg/L	1E	2/11/2015 12:52:35 PM	R24238
Toluene	71000	1000		µg/L	1E	2/11/2015 12:52:35 PM	R24238
Ethylbenzene	6300	1000		µg/L	1E	2/11/2015 12:52:35 PM	R24238
Xylenes, Total	63000	1500		µg/L	1E	2/11/2015 12:52:35 PM	R24238
Surr: 1,2-Dichloroethane-d4	76.3	70-130		%REC	1E	2/11/2015 12:52:35 PM	R24238
Surr: 4-Bromofluorobenzene	97.4	70-130		%REC	1E	2/11/2015 12:52:35 PM	R24238
Surr: Dibromofluoromethane	98.9	70-130		%REC	1E	2/11/2015 12:52:35 PM	R24238
Surr: Toluene-d8	96.0	70-130		%REC	1E	2/11/2015 12:52:35 PM	R24238

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

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
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
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#: **1502459**

13-Feb-15

Client: Souder, Miller and Associates
Project: Madsen GC #1E

Sample ID **5mL-rb**	SampType: **MBLK**	TestCode: **EPA Method 8260: Volatiles Short List**
Client ID: **PBW**	Batch ID: **R24238**	RunNo: **24238**
Prep Date:	Analysis Date: **2/11/2015**	SeqNo: **714516** 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	1.5								
Surr: 1,2-Dichloroethane-d4	8.4		10.00		83.9	70	130			
Surr: 4-Bromofluorobenzene	9.6		10.00		96.3	70	130			
Surr: Dibromofluoromethane	8.4		10.00		83.7	70	130			
Surr: Toluene-d8	9.8		10.00		97.5	70	130			

Sample ID **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260: Volatiles Short List**
Client ID: **LCSW**	Batch ID: **R24238**	RunNo: **24238**
Prep Date:	Analysis Date: **2/11/2015**	SeqNo: **714517** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	22	1.0	20.00	0	112	70	130			
Toluene	19	1.0	20.00	0	96.8	70	130			
Surr: 1,2-Dichloroethane-d4	9.2		10.00		91.9	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		103	70	130			
Surr: Dibromofluoromethane	9.7		10.00		97.3	70	130			
Surr: Toluene-d8	8.8		10.00		88.1	70	130			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery 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
- P Sample pH Not In Range
- 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: SMA-FARM | Work Order Number: 1502459 | RcptNo: 1

Received by/date: AG 02/11/15

Logged By: **Ashley Gallegos** 2/11/2015 8:30:00 AM AG

Completed By: **Ashley Gallegos** 2/11/2015 8:38:44 AM AG

Reviewed By: 02/11/15

Chain of Custody

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

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☑	No ☐	No VOA Vials ☐
11. Were any sample containers received broken? One vial arrived with a septa pulled in and was empty. -CS 02/11/15	Yes ☑	No ☑	# of preserved bottles checked for pH: (<2 or >12 unless noted)
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted?
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by:

Special Handling (if applicable)

16. 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: _____

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Yes			

Chain-of-Custody Record

Client: SMA

Mailing Address: 401 W Broadway
Farmington NM 87401

Phone #: 505 325 7535

email or Fax#: Steven.moskal@Soudermiller.com

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

Accreditation
☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:
☐ Standard ☑ Rush Same Day

Project Name: Madsen GC # 1E

Project #: 5123699

Project Manager: Steven Moskal

Sampler: J. Sprague

On Ice: ☒ Yes ☐ No

Sample Temperature: 1.0

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1502459	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles (Y or N)
2/10	1500	H_2O	GW-1	3 40 ml	HgCl	-001	X															

Analysis Request

Date:	Time:	Relinquished by:	Received by:	Date	Time
2/10/15	1657		Mustafa Walter	2/10/15	1657
Date:	Time:	Relinquished by:	Received by:	Date	Time
2/10/15	1744	Mustafa Walter	AMGallegos	02/11/15	0830

Remarks: Bill to Enterprise

Pls copy
Jesse.sprague@soudermiller.com
Alicia.patterson@Soudermiller.com

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.

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

February 17, 2015

Steve Moskal
Souder, Miller and Associates
401 W. Broadway
Farmington, NM 87401
TEL: (505) 325-5667
FAX

RE: Madsan Gas Com #1E OrderNo.: 1502551

Dear Steve Moskal:

Hall Environmental Analysis Laboratory received 5 sample(s) on 2/12/2015 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. In order to properly interpret your results it is imperative that you review this report in its entirety. 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. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. 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.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1502551**
Date Reported: **2/17/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller and Associates
Client Sample ID: SC-1 N
Project: Madsan Gas Com #1E
Collection Date: 2/11/2015 1:40:00 PM
Lab ID: 1502551-001
Matrix: MEOH (SOIL)
Received Date: 2/12/2015 7:28:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **JME**	
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	2/16/2015 9:23:14 AM	17734
Surr: DNOP	97.3	63.5-128		%REC	1	2/16/2015 9:23:14 AM	17734
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	73	15		mg/Kg	5	2/16/2015 9:49:08 PM	R24333
Surr: BFB	110	80-120		%REC	5	2/16/2015 9:49:08 PM	R24333
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	0.72	0.15		mg/Kg	5	2/16/2015 9:49:08 PM	R24333
Toluene	4.0	0.15		mg/Kg	5	2/16/2015 9:49:08 PM	R24333
Ethylbenzene	0.38	0.15		mg/Kg	5	2/16/2015 9:49:08 PM	R24333
Xylenes, Total	3.6	0.30		mg/Kg	5	2/16/2015 9:49:08 PM	R24333
Surr: 4-Bromofluorobenzene	106	80-120		%REC	5	2/16/2015 9:49:08 PM	R24333

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

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
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller and Associates
Project: Madsan Gas Com #1E
Lab ID: 1502551-002

Client Sample ID: SC-2 S
Collection Date: 2/11/2015 1:43:00 PM
Matrix: MEOH (SOIL) **Received Date:** 2/12/2015 7:28:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **JME**	
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	2/16/2015 10:27:50 AM	17734
Surr: DNOP	102	63.5-128		%REC	1	2/16/2015 10:27:50 AM	17734
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	11	2.7		mg/Kg	1	2/14/2015 6:14:52 AM	17714
Surr: BFB	101	80-120		%REC	1	2/14/2015 6:14:52 AM	17714
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	0.38	0.027		mg/Kg	1	2/14/2015 6:14:52 AM	17714
Toluene	1.4	0.027		mg/Kg	1	2/14/2015 6:14:52 AM	17714
Ethylbenzene	0.096	0.027		mg/Kg	1	2/14/2015 6:14:52 AM	17714
Xylenes, Total	1.0	0.054		mg/Kg	1	2/14/2015 6:14:52 AM	17714
Surr: 4-Bromofluorobenzene	104	80-120		%REC	1	2/14/2015 6:14:52 AM	17714

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

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
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller and Associates
Client Sample ID: SC-3 E
Project: Madsan Gas Com #1E
Collection Date: 2/11/2015 1:46:00 PM
Lab ID: 1502551-003
Matrix: MEOH (SOIL)
Received Date: 2/12/2015 7:28:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **JME**	
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	2/16/2015 10:49:15 AM	17734
Surr: DNOP	101	63.5-128		%REC	1	2/16/2015 10:49:15 AM	17734
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	5.5	2.4		mg/Kg	1	2/16/2015 11:17:11 AM	R24333
Surr: BFB	96.5	80-120		%REC	1	2/16/2015 11:17:11 AM	R24333
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	0.19	0.024		mg/Kg	1	2/16/2015 11:17:11 AM	R24333
Toluene	0.67	0.024		mg/Kg	1	2/16/2015 11:17:11 AM	R24333
Ethylbenzene	0.043	0.024		mg/Kg	1	2/16/2015 11:17:11 AM	R24333
Xylenes, Total	0.43	0.048		mg/Kg	1	2/16/2015 11:17:11 AM	R24333
Surr: 4-Bromofluorobenzene	102	80-120		%REC	1	2/16/2015 11:17:11 AM	R24333

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

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
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller and Associates
Project: Madsan Gas Com #1E
Lab ID: 1502551-004
Matrix: MEOH (SOIL)
Client Sample ID: SC-4 W
Collection Date: 2/11/2015 1:49:00 PM
Received Date: 2/12/2015 7:28:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **JME**	
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	2/16/2015 11:10:40 AM	17734
Surr: DNOP	101	63.5-128		%REC	1	2/16/2015 11:10:40 AM	17734
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	14	3.1		mg/Kg	1	2/16/2015 11:45:56 AM	R24333
Surr: BFB	106	80-120		%REC	1	2/16/2015 11:45:56 AM	R24333
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	0.41	0.031		mg/Kg	1	2/16/2015 11:45:56 AM	R24333
Toluene	1.8	0.031		mg/Kg	1	2/16/2015 11:45:56 AM	R24333
Ethylbenzene	0.15	0.031		mg/Kg	1	2/16/2015 11:45:56 AM	R24333
Xylenes, Total	1.6	0.062		mg/Kg	1	2/16/2015 11:45:56 AM	R24333
Surr: 4-Bromofluorobenzene	107	80-120		%REC	1	2/16/2015 11:45:56 AM	R24333

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

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
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller and Associates
Project: Madsan Gas Com #1E
Lab ID: 1502551-005 **Matrix:** MEOH (SOIL)

Client Sample ID: SC-5 Base
Collection Date: 2/11/2015 1:52:00 PM
Received Date: 2/12/2015 7:28:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **JME**	
Diesel Range Organics (DRO)	290	9.9		mg/Kg	1	2/16/2015 11:32:00 AM	17734
Surr: DNOP	107	63.5-128		%REC	1	2/16/2015 11:32:00 AM	17734
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	3500	300		mg/Kg	100	2/14/2015 6:43:30 AM	17714
Surr: BFB	116	80-120		%REC	100	2/14/2015 6:43:30 AM	17714
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	29	3.0		mg/Kg	100	2/14/2015 6:43:30 AM	17714
Toluene	180	3.0		mg/Kg	100	2/14/2015 6:43:30 AM	17714
Ethylbenzene	18	3.0		mg/Kg	100	2/14/2015 6:43:30 AM	17714
Xylenes, Total	160	6.1		mg/Kg	100	2/14/2015 6:43:30 AM	17714
Surr: 4-Bromofluorobenzene	108	80-120		%REC	100	2/14/2015 6:43:30 AM	17714

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

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
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
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#: **1502551**

17-Feb-15

Client: Souder, Miller and Associates
Project: Madsan Gas Com #1E

Sample ID **MB-17734**	SampType: **MBLK**			TestCode: **EPA Method 8015D: Diesel Range Organics**					
Client ID: **PBS**	Batch ID: **17734**			RunNo: **24311**					
Prep Date: **2/13/2015**	Analysis Date: **2/16/2015**			SeqNo: **716555**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Surr: DNOP	9.1		10.00		90.5	63.5	128			

Sample ID **LCS-17734**	SampType: **LCS**			TestCode: **EPA Method 8015D: Diesel Range Organics**					
Client ID: **LCSS**	Batch ID: **17734**			RunNo: **24311**					
Prep Date: **2/13/2015**	Analysis Date: **2/16/2015**			SeqNo: **716633**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	50	10	50.00	0	99.5	67.8	130			
Surr: DNOP	4.7		5.000		93.8	63.5	128			

Sample ID **1502551-001AMS**	SampType: **MS**			TestCode: **EPA Method 8015D: Diesel Range Organics**					
Client ID: **SC-1 N**	Batch ID: **17734**			RunNo: **24311**					
Prep Date: **2/13/2015**	Analysis Date: **2/16/2015**			SeqNo: **716664**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	55	10	50.45	0	108	29.2	176			
Surr: DNOP	5.3		5.045		105	63.5	128			

Sample ID **1502551-001AMSD**	SampType: **MSD**			TestCode: **EPA Method 8015D: Diesel Range Organics**					
Client ID: **SC-1 N**	Batch ID: **17734**			RunNo: **24311**					
Prep Date: **2/13/2015**	Analysis Date: **2/16/2015**			SeqNo: **716665**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	51	10	49.80	0	103	29.2	176	6.07	23	
Surr: DNOP	5.3		4.980		106	63.5	128	0	0	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery 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
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1502551**

17-Feb-15

Client: Souder, Miller and Associates
Project: Madsan Gas Com #1E

Sample ID **MB-17714**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **17714**	RunNo: **24310**
Prep Date: **2/12/2015**	Analysis Date: **2/13/2015**	SeqNo: **716430** 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	890		1000		88.8	80	120			

Sample ID **LCS-17714**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **17714**	RunNo: **24310**
Prep Date: **2/12/2015**	Analysis Date: **2/13/2015**	SeqNo: **716432** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	27	5.0	25.00	0	108	64	130			
Surr: BFB	950		1000		95.4	80	120			

Sample ID **5ML RB**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **R24333**	RunNo: **24333**
Prep Date:	Analysis Date: **2/16/2015**	SeqNo: **717063** 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	910		1000		91.5	80	120			

Sample ID **2.5UG GRO LCS**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **R24333**	RunNo: **24333**
Prep Date:	Analysis Date: **2/16/2015**	SeqNo: **717064** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	25.00	0	98.4	64	130			
Surr: BFB	970		1000		97.4	80	120			

Sample ID **1502551-003AMS**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **SC-3 E**	Batch ID: **R24333**	RunNo: **24333**
Prep Date:	Analysis Date: **2/16/2015**	SeqNo: **717066** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	15	2.4	11.89	5.463	80.8	47.9	144			
Surr: BFB	490		475.5		104	80	120			

Sample ID **1502551-003AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **SC-3 E**	Batch ID: **R24333**	RunNo: **24333**
Prep Date:	Analysis Date: **2/16/2015**	SeqNo: **717067** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery 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
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1502551**

17-Feb-15

Client: Souder, Miller and Associates

Project: Madsan Gas Com #1E

Sample ID **1502551-003AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **SC-3 E**	Batch ID: **R24333**	RunNo: **24333**
Prep Date:	Analysis Date: **2/16/2015**	SeqNo: **717067** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	18	2.4	11.89	5.463	105	47.9	144	17.3	29.9	
Surr: BFB	500		475.5		106	80	120	0	0	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery 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
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1502551**

17-Feb-15

Client: Souder, Miller and Associates

Project: Madsan Gas Com #1E

Sample ID **MB-17714**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **17714**	RunNo: **24310**
Prep Date: **2/12/2015**	Analysis Date: **2/13/2015**	SeqNo: **716465** 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	0.96		1.000		95.6	80	120			

Sample ID **LCS-17714**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **17714**	RunNo: **24310**
Prep Date: **2/12/2015**	Analysis Date: **2/13/2015**	SeqNo: **716466** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.050	1.000	0	107	80	120			
Toluene	1.1	0.050	1.000	0	106	80	120			
Ethylbenzene	1.1	0.050	1.000	0	107	80	120			
Xylenes, Total	3.2	0.10	3.000	0	106	80	120			
Surr: 4-Bromofluorobenzene	1.0		1.000		101	80	120			

Sample ID **5ML RB**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **R24333**	RunNo: **24333**
Prep Date:	Analysis Date: **2/16/2015**	SeqNo: **717124** 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	0.99		1.000		99.2	80	120			

Sample ID **100NG BTEX LCS**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **R24333**	RunNo: **24333**
Prep Date:	Analysis Date: **2/16/2015**	SeqNo: **717133** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.050	1.000	0	106	80	120			
Toluene	1.1	0.050	1.000	0	109	80	120			
Ethylbenzene	1.1	0.050	1.000	0	105	80	120			
Xylenes, Total	3.1	0.10	3.000	0	104	80	120			
Surr: 4-Bromofluorobenzene	1.0		1.000		104	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery 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
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1502551**

17-Feb-15

Client: Souder, Miller and Associates

Project: Madsan Gas Com #1E

Sample ID **1502551-004AMS**	SampType: **MS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **SC-4 W**	Batch ID: **R24333**	RunNo: **24333**
Prep Date:	Analysis Date: **2/16/2015**	SeqNo: **717138** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.031	0.6223	0.4135	118	69.2	126			
Toluene	2.5	0.031	0.6223	1.801	120	65.6	128			
Ethylbenzene	0.84	0.031	0.6223	0.1457	111	65.5	138			
Xylenes, Total	3.7	0.062	1.867	1.606	111	63	139			
Surr: 4-Bromofluorobenzene	0.69		0.6223		111	80	120			

Sample ID **1502551-004AMSD**	SampType: **MSD**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **SC-4 W**	Batch ID: **R24333**	RunNo: **24333**
Prep Date:	Analysis Date: **2/16/2015**	SeqNo: **717139** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.3	0.031	0.6223	0.4135	137	69.2	126	9.87	18.5	S
Toluene	2.8	0.031	0.6223	1.801	156	65.6	128	8.26	20.6	S
Ethylbenzene	0.96	0.031	0.6223	0.1457	130	65.5	138	13.2	20.1	
Xylenes, Total	4.1	0.062	1.867	1.606	133	63	139	10.7	21.1	
Surr: 4-Bromofluorobenzene	0.69		0.6223		111	80	120	0	0	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery 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
- P Sample pH Not In Range
- 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: SMA-FARM | Work Order Number: 1502551 | RcptNo: 1

Received by/date: JM 02/12/15

Logged By: **Ashley Gallegos** 2/12/2015 7:28:00 AM AG

Completed By: **Ashley Gallegos** 2/12/2015 11:43:48 AM AG

Reviewed By: CS 02/12/15

Chain of Custody

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

Log In

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

Special Handling (if applicable)

16. 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: _____

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.1	Good	Yes			

Chain-of-Custody Record

Client: SMA

Mailing Address: 401 W Broadway
Farmington, NM, 87401

Phone #: 505 325 7535

email or Fax#: Steven.Moskal@soudmiller.com

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

Accreditation
☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time: 02/12/15 PER JESSE SPRAGUE
☒ Standard ☐ Rush Same Day

Project Name: Madsen Gas Com # 1E

Project #: 5123699

Project Manager: Steve Moskal

Sampler:

On Ice: ☒ Yes ☐ No

Sample Temperature: 2.1

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. 1502551	~~(BTEX + MTBE + TMB's~~ (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (~~GRO~~ / DRO / ~~MRO~~)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles (Y or N)
2-11	1340	Soil	SC-1 N	4oz MeOH Kit	— MeOH	-001	X		X													
	1343		SC-2 S			-002	X		X													
	1346		SC-3 E			-003	X		X													
	1349		SC-4 W			-004	X		X													
	1352		SC-5 Base			-005	X		X													

Date:	Time:	Relinquished by:	Received by:	Date	Time
2/11/15	1657		Christine Walker	2/11/15	1657
2/11/15	1744	Christine Walker		02/12/15	0720

Remarks: Bill Enterprise

Please copy
Alicia.pattison@soudmiller.com
Jesse.sprague@soudmiller.com

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.

GROUNDWATER INVESTIGATION REPORT
MASDEN GAS COM #1E NATURAL GAS PIPELINE RELEASE

Latitude North 36.700959°, Longitude West -108.001644°
NE/NW (Unit K) Section 28, T29N R11W
San Juan County, New Mexico
August 25, 2015

Submitted To:
Enterprise Products
Field Environmental-San Juan Basin
614 Reilly Avenue
Farmington, NM 87401

Submitted By:
Souder, Miller & Associates
401 West Broadway
Farmington, NM 87401
(505) 325-7535

Enterprise Products

SMA

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1.0 Executive Summary

On behalf of Enterprise Products Operating, LLC. (Enterprise), SMA has prepared this groundwater investigation report to describe the installation and sampling of groundwater monitoring wells for a hydrocarbon release associated with the 6-inch Masden Gas Com #1E pipeline release excavation site. The well installation and sampling is intended to complete the groundwater impact investigation requested by the New Mexico Oil Conservation Division (OCD). This investigation was completed in accordance with Enterprise Products Operating LLC General Release Notification, Response, and Remediation Plan dated March 9, 2015. The excavation and backfill soil remediation activities were completed on April 17, 2015.

2.0 Introduction

The Masden Gas Com #1E release was reported to SMA on February 4, 2015, and was the result of internal and external pipeline corrosion. An unknown amount of natural gas and pipeline liquids were released. The Masden Gas Com #1E pipeline release is located in (NE ¼ / NE ¼) Unit K, Section 28, Township 29 North, Range 11 West, 36.700959°, -108.001644°, San Juan County, New Mexico. Figure 1, Vicinity Map, illustrates the general location of the release.

New Mexico Oil Conservation Division Site Ranking

The release site is located on privately owned land at an elevation of approximately 5,410 feet above sea level. During excavation activities subsurface water was encountered at approximately 3.5 feet below ground surface (bgs). Figure 1 depicts the site vicinity and Figure 2 depicts the site location.

SMA searched the New Mexico Office of the State Engineer's (OSE) online water well database for water wells in the vicinity of the release. No wells were located within 200 feet, three water wells were located within 1,000 feet and 96 wells within a one mile radius of the site. The nearest well (SJ02180/01288) is approximately 880 feet. The physical location of this release is within the jurisdiction of the NMOCD.

This release location has been assigned a NMOCD ranking of 50 which requires a soil remediation standard of 10 parts per million (ppm) benzene, 50 ppm combined benzene, toluene, ethyl-benzene, and total xylenes (BTEX), and 100 ppm total petroleum hydrocarbons (TPH). Table 2 illustrates site ranking rationale.

3.0 Summary of Field Activities

On February 4, 2015, Enterprise reported a leak on the Masden Gas Com #1E Pipeline to SMA. On February 10, 2015, SMA began oversight of the excavation. During the excavation, soil samples were collected for field screening to determine the extent of the release. Under the supervision and direction of SMA, West States Energy Contractors

(WSEC) excavated and transported the hydrocarbon impacted soil for offsite disposal. The contaminated soil was transported to IEI Landfarm near Flora Vista, NM. Soil and purge water disposal documentation is included in Appendix B.

SMA guided the excavation with field screening and visual observation. Field screening was conducted using a properly calibrated photoionization detector (PID). Composite soil samples were collected from the sidewalls and base of the excavation, and one grab sample was collected from the water accumulating in the excavation. The sidewall samples were all below NMOCD soil remediation standards, however the base soil sample and the water sample indicated contamination above standards. Saturated soils were encountered at approximately 3.5 feet bgs, indicating that hydrocarbon contamination was in contact with the subsurface water. During the excavation activities it was determined that contaminated soil was in contact with a city waterline on the east side of the excavation. Soils in contact with the waterline were left in place at the Enterprise representative's discretion to prevent the possibility of damaging the waterline during excavation.

Monitoring Well Installations

In order to determine groundwater impacts, OCD requested that Enterprise Products complete a groundwater investigation.

Monitoring Well Locations: SMA determined that the installation of five monitoring wells was necessary in order to establish a groundwater gradient and to better identify the extent of possible groundwater contamination at the Masden Gas Com #1E site. A hydro excavator was used to advance all 5 soil borings to 5 feet bgs to ensure clearance of all underground utilities and infrastructure. Hydro excavation of the 6" PVC waterline in the vicinity of the release was completed to remove the remaining contaminated soils in contact with the waterline. Soil and water removed during hydro excavation was recovered in the hydro excavation truck. The material was transported and disposed of at the Industrial Ecosystems Incorporated (IEI) landfarm on Crouch Mesa. A site map depicting the well locations is included as Figure 2.

Well Permits: SMA obtained monitoring well permits on behalf of Enterprise Products from the OSE. OSE issued the well permits on June 29, 2015. Copies of the permits are included in Appendix D.

Site Access and Control: The Masden Gas Com #1E site is located in a county road and appropriate traffic controls where used to ensure the safety of all on-site personnel. One monitoring well was located on private property. Enterprise secured a property access agreement prior to drilling activities.

Drilling and Monitoring Well Completions: Beginning on July 6, 2015 through July 7, 2015 Nelson Revegetation LLC (NRE) completed hydro excavation of the waterline and advancement of the boreholes to 5 feet bgs. The water line was trenched to 4 feet bgs, 1.5 feet wide and 30' long in the north south direction along the waterline. The drilling and well installations were performed by Enviro-Drill, Inc. of Albuquerque, NM, utilizing a CME 75 hollow stem auger rig. Soil samples were collected from the sidewalls of the hydro excavated boreholes at about 3 feet bgs, just above the water table in all 5

boreholes. Two composite soil samples were collected from the long walls of the trench, one on the east wall, and one on the west wall.

All five soil borings were advanced to 10 feet bgs. Each of the monitoring wells was constructed using a 2.5 foot sump, 5 feet of factory manufactured, 0.010 inch slot size PVC threaded well casing, and solid PVC threaded well casing to the surface. Well completion diagrams are included as Figures 3 through 7.

Wells MW-1, MW-3, and MW-4 were completed with aboveground steel well shrouds cemented into 2 foot diameter, round concrete pads with a minimum thickness of 4-inches. Each well was fitted with 3 protective bollards to prevent damage from vehicle collisions, livestock or wildlife. Wells MW-2 and MW-5 are located in County Road 5008 and on the oil and gas well pad respectively, and were completed with flush mount, traffic rated surface casings set in 2 foot diameter concrete well pads.

Well Development and Sampling: On July 8, 2015 the monitoring wells were developed by surging each well with a bailer prior to purging. The wells were purged of a minimum of three well volumes of water using a disposable plastic bailer. The purge water was field screened for pH, conductivity, and temperature until successive readings stabilized within 10% of prior values. Turbidity was reduced as much as possible. All purged water was collected and containerized for offsite disposal at the IEI Landfarm.

Once development was complete, the wells were allowed to recover and stabilize for approximately 24 hours. On July 9, 2015, SMA purged an additional three well volumes and collected groundwater samples from each of the five wells. The samples were collected in laboratory provided 40 ml VOAs, labeled with necessary information and stored on ice. The samples were then couriered under chain of custody procedures to Hall Environmental Analytical Laboratory in Albuquerque, NM for laboratory analysis via EPA Method 8021 for benzene, toluene, ethylbenzene and xylenes (BTEX).

4.0 Hydrogeology

Geology: The release site is located in an alluvial valley material consisting of small to medium cobble gravel with a muddy sand matrix. Cobbles are well rounded granites and metamorphic rocks deposited by the San Juan River. The matrix consists of decomposing detritus, sub angular to rounded medium to fine grained quartz sand, muds and clays. The composition of the matrix varies slightly with depth and location as boreholes encountered lenses with higher sand or clay content. Figures 3-7 are Monitoring Well Construction diagrams and included soil logs.

Hydrology: The shallow aquifer encountered at the release location is in a Quaternary alluvial deposit associated with the San Juan River. Groundwater at the release site is about 4 feet bgs. The potentiometric surface slopes to the SW and has a gradient of 0.003 ft/ft. Survey data provided by Enterprise was used to model the potentiometric surface. Figure 9 is the potentiometric surface map and demonstrates the groundwater gradient. Figure 10 and 11 show the extent and distribution of the contamination.

Figures 12 and 13 are geologic cross sections and demonstrate the extent of the contamination, the potentiometric surface, and the alluvial material containing the aquifer.

5.0 Conclusions and Recommendations

Soil Sampling Results: Laboratory analytical results of the soil samples collected from the capillary fringe in each of the boreholes and from the walls of the trench were below NMOCD Remedial Action Levels for all samples except MW-2 @ 3' and SC-2 Trench W Wall, with combined TPH of 801 ppm and 650 ppm respectively. A summary of soil sample laboratory results is included as Table 1. A copy of the laboratory report is included in Appendix C

Groundwater Sampling Results: Laboratory analytical results of the groundwater samples collected from the five monitoring wells show contamination in exceedance of NMWQCC standards only in MW-2 with benzene at 790 µg/L, toluene at 1300 µg/L, ethylbenzene at 100 µg/L, and total xylenes at 880 µg/L. MW-3 had a benzene concentration of 95 µg/L. All the remaining results were below laboratory detection limits for all contaminants of concern. A summary of groundwater laboratory results is included as Table 2. A copy of the laboratory report is included in Appendix C.

Recommendations: SMA recommends quarterly groundwater monitoring at the Masden Gas Com #1E location. The location of the monitoring wells has clearly defined the extent of the contamination, and laboratory results indicate localized residual contamination. Monitored natural attenuation at the Masden Gas Com #1E is sufficient to return the groundwater to below NMWQCC and NMED OCD remediation Standards.

6.0 Closure and Limitations

The scope of our services consisted of the performance of a preliminary spill assessment, verification of release stabilization, regulatory liaison, oversight and control of remediation operations, disposal arrangements and documentation, project management, and preparation of this summary report. All work has been performed in accordance with generally accepted professional environmental consulting practices.

If there are any questions regarding this report, please contact either me or Reid Allan at 505-325-7535.

Submitted by:

SOUDER, MILLER & ASSOCIATES

Jesse Sprague
Staff Scientist

Reviewed by:

Reid S. Allan, PG
Principal Scientist

Figures

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Environmental
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ENTERPRISE FARMINGTON, NEW MEXICO

VICINITY MAP
MASDEN GAS COM #1E
SECTION 28, T29N, R11W
SAN JUAN, COUNTY

Designed	Drawn	Checked
JES	GJF	RSA

Date: August 2015
Scale: Horiz: 1"=2000' Vert: NA
Project No: 5123699
Figure 1

P:\5-Enterprise MSA (2015) 5123699\Release Response\BG9 - Masden Gas Comm #1E\CAD\Masden Gas Comm #1E GW Monitoring.dwg , JES, 8/26/2015 3:08 PM

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FARMINGTON, NEW MEXICO

SITE LOCATION MAP
MASDEN GAS COM #1E
SECTION 28, T29N, R11W

SAN JUAN COUNTY, NEW MEXICO

Designed	Drawn	Checked
SM	DJB	RSA

Date: August 2015
Scale: Horiz: 1"=40'
Vert: N/A
Project No: 5123699
Figure 2

Date	Time	Sample ID	Sample Depth (Feet BGS)	Method 8015 GRO	Method 8015 DRO	Method 8021 Benzene	Method 8021 BTEX	Method 300.0 Chloride
NMOCD Guidelines		NMOCD Site Ranking: 40		100 ppm		10 ppm	50 ppm	
7/6/2015	8:45	MW-1 @ 3'	3'	<5.0	<9.9	<0.050	<0.10	49
7/6/2015	12:45	MW-2 @ 3'	3'	**710**	**91**	1.5	83.2	190
7/6/2015	13:25	MW-3 @ 3'	3'	<4.9	<9.9	<0.049	<0.097	61
7/6/2015	13:30	MW-4 @ 3'	3'	<4.9	<10	<0.049	<0.097	44
7/6/2015	13:45	MW-5 @ 3'	3'	<5.0	<10	<0.050	<0.099	<30
7/6/2015	9:00	SC-1 Trench E Wall	0-3'	9.8	<10	<0.047	<0.095	34
7/6/2015	9:15	SC-2 Trench W Wall	0-3'	**630**	**20**	0.48	53.98	39

LEGEND

MW-2 MONITORING WELL LOCATION

EXTENT OF PREVIOUS EXCAVATION

HYDRO EXCAVATION TRENCH

SC-1 SOIL SAMPLE LOCATION

SCALE

0' 15' 30' 60'

Rev #	Date	Description

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FARMINGTON, NEW MEXICO

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SOIL SAMPLE ANALYTICAL MAP
MASDEN GAS COM #1E
SECTION 28, T29N, R11W

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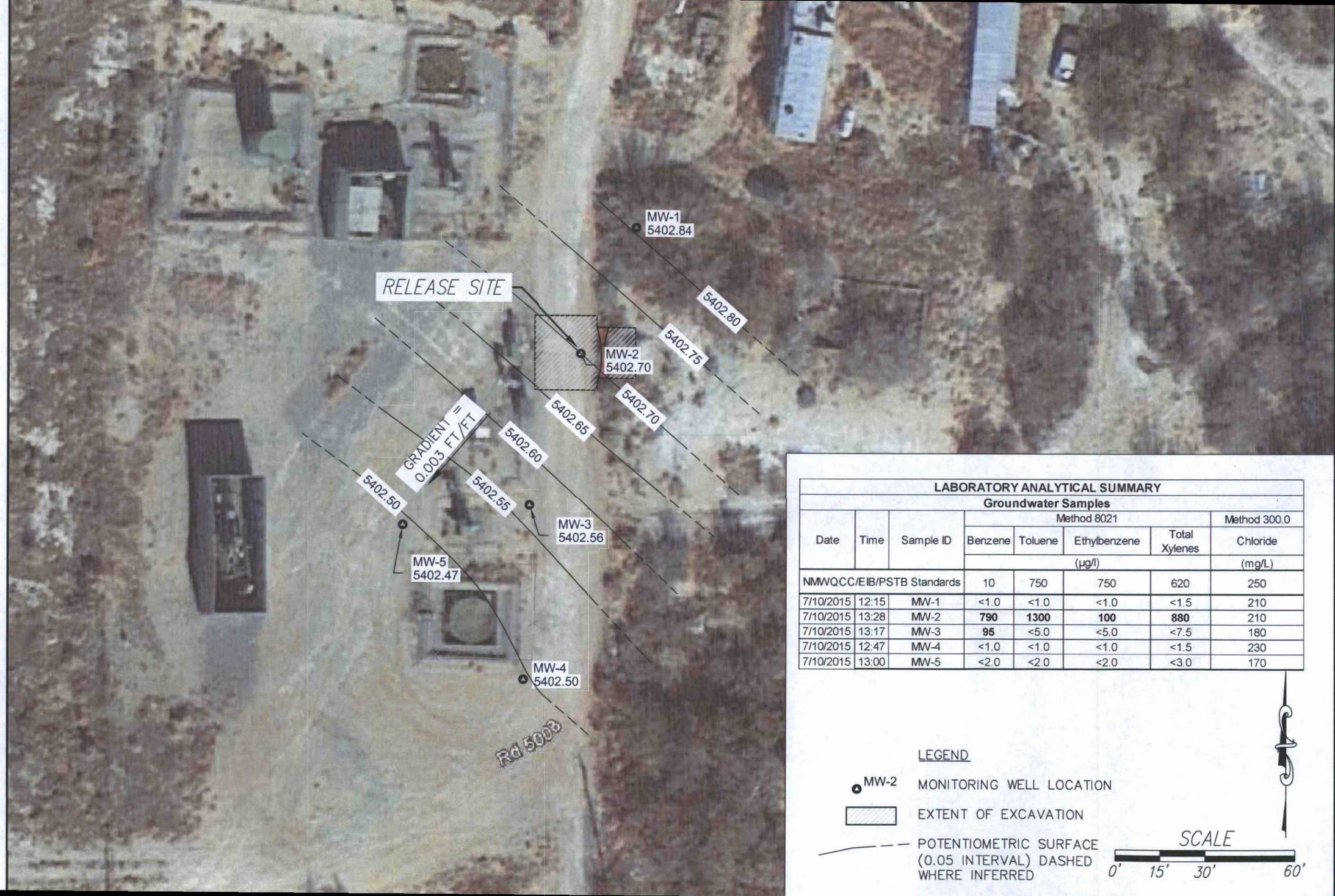
Designed	Drawn	Checked
JES	GJF	RSA

Date: August 2015

Scale: Horiz: 1"=30' Vert: NA

Project No: 5123699



LABORATORY ANALYTICAL SUMMARY

Groundwater Samples

Date	Time	Sample ID	Method 8021				Method 300.0
			Benzene	Toluene	Ethylbenzene	Total Xylenes	Chloride
			(µg/l)				(mg/L)
NMWQCC/EIB/PSTB Standards			10	750	750	620	250
7/10/2015	12:15	MW-1	<1.0	<1.0	<1.0	<1.5	210
7/10/2015	13:28	MW-2	**790**	**1300**	**100**	**880**	210
7/10/2015	13:17	MW-3	**95**	<5.0	<5.0	<7.5	180
7/10/2015	12:47	MW-4	<1.0	<1.0	<1.0	<1.5	230
7/10/2015	13:00	MW-5	<2.0	<2.0	<2.0	<3.0	170

LEGEND

MW-2 MONITORING WELL LOCATION

EXTENT OF EXCAVATION

POTENTIOMETRIC SURFACE (0.05 INTERVAL) DASHED WHERE INFERRED

SCALE

0' 15' 30' 60'

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Rev #	Date	Description

POTENTIOMETRIC SURFACE MAP
MASDEN GAS COM #1E
SECTION 28, T29N, R11W

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Designed	Drawn	Checked
JES	GJF	RSA

Date: August 2015

Scale: Horiz: 1"=30' Vert: NA

Project No: 5123699

LEGEND

MW-2 MONITORING WELL LOCATION

EXTENT OF EXCAVATION

BENZENE GROUNDWATER ISO-CONCENTRATION CONTOUR (DASHED WHERE INFERRED)

95.00 RESULTS IN MICROGRAMS/L

SCALE

0' 15 30' 60'

Rev #	Date	Description

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FARMINGTON, NEW MEXICO

BENZENE ISO-CONCENTRATRION MAP
MASDEN GAS COM #1E
SECTION 28, T29N, R11W

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JES	GJF	RSA

Date: August 2015

Scale: Horiz. 1"=30' Vert: NA

Project No: 5123699

LEGEND

MW-2 MONITORING WELL LOCATION

EXTENT OF EXCAVATION

TOTAL XYLENES GROUNDWATER ISO-CONCENTRATION CONTOUR (DASHED WHERE INFERRED)

880.00 RESULTS IN MICROGRAMS/L

SCALE

0' 15' 30' 60'

Rev #	Date	Description

FARMINGTON, NEW MEXICO

ENTERPRISE

TOTAL XYLENES ISO-CONCENTRATION MAP
MASDEN GAS COM #1E
SECTION 28, T29N, R11W

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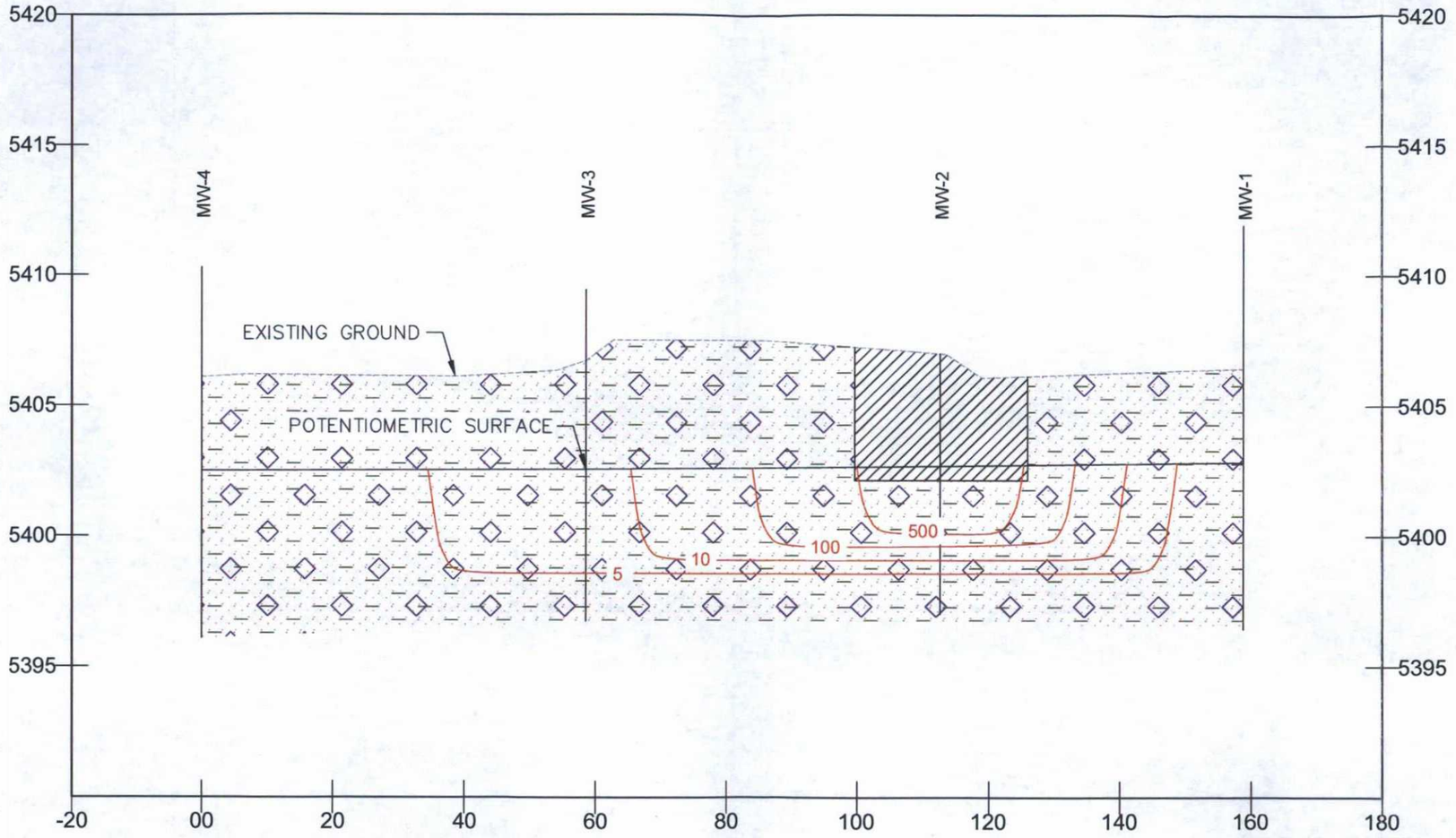
Designed	Drawn	Checked
JES	GJF	RSA

Date: August 2015

Scale: Horiz: 1"=30'
Vert: NA

Project No: 5123699



Rev #	Date	Description

FARMINGTON, NEW MEXICO

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CROSS SECTION
MASDEN GAS COM #1E
SECTION 28, T29N, R11W

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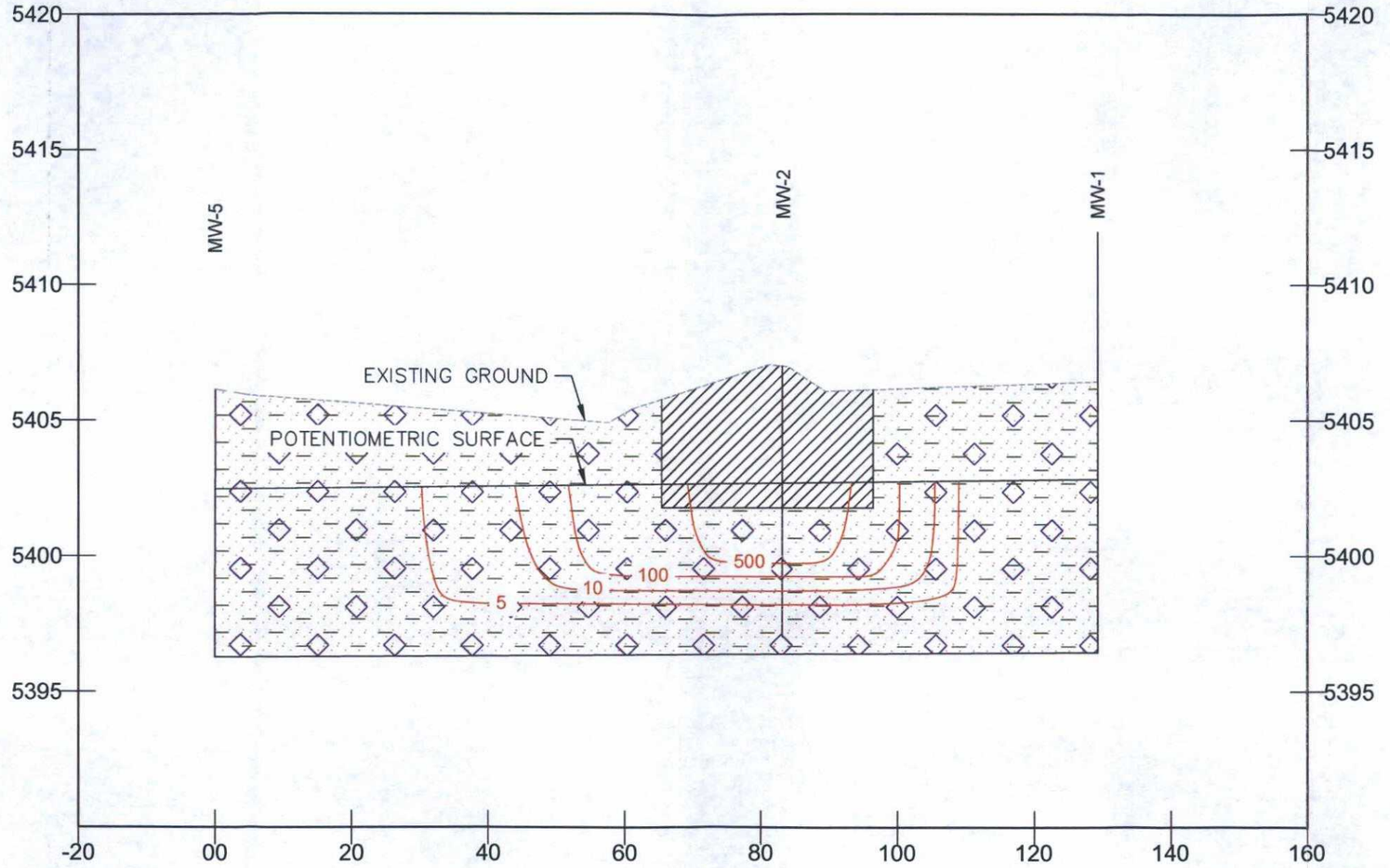
JES	GJF	RSA

Date: August 2015

Scale: Horiz: 1"=30'
Vert: NA

Project No: 5123699



LEGEND

- EXCAVATED AREA
- 4"– 6" COBBLE GRAVEL
- MUD
- SAND
- BENZENE SOIL ISO–CONCENTRATION CONTOUR IN mg/Kg

Rev #	Date	Description

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CROSS SECTION
MASDEN GAS COM #1E
SECTION 28, T29N, R11W

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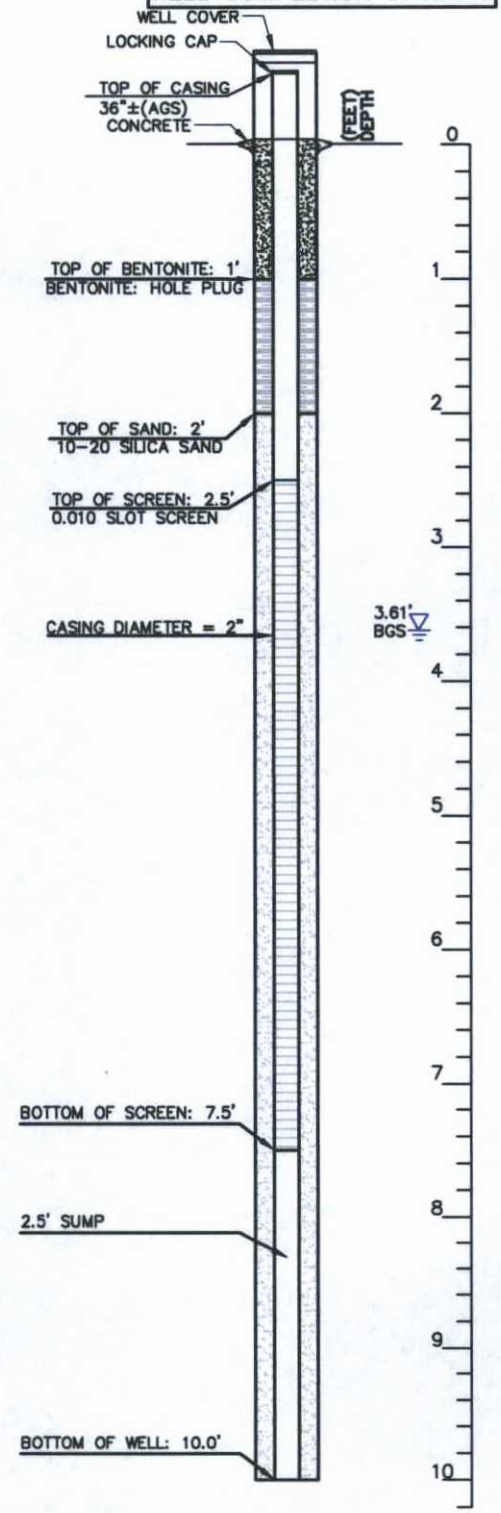
Designed	Drawn	Checked
JES	GJF	RSA

Date: August 2015
Scale: Horiz: 1"=30' Vert: NA
Project No: 5123699

WELL COMPLETION DIAGRAM



SOIL BORING LOG

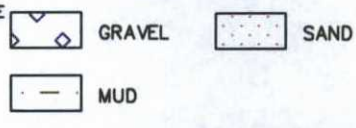
SAMPLE DESCRIPTION

4" – 6" COBBLE GRAVEL WITH MUDDY SAND MATRIX

END OF HOLE

DRILLER: ENVIRO-DRILL, INC.
DATE COMPLETED: JULY 6, 2015
BOREHOLE DIAMETER: 6" O.D.
DRILLING METHOD: HOLLOW STEM AUGER
TOTAL BORING DEPTH: 10 FT.
LOGGED BY: JES

LOG LEGEND



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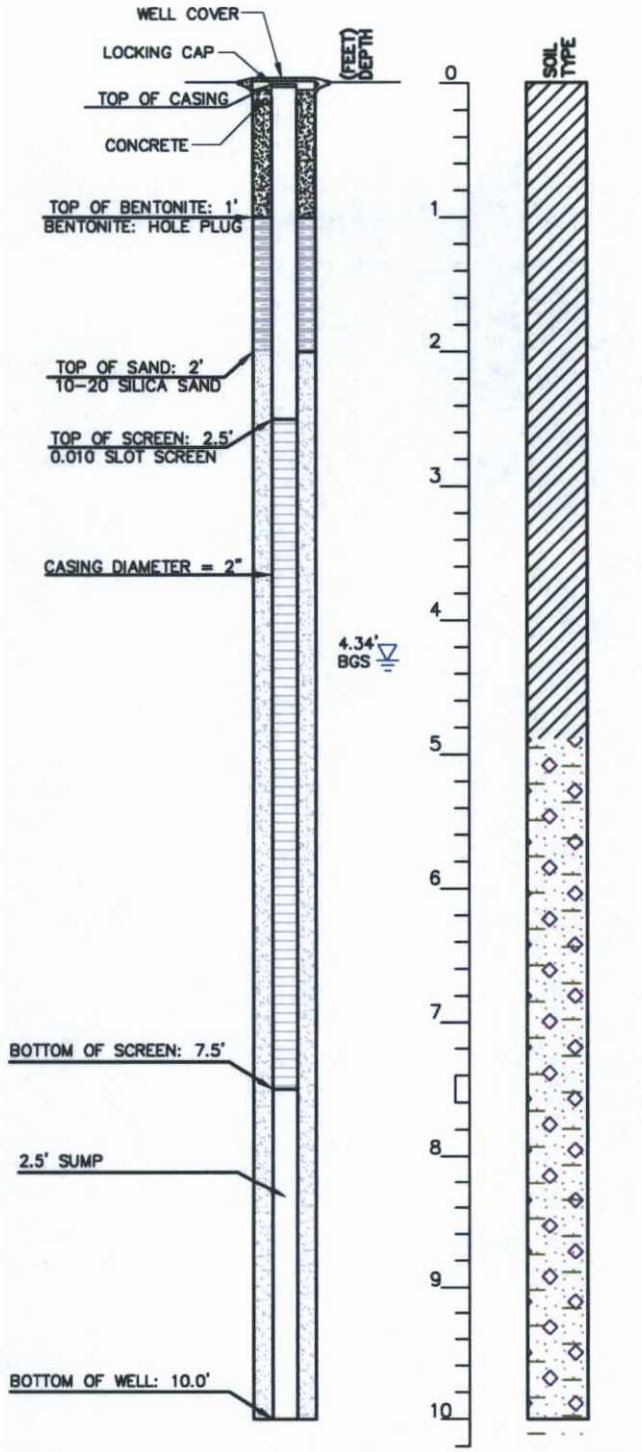
MW-1 CONSTRUCTION LOG
MASDEN GAS COM #1E
SECTION 28, T29N, R11W
SAN JUAN, COUNTY

Designed	Drawn	Checked
JES	GJF	RSA

Date: August 2015
Scale: Horiz: NA Vert: NA
Project No: 5123699
Figure 3

 P:\5-Enterprise MSA (2015) 5123699\Release Response\BG9 - Masden Gas Comm #1E\CAD\Madsen Gas Comm #1E GW Monitoring.dwg, GJF, 8/28/2015 11:09 AM

WELL COMPLETION DIAGRAM



SOIL BORING LOG

SAMPLE DESCRIPTION

BACKFILL MATERIAL

4" – 6" COBBLE GRAVEL WITH MUDDY SAND MATRIX

LOG LEGEND

GRAVEL
SAND
BACKFILL
MUD

DRILLER: ENVIRO-DRILL, INC.
DATE COMPLETED: JULY 6, 2015
BOREHOLE DIAMETER: 6" O.D.
DRILLING METHOD: HOLLOW STEM AUGER
TOTAL BORING DEPTH: 10 FT.
LOGGED BY: JES

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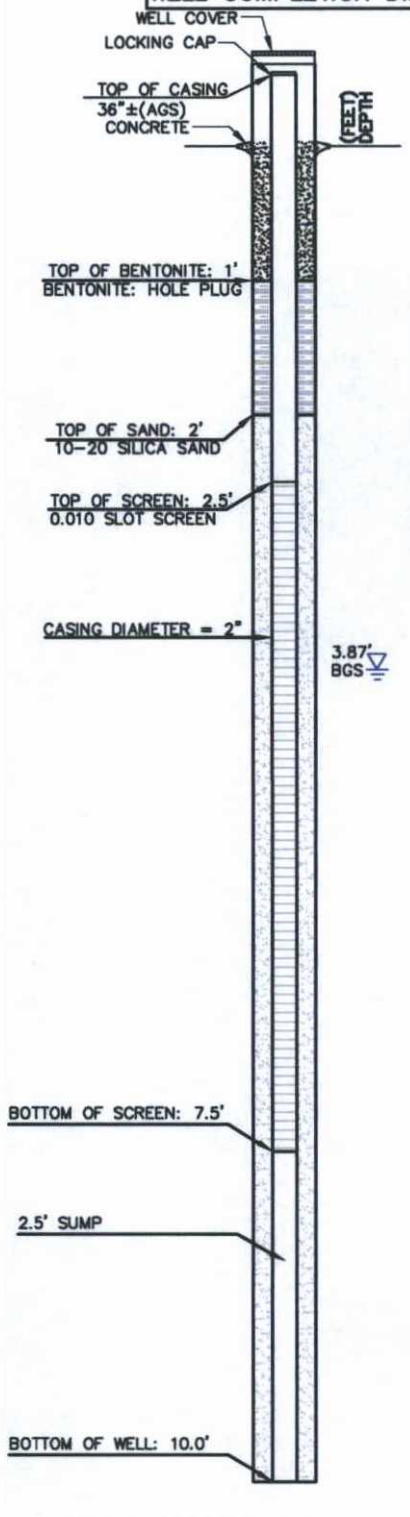
MW-2 CONSTRUCTION LOG
MASDEN GAS COM #1E
SECTION 28, T29N, R11W
SAN JUAN, COUNTY

Designed	Drawn	Checked
JES	GJF	RSA

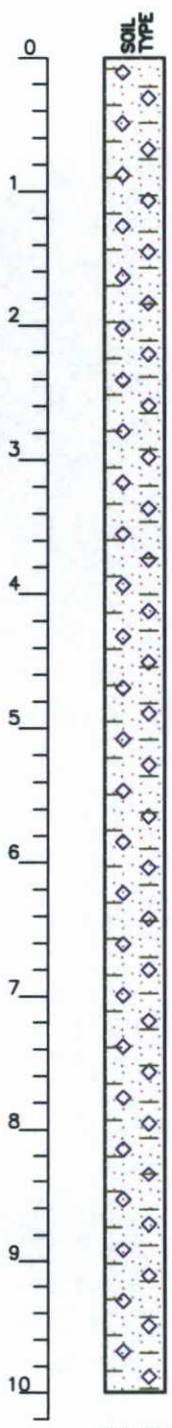
Date: August 2015
Scale: Horiz: 1"=2000' Vert: NA
Project No: 5123699
Figure 4

P:\5-Enterprise MSA (2015) 5123699\Release Response\BG9 - Masden Gas Comm #1E\CAD\Madsen Gas Comm #1E GW Monitoring.dwg, GJF, 8/28/2015 11:08 AM

WELL COMPLETION DIAGRAM



SOIL BORING LOG



SAMPLE DESCRIPTION

4" – 6" COBBLE GRAVEL WITH MUDDY SAND MATRIX

END OF HOLE

LOG LEGEND

GRAVEL

SAND

MUD

DRILLER: ENVIRO-DRILL, INC.
DATE COMPLETED: JULY 6, 2015
BOREHOLE DIAMETER: 6" O.D.
DRILLING METHOD: HOLLOW STEM AUGER
TOTAL BORING DEPTH: 10 FT.
LOGGED BY: JES

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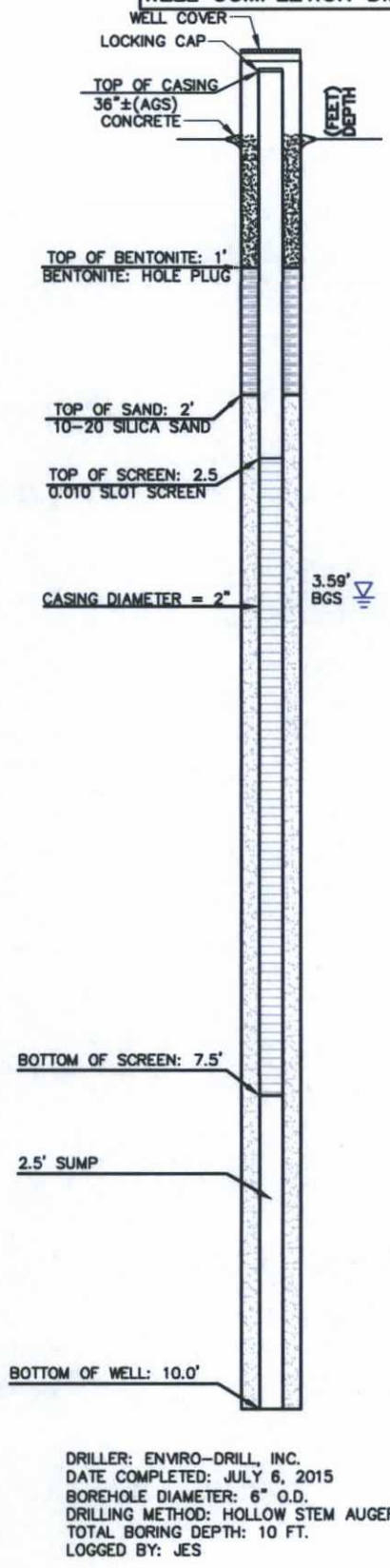
MW-3 CONSTRUCTION LOG
MASDEN GAS COM #1E
SECTION 28, T29N, R11W
SAN JUAN, COUNTY

Designed	Drawn	Checked
JES	GJF	RSA

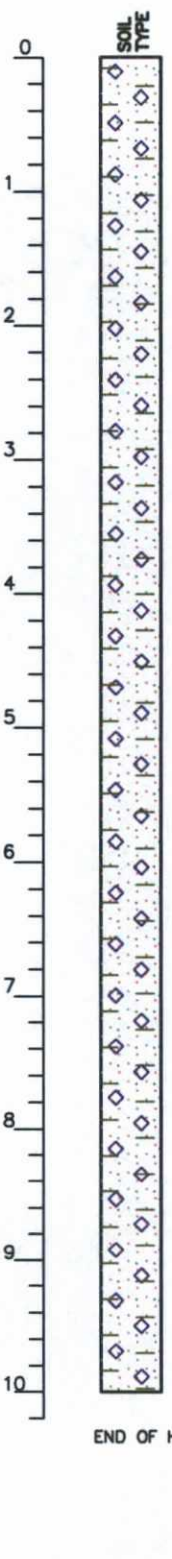
Date: August 2015
Scale: Horiz: 1"=2000' Vert: NA
Project No: 5123699
Figure 5

P:\5-Enterprise MSA (2015) 5123699\Release Response\BG9 - Masden Gas Comm #1E\CAD\Madsen Gas Comm #1E GW Monitoring.dwg, GJF, 8/28/2015 11:08 AM

WELL COMPLETION DIAGRAM



SOIL BORING LOG



SAMPLE DESCRIPTION

4" – 6" COBBLE GRAVEL WITH MUDDY SAND MATRIX

LOG LEGEND

GRAVEL

SAND

MUD

DRILLER: ENVIRO-DRILL, INC.
DATE COMPLETED: JULY 6, 2015
BOREHOLE DIAMETER: 6" O.D.
DRILLING METHOD: HOLLOW STEM AUGER
TOTAL BORING DEPTH: 10 FT.
LOGGED BY: JES

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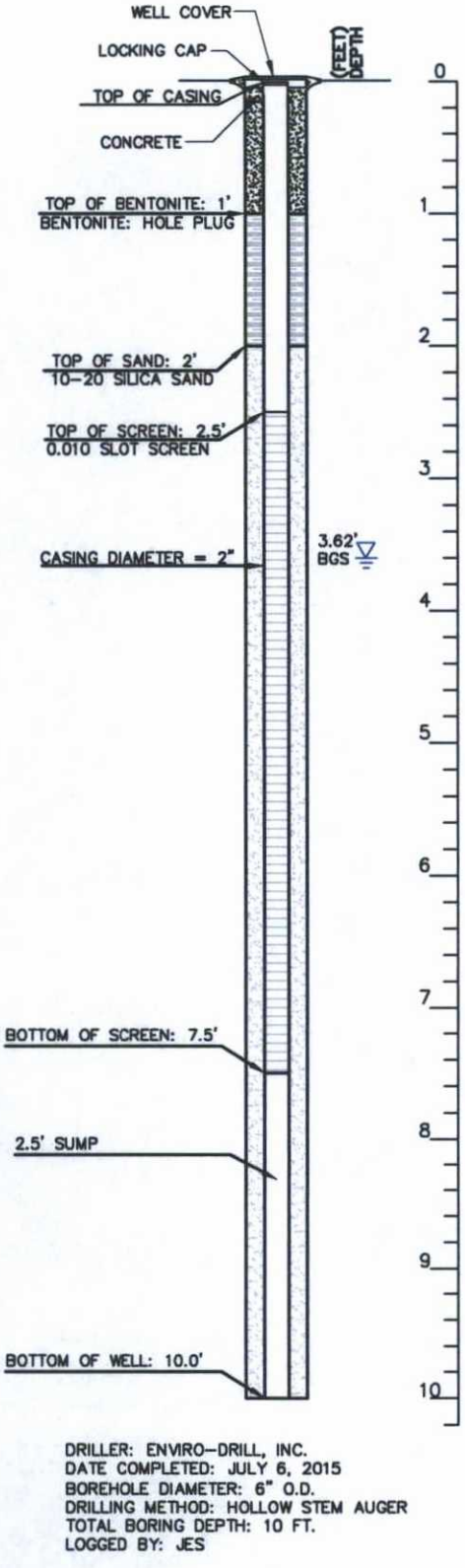
MW-4 CONSTRUCTION LOG
MASDEN GAS COM #1E
SECTION 28, T29N, R11W
SAN JUAN, COUNTY

Designed	Drawn	Checked
JES	GJF	RSA

Date: August 2015
Scale: Horiz: 1"=2000' Vert: NA
Project No: 5123699
Figure 6

P:\5-Enterprise MSA (2015) 5123699\Release Response\BG9 - Masden Gas Comm #1E\CAD\Masden Gas Comm #1E GW Monitoring.dwg, GJF, 8/28/2015 11:07 AM

WELL COMPLETION DIAGRAM



SOIL BORING LOG

SAMPLE DESCRIPTION

4" – 6" COBBLE GRAVEL WITH MUDDY SAND MATRIX

DRILLER: ENVIRO-DRILL, INC.
DATE COMPLETED: JULY 6, 2015
BOREHOLE DIAMETER: 6" O.D.
DRILLING METHOD: HOLLOW STEM AUGER
TOTAL BORING DEPTH: 10 FT.
LOGGED BY: JES

LOG LEGEND

GRAVEL
SAND
MUD

SMA Engineering Environmental Surveying

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MW-5 CONSTRUCTION LOG
MASDEN GAS COM #1E
SECTION 28, T29N, R11W
SAN JUAN, COUNTY

Designed	Drawn	Checked
JES	GJF	RSA

Date: August 2015
Scale: Horiz: 1"=2000' Vert: NA
Project No: 5123699
Figure 7

P:\5-Enterprise MSA (2015) 5123699\Release Response\BG9 - Masden Gas Comm #1E\CAD\Masden Gas Comm #1E GW Monitoring.dwg, GJF, 8/28/2015 11:07 AM

Tables

Enterprise Products

Table 2: Groundwater Laboratory Results Summary

LABORATORY ANALYTICAL SUMMARY							
Groundwater Samples							
Date	Time	Sample ID	Method 8021				Method 300.0
			Benzene	Toluene	Ethylbenzene	Total Xylenes	Chloride
			(µg/l)				(mg/L)
NMWQCC/EIB/PSTB Standards			10	750	750	620	250
7/10/2015	12:15	MW-1	<1.0	<1.0	<1.0	<1.5	210
7/10/2015	13:28	MW-2	**790**	**1300**	**100**	**880**	210
7/10/2015	13:17	MW-3	**95**	<5.0	<5.0	<7.5	180
7/10/2015	12:47	MW-4	<1.0	<1.0	<1.0	<1.5	230
7/10/2015	13:00	MW-5	<2.0	<2.0	<2.0	<3.0	170

Enterprise Products

Table 2: Groundwater Laboratory Results Summary

LABORATORY ANALYTICAL SUMMARY							
Groundwater Samples							
Date	Time	Sample ID	Method 8021				Method 300.0
			Benzene	Toluene	Ethylbenzene	Total Xylenes	Chloride
			(µg/l)				(mg/L)
NMWQCC/EIB/PSTB Standards			10	750	750	620	250
7/10/2015	12:15	MW-1	<1.0	<1.0	<1.0	<1.5	210
7/10/2015	13:28	MW-2	**790**	**1300**	**100**	**880**	210
7/10/2015	13:17	MW-3	**95**	<5.0	<5.0	<7.5	180
7/10/2015	12:47	MW-4	<1.0	<1.0	<1.0	<1.5	230
7/10/2015	13:00	MW-5	<2.0	<2.0	<2.0	<3.0	170

Appendix A
Photographic Documentation

Site Photographs
Enterprise Products Masden Gas Com #1E Monitor Well Installation

Photo 1: Masden Gas Com #1E location in County Road 5008, appropriate Traffic controls in place.

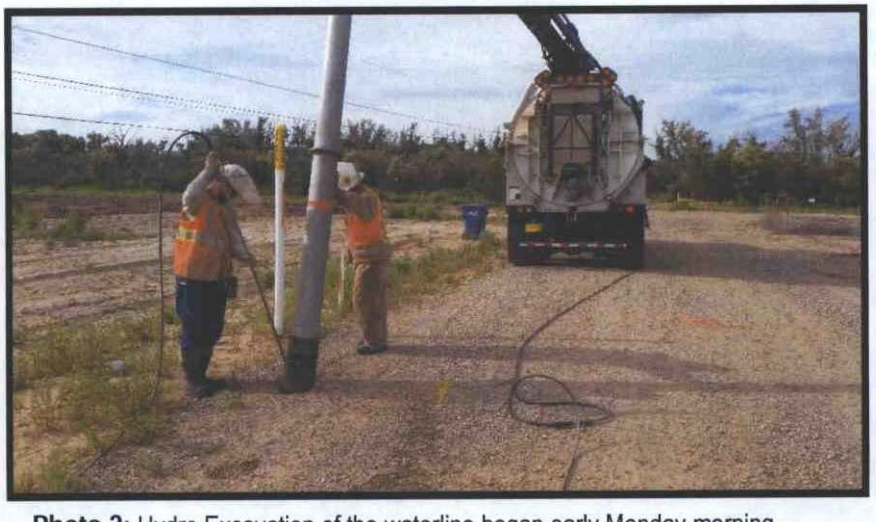

Photo 2: Hydro Excavation of the waterline began early Monday morning.

Site Photographs
Enterprise Products Masden Gas Com #1E Monitor Well Installation

Photo 3: Exposure of the 6 inch PVC waterline in the vicinity of the Masden Gas Com #1E release point.

Photo 4: Trench along the waterline completed and backfilling with imported material.

Site Photographs
Enterprise Products Masden Gas Com #1E Monitor Well Installation

Photo 5: Hollow stem auger drilling method was used to advance the hydro excavated holes to a total depth of 10 feet bgs.

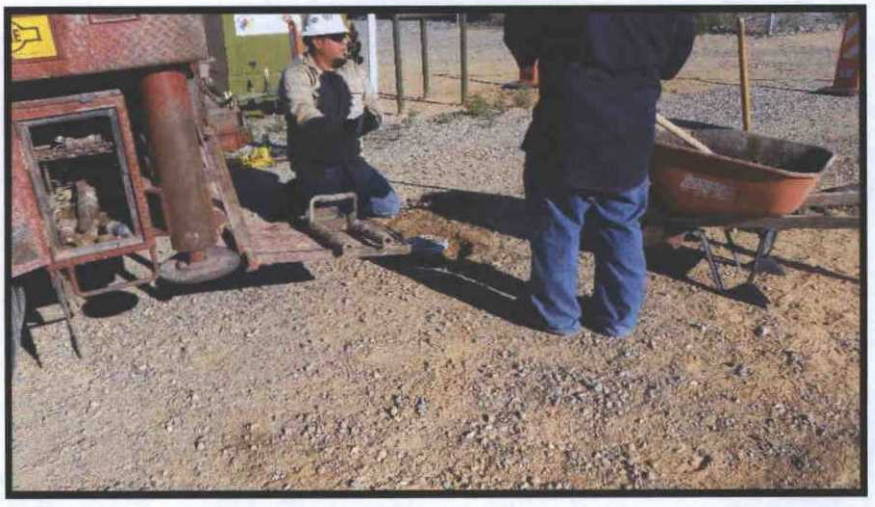

Photo 6: Surface completions in the road and the on the well pad feature flush, traffic-rated well vaults. MW-2 pictured.

Appendix B
Soil Disposal Documentation

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
20 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-138
Revised 08/01/11

*Surface Waste Management Facility Operator and Generator shall maintain and make this documentation available for Division inspection.

REQUEST FOR APPROVAL TO ACCEPT SOLID WASTE

1. Generator Name and Address:
Enterprise Field Services, LLC, 614 Reilly Ave, Farmington NM 87401

2. Originating Site:
Madsen Gas Com 1E

3. Location of Material (Street Address, City, State or ULSTR):
NW ¼ Section 28, T29N, R11W; 36.70080, -108.00131

4. Source and Description of Waste:
Source: Contaminated soil associated with a natural gas pipeline release.
Description: Soil impacted with Natural Gas Liquids (Condensate and Water)
Estimated Volume 5 yd³ / bbls Known Volume (to be entered by the operator at the end of the haul) 5 (0) yd / bbls

2/4/15 - 54cy
2/4/15 - 20bbls 5cy

5. GENERATOR CERTIFICATION STATEMENT OF WASTE STATUS

I, Thomas Long (Thomas Long), representative or authorized agent for Enterprise Products Operating do hereby
Generator Signature
certify that according to the Resource Conservation and Recovery Act (RCRA) and the US Environmental Protection Agency's July 1988 regulatory determination, the above described waste is: (Check the appropriate classification)

☒ RCRA Exempt: Oil field wastes generated from oil and gas exploration and production operations and are not mixed with non-exempt waste. ***Operator Use Only: Waste Acceptance Frequency*** ☐ ***Monthly*** ☐ ***Weekly*** ☐ ***Per Load***

☐ RCRA Non-Exempt: Oil field waste which is non-hazardous that does not exceed the minimum standards for waste hazardous by characteristics established in RCRA regulations, 40 CFR 261.21-261.24, or listed hazardous waste as defined in 40 CFR, part 261, subpart D, as amended. The following documentation is attached to demonstrate the above-described waste is non-hazardous. (Check the appropriate items)

☐ MSDS Information ☐ RCRA Hazardous Waste Analysis ☒ Process Knowledge ☐ Other (Provide description in Box 4)

GENERATOR 19.15.36.15 WASTE TESTING CERTIFICATION STATEMENT FOR LANDFARMS

I, Thomas Long (Thomas Long) 2-5-15, representative for Enterprise Products Operating authorize to complete
Generator Signature
the required testing/sign the Generator Waste Testing Certification.

I, M. Marquez representative for IEI, Inc. do hereby certify that representative samples of the oil field waste have been subjected to the paint filter test and tested for chloride content and that the samples have been found to conform to the specific requirements applicable to landfarms pursuant to Section 15 of 19.15.36 NMAC. The results of the representative samples are attached to demonstrate the above-described waste conform to the requirements of Section 15 of 19.15.36 NMAC.

5. Transporter: West States Energy Contractors

OCD Permitted Surface Waste Management Facility

Name and Facility Permit #: JFJ Landfarm/Industrial Ecosystems, Inc. * **Permit #: NM 01-0010B**

Cl = 144
PH = 9.0

Address of Facility: **#49 CR 2150 Aztec, New Mexico**

Method of Treatment and/or Disposal:
☐ Evaporation ☐ Injection ☐ Treating Plant ☒ Landfarm ☐ Landfill ☐ Other

Waste Acceptance Status:

☒ **APPROVED** ☐ **DENIED** (Must Be Maintained As Permanent Record)

PRINT NAME: M. Marquez TITLE: Land Farm Administrator DATE: 2/5/15
SIGNATURE: M. Marquez TELEPHONE NO.: 505-632-1782
Surface Waste Management Facility Authorized Agent

2/5/15

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
20 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-138
Revised 08/01/11

*Surface Waste Management Facility Operator and Generator shall maintain and make this documentation available for Division inspection.

REQUEST FOR APPROVAL TO ACCEPT SOLID WASTE

1. Generator Name and Address:
Enterprise Field Services, LLC, 614 Reilly Ave, Farmington NM 87401

2. Originating Site: Madsen Gas Com #1E

3. Location of Material (Street Address, City, State or ULSTR):
Unit Letter C Sec 28 T 29N R 11W, GPS 36.70080, -108.00131, San Juan County, NM

4. Source and Description of Waste:
Source: Hydrocarbon Impacted Soils from a Pipeline Release. 7/23/15-5bbls
Description: Hydrocarbon (lube oil/diesel fuel/condensate/crude oil), impacted soils associated clean up and maintenance activities.
Estimated Volume 30 yd^3 / (bbls) Known Volume (to be entered by the operator at the end of the haul) 65 yd^3 / (bbls)

5. GENERATOR CERTIFICATION STATEMENT OF WASTE STATUS

I, Thom Long, representative or authorized agent for Enterprise Field Services, LLC do hereby
Generator Signature
certify that according to the Resource Conservation and Recovery Act (RCRA) and the US Environmental Protection Agency's July 1988 regulatory determination, the above described waste is: (Check the appropriate classification)

☒ RCRA Exempt: Oil field wastes generated from oil and gas exploration and production operations and are not mixed w exempt waste. ***Operator Use Only: Waste Acceptance Frequency*** ☒ ***Monthly*** ☐ ***Weekly*** ☒ ***Per Load***

☐ RCRA Non-Exempt: Oil field waste which is non-hazardous that does not exceed the minimum standards for waste ha y characteristics established in RCRA regulations, 40 CFR 261.21-261.24, or listed hazardous waste as defined in 40 CFR, pa subpart D, as amended. The following documentation is attached to demonstrate the above-described waste is non-hazardou the appropriate items)

☐ MSDS Information ☐ RCRA Hazardous Waste Analysis ☐ Process Knowledge ☐ Other (Provide description in Bo

GENERATOR 19.15.36.15 WASTE TESTING CERTIFICATION STATEMENT FOR LANDFARMS

I, Thom Long 7-6-15, representative for Enterprise Field Services, LLC authorize IEI, Inc. to complete
Generator Signature
the required testing/sign the Generator Waste Testing Certification.

I, Brandy M. representative for IEI do hereby certify that
Representative/Agent Signature
representative samples of the oil field waste have been subjected to the paint filter test and tested for chloride content and that the have been found to conform to the specific requirements applicable to landfarms pursuant to Section 15 of 19.15.36 NMAC. The of the representative samples are attached to demonstrate the above-described waste conform to the requirements of Section 15 of 19.15.36 NMAC.

5. Transporter: NRE Field Services

OCD Permitted Surface Waste Management Facility

pH 8
Cl 38

Name and Facility Permit #: JFJ Landfarm/Industrial Ecosystems, Inc. * **Permit #: NM 01-0010B**
Address of Facility: **#49 CR 2150 Aztec, New Mexico**
Method of Treatment and/or Disposal:
☐ Evaporation ☐ Injection ☐ Treating Plant ☒ Landfarm ☐ Landfill ☐ Other

Waste Acceptance Status:

☒ **APPROVED** ☐ **DENIED** (Must Be Maintained As Permanent Record)

PRINT NAME: Randolph TITLE: Clerk DATE: 7/16/15
SIGNATURE: Randolph TELEPHONE NO.:
Surface Waste Management Facility Authorized Agent
505-632-1782

7/16/15

Appendix C
Laboratory Analytical Report

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

July 15, 2015

Steve Moskal
Souder, Miller and Associates
401 W. Broadway
Farmington, NM 87401
TEL: (505) 325-5667
FAX

RE: Madsen GC # 1E

OrderNo.: 1507485

Dear Steve Moskal:

Hall Environmental Analysis Laboratory received 5 sample(s) on 7/11/2015 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. In order to properly interpret your results it is imperative that you review this report in its entirety. 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. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. 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.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1507485**
Date Reported: **7/15/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller and Associates
Project: Madsen GC # 1E
Lab ID: 1507485-001 **Matrix:** AQUEOUS

Client Sample ID: MW-1
Collection Date: 7/10/2015 12:15:00 PM
Received Date: 7/11/2015 7:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	210	50		mg/L	100	7/14/2015 12:05:59 PM	R27512
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: **DJF**	
Benzene	ND	1.0		µg/L	1	7/14/2015 11:21:05 AM	R27501
Toluene	ND	1.0		µg/L	1	7/14/2015 11:21:05 AM	R27501
Ethylbenzene	ND	1.0		µg/L	1	7/14/2015 11:21:05 AM	R27501
Xylenes, Total	ND	1.5		µg/L	1	7/14/2015 11:21:05 AM	R27501
Surr: 1,2-Dichloroethane-d4	104	70-130		%REC	1	7/14/2015 11:21:05 AM	R27501
Surr: 4-Bromofluorobenzene	105	70-130		%REC	1	7/14/2015 11:21:05 AM	R27501
Surr: Dibromofluoromethane	108	70-130		%REC	1	7/14/2015 11:21:05 AM	R27501
Surr: Toluene-d8	100	70-130		%REC	1	7/14/2015 11:21:05 AM	R27501

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

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
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller and Associates
Project: Madsen GC # 1E
Lab ID: 1507485-002 **Matrix:** AQUEOUS

Client Sample ID: MW-4
Collection Date: 7/10/2015 12:47:00 PM
Received Date: 7/11/2015 7:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	230	50		mg/L	100	7/14/2015 12:30:49 PM	R27512
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: **DJF**	
Benzene	ND	1.0		µg/L	1	7/14/2015 11:48:36 AM	R27501
Toluene	ND	1.0		µg/L	1	7/14/2015 11:48:36 AM	R27501
Ethylbenzene	ND	1.0		µg/L	1	7/14/2015 11:48:36 AM	R27501
Xylenes, Total	ND	1.5		µg/L	1	7/14/2015 11:48:36 AM	R27501
Surr: 1,2-Dichloroethane-d4	102	70-130		%REC	1	7/14/2015 11:48:36 AM	R27501
Surr: 4-Bromofluorobenzene	108	70-130		%REC	1	7/14/2015 11:48:36 AM	R27501
Surr: Dibromofluoromethane	110	70-130		%REC	1	7/14/2015 11:48:36 AM	R27501
Surr: Toluene-d8	93.1	70-130		%REC	1	7/14/2015 11:48:36 AM	R27501

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

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
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller and Associates
Project: Madsen GC # 1E
Lab ID: 1507485-003 **Matrix:** AQUEOUS

Client Sample ID: MW-3
Collection Date: 7/10/2015 1:17:00 PM
Received Date: 7/11/2015 7:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	180	50		mg/L	100	7/14/2015 12:55:38 PM	R27512
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: **DJF**	
Benzene	95	5.0		µg/L	5	7/14/2015 12:16:08 PM	R27501
Toluene	ND	5.0		µg/L	5	7/14/2015 12:16:08 PM	R27501
Ethylbenzene	ND	5.0		µg/L	5	7/14/2015 12:16:08 PM	R27501
Xylenes, Total	ND	7.5		µg/L	5	7/14/2015 12:16:08 PM	R27501
Surr: 1,2-Dichloroethane-d4	103	70-130		%REC	5	7/14/2015 12:16:08 PM	R27501
Surr: 4-Bromofluorobenzene	103	70-130		%REC	5	7/14/2015 12:16:08 PM	R27501
Surr: Dibromofluoromethane	105	70-130		%REC	5	7/14/2015 12:16:08 PM	R27501
Surr: Toluene-d8	93.2	70-130		%REC	5	7/14/2015 12:16:08 PM	R27501

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

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
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller and Associates
Project: Madsen GC # 1E
Lab ID: 1507485-004 **Matrix:** AQUEOUS

Client Sample ID: MW-2
Collection Date: 7/10/2015 1:28:00 PM
Received Date: 7/11/2015 7:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	210	50		mg/L	100	7/14/2015 1:20:28 PM	R27512
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: **DJF**	
Benzene	790	50		µg/L	50	7/14/2015 5:19:31 PM	R27501
Toluene	1300	50		µg/L	50	7/14/2015 5:19:31 PM	R27501
Ethylbenzene	100	5.0		µg/L	5	7/14/2015 12:43:42 PM	R27501
Xylenes, Total	880	7.5		µg/L	5	7/14/2015 12:43:42 PM	R27501
Surr: 1,2-Dichloroethane-d4	105	70-130		%REC	5	7/14/2015 12:43:42 PM	R27501
Surr: 4-Bromofluorobenzene	98.9	70-130		%REC	5	7/14/2015 12:43:42 PM	R27501
Surr: Dibromofluoromethane	107	70-130		%REC	5	7/14/2015 12:43:42 PM	R27501
Surr: Toluene-d8	99.2	70-130		%REC	5	7/14/2015 12:43:42 PM	R27501

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
E	Value above quantitation range
J	Analyte detected below quantitation limits
O	RSD is greater than RSDlimit
R	RPD outside accepted recovery limits
S	Spike Recovery 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
P	Sample pH Not In Range
RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller and Associates
Client Sample ID: MW-5
Project: Madsen GC # 1E
Collection Date: 7/10/2015 1:00:00 PM
Lab ID: 1507485-005 **Matrix:** AQUEOUS **Received Date:** 7/11/2015 7:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	170	50		mg/L	100	7/14/2015 2:10:07 PM	R27512
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: **DJF**	
Benzene	ND	2.0		µg/L	2	7/14/2015 1:11:14 PM	R27501
Toluene	ND	2.0		µg/L	2	7/14/2015 1:11:14 PM	R27501
Ethylbenzene	ND	2.0		µg/L	2	7/14/2015 1:11:14 PM	R27501
Xylenes, Total	ND	3.0		µg/L	2	7/14/2015 1:11:14 PM	R27501
Surr: 1,2-Dichloroethane-d4	105	70-130		%REC	2	7/14/2015 1:11:14 PM	R27501
Surr: 4-Bromofluorobenzene	105	70-130		%REC	2	7/14/2015 1:11:14 PM	R27501
Surr: Dibromofluoromethane	105	70-130		%REC	2	7/14/2015 1:11:14 PM	R27501
Surr: Toluene-d8	95.6	70-130		%REC	2	7/14/2015 1:11:14 PM	R27501

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

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
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
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#: **1507485**

15-Jul-15

Client: Souder, Miller and Associates
Project: Madsen GC # 1E

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R27512**	RunNo: **27512**							
Prep Date:	Analysis Date: **7/14/2015**	SeqNo: **825662**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R27512**	RunNo: **27512**							
Prep Date:	Analysis Date: **7/14/2015**	SeqNo: **825663**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	95.2	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBW**	Batch ID: **R27512**	RunNo: **27512**							
Prep Date:	Analysis Date: **7/14/2015**	SeqNo: **825718**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSW**	Batch ID: **R27512**	RunNo: **27512**							
Prep Date:	Analysis Date: **7/14/2015**	SeqNo: **825719**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	92.6	90	110			

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
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
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#: **1507485**

15-Jul-15

Client: Souder, Miller and Associates
Project: Madsen GC # 1E

Sample ID **rb1**	SampType: **MBLK**	TestCode: **EPA Method 8260: Volatiles Short List**
Client ID: **PBW**	Batch ID: **R27501**	RunNo: **27501**
Prep Date:	Analysis Date: **7/14/2015**	SeqNo: **825199** 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	1.5								
Surr: 1,2-Dichloroethane-d4	10		10.00		103	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		106	70	130			
Surr: Dibromofluoromethane	11		10.00		110	70	130			
Surr: Toluene-d8	9.7		10.00		97.2	70	130			

Sample ID **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260: Volatiles Short List**
Client ID: **LCSW**	Batch ID: **R27501**	RunNo: **27501**
Prep Date:	Analysis Date: **7/14/2015**	SeqNo: **825200** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	105	70	130			
Toluene	20	1.0	20.00	0	101	70	130			
Surr: 1,2-Dichloroethane-d4	9.8		10.00		98.1	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		104	70	130			
Surr: Dibromofluoromethane	11		10.00		107	70	130			
Surr: Toluene-d8	9.1		10.00		90.6	70	130			

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
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

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: SMA-FARM | Work Order Number: 1507485 | RcptNo 1

Received by/date: [A] 07/11/15

Logged By: Lindsay Mangin 7/11/2015 7:00:00 AM

Completed By: Lindsay Mangin 7/11/2015 8:29:51 AM

Reviewed By: CS 07/13/15

Chain of Custody

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

Log In

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

07/13/15

Special Handling (if applicable)

16. 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: ____

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.8	Good	Yes			

Chain-of-Custody Record

Client: SMA

Mailing Address: 401 W Broadway
Farmington, NM 87401

Phone #: (505) 325-7535

email or Fax#: jesse.sprague@soudermiller.com

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

Accreditation
☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:
☒ Standard ☐ Rush _____

Project Name: Masden GC #1E

Project #: 5123699

Project Manager: Steve Moskal

Sampler: ADP

On Ice: ☒ Yes ☐ No

Sample Temperature: 2.8

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. 1507485	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	300.1 Chlorides				Air Bubbles (Y or N)
7/10/15	12:15	H_2O	MW-1	(3) 40mL VOA + (1) 500mL H2O	HCL + none	-001	X											X				
	12:47		MW-4			-002	X											X				
	1:17		MW-3			-003	X											X				
	1:28		MW-2			-004	X											X				
↓	1:00	↓	MW-5	↓	↓	-005	X											X				

Date	Time	Relinquished by:	Received by:	Date	Time
7/10/15	1445		Misty Walk	7/10/15	1445
7/10/15	2204	Misty Walters		07/11/15	0700

Remarks: please copy alicia.patterson@soudermiller.com
Please Invoice Enterprise directly PO# 152006
Please hold remaining 300.1 samples

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.

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

July 14, 2015

Steve Moskal
Souder, Miller and Associates
401 W. Broadway
Farmington, NM 87401
TEL: (505) 325-5667
FAX (505) 327-1496

RE: Masden Gas Comm #1E OrderNo.: 1507283

Dear Steve Moskal:

Hall Environmental Analysis Laboratory received 7 sample(s) on 7/8/2015 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. In order to properly interpret your results it is imperative that you review this report in its entirety. 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. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. 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.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1507283**
Date Reported: **7/14/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller and Associates
Project: Masden Gas Comm #1E
Lab ID: 1507283-001 **Matrix:** SOIL

Client Sample ID: MW-1 @ 3'
Collection Date: 7/6/2015 8:45:00 AM
Received Date: 7/8/2015 7:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	49	30		mg/Kg	20	7/13/2015 11:33:52 AM	20224
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	7/10/2015 5:05:10 PM	20154
Surr: DNOP	99.5	57.9-140		%REC	1	7/10/2015 5:05:10 PM	20154
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	7/11/2015 1:48:07 AM	20172
Surr: BFB	91.8	75.4-113		%REC	1	7/11/2015 1:48:07 AM	20172
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.050		mg/Kg	1	7/11/2015 1:48:07 AM	20172
Toluene	ND	0.050		mg/Kg	1	7/11/2015 1:48:07 AM	20172
Ethylbenzene	ND	0.050		mg/Kg	1	7/11/2015 1:48:07 AM	20172
Xylenes, Total	ND	0.10		mg/Kg	1	7/11/2015 1:48:07 AM	20172
Surr: 4-Bromofluorobenzene	97.9	80-120		%REC	1	7/11/2015 1:48:07 AM	20172

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

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
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller and Associates
Project: Masden Gas Comm #1E
Lab ID: 1507283-002 **Matrix:** SOIL

Client Sample ID: MW-2 @ 3'
Collection Date: 7/6/2015 12:45:00 PM
Received Date: 7/8/2015 7:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	190	30		mg/Kg	20	7/13/2015 12:11:06 PM	20224
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Diesel Range Organics (DRO)	91	9.8		mg/Kg	1	7/10/2015 6:27:52 PM	20154
Surr: DNOP	106	57.9-140		%REC	1	7/10/2015 6:27:52 PM	20154
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	710	99		mg/Kg	20	7/13/2015 3:07:19 PM	20172
Surr: BFB	144	75.4-113	S	%REC	20	7/13/2015 3:07:19 PM	20172
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	1.5	0.050		mg/Kg	1	7/11/2015 2:16:48 AM	20172
Toluene	24	0.99		mg/Kg	20	7/13/2015 3:07:19 PM	20172
Ethylbenzene	4.7	0.050		mg/Kg	1	7/11/2015 2:16:48 AM	20172
Xylenes, Total	53	2.0		mg/Kg	20	7/13/2015 3:07:19 PM	20172
Surr: 4-Bromofluorobenzene	262	80-120	S	%REC	1	7/11/2015 2:16:48 AM	20172

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

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
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller and Associates
Project: Masden Gas Comm #1E
Lab ID: 1507283-003 **Matrix:** SOIL

Client Sample ID: MW-3 @ 3'
Collection Date: 7/6/2015 1:25:00 PM
Received Date: 7/8/2015 7:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	61	30		mg/Kg	20	7/13/2015 12:23:31 PM	20224
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	7/10/2015 6:55:27 PM	20154
Surr: DNOP	93.9	57.9-140		%REC	1	7/10/2015 6:55:27 PM	20154
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/13/2015 3:36:03 PM	20172
Surr: BFB	92.9	75.4-113		%REC	1	7/13/2015 3:36:03 PM	20172
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.049		mg/Kg	1	7/11/2015 2:45:29 AM	20172
Toluene	ND	0.049		mg/Kg	1	7/11/2015 2:45:29 AM	20172
Ethylbenzene	ND	0.049		mg/Kg	1	7/11/2015 2:45:29 AM	20172
Xylenes, Total	ND	0.097		mg/Kg	1	7/11/2015 2:45:29 AM	20172
Surr: 4-Bromofluorobenzene	105	80-120		%REC	1	7/11/2015 2:45:29 AM	20172

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

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
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller and Associates
Project: Masden Gas Comm #1E
Lab ID: 1507283-004 **Matrix:** SOIL

Client Sample ID: MW-4 @ 3'
Collection Date: 7/6/2015 1:30:00 PM
Received Date: 7/8/2015 7:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	44	30		mg/Kg	20	7/13/2015 12:35:55 PM	20224
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	7/10/2015 7:23:06 PM	20154
Surr: DNOP	101	57.9-140		%REC	1	7/10/2015 7:23:06 PM	20154
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/11/2015 4:40:13 AM	20172
Surr: BFB	90.5	75.4-113		%REC	1	7/11/2015 4:40:13 AM	20172
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.049		mg/Kg	1	7/11/2015 4:40:13 AM	20172
Toluene	ND	0.049		mg/Kg	1	7/11/2015 4:40:13 AM	20172
Ethylbenzene	ND	0.049		mg/Kg	1	7/11/2015 4:40:13 AM	20172
Xylenes, Total	ND	0.097		mg/Kg	1	7/11/2015 4:40:13 AM	20172
Surr: 4-Bromofluorobenzene	93.9	80-120		%REC	1	7/11/2015 4:40:13 AM	20172

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

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
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller and Associates
Project: Masden Gas Comm #1E
Lab ID: 1507283-005 **Matrix:** SOIL

Client Sample ID: MW-5 @ 3'
Collection Date: 7/6/2015 1:45:00 PM
Received Date: 7/8/2015 7:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	ND	30		mg/Kg	20	7/13/2015 1:13:08 PM	20224
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	7/10/2015 7:50:38 PM	20154
Surr: DNOP	110	57.9-140		%REC	1	7/10/2015 7:50:38 PM	20154
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	7/11/2015 5:08:56 AM	20172
Surr: BFB	90.4	75.4-113		%REC	1	7/11/2015 5:08:56 AM	20172
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.050		mg/Kg	1	7/11/2015 5:08:56 AM	20172
Toluene	ND	0.050		mg/Kg	1	7/11/2015 5:08:56 AM	20172
Ethylbenzene	ND	0.050		mg/Kg	1	7/11/2015 5:08:56 AM	20172
Xylenes, Total	ND	0.099		mg/Kg	1	7/11/2015 5:08:56 AM	20172
Surr: 4-Bromofluorobenzene	94.2	80-120		%REC	1	7/11/2015 5:08:56 AM	20172

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

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
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller and Associates
Project: Masden Gas Comm #1E
Lab ID: 1507283-006 **Matrix:** SOIL

Client Sample ID: SC-1 Trench E Wall
Collection Date: 7/6/2015 9:00:00 AM
Received Date: 7/8/2015 7:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	34	30		mg/Kg	20	7/13/2015 1:25:32 PM	20224
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	7/10/2015 8:18:09 PM	20154
Surr: DNOP	100	57.9-140		%REC	1	7/10/2015 8:18:09 PM	20154
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	9.8	4.7		mg/Kg	1	7/11/2015 5:37:36 AM	20172
Surr: BFB	104	75.4-113		%REC	1	7/11/2015 5:37:36 AM	20172
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.047		mg/Kg	1	7/11/2015 5:37:36 AM	20172
Toluene	ND	0.047		mg/Kg	1	7/11/2015 5:37:36 AM	20172
Ethylbenzene	ND	0.047		mg/Kg	1	7/11/2015 5:37:36 AM	20172
Xylenes, Total	ND	0.095		mg/Kg	1	7/11/2015 5:37:36 AM	20172
Surr: 4-Bromofluorobenzene	102	80-120		%REC	1	7/11/2015 5:37:36 AM	20172

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

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
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller and Associates
Project: Masden Gas Comm #1E
Lab ID: 1507283-007 **Matrix:** SOIL

Client Sample ID: SC-2 Trench W Wall
Collection Date: 7/6/2015 9:15:00 AM
Received Date: 7/8/2015 7:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	39	30		mg/Kg	20	7/13/2015 1:37:56 PM	20224
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Diesel Range Organics (DRO)	20	9.9		mg/Kg	1	7/10/2015 8:45:45 PM	20154
Surr: DNOP	101	57.9-140		%REC	1	7/10/2015 8:45:45 PM	20154
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	630	50		mg/Kg	10	7/11/2015 6:06:20 AM	20172
Surr: BFB	183	75.4-113	S	%REC	10	7/11/2015 6:06:20 AM	20172
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	0.48	0.25		mg/Kg	10	7/11/2015 6:06:20 AM	20172
Toluene	16	0.50		mg/Kg	10	7/11/2015 6:06:20 AM	20172
Ethylbenzene	3.5	0.50		mg/Kg	10	7/11/2015 6:06:20 AM	20172
Xylenes, Total	34	1.0		mg/Kg	10	7/11/2015 6:06:20 AM	20172
Surr: 4-Bromofluorobenzene	117	80-120		%REC	10	7/11/2015 6:06:20 AM	20172

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

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
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
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#: **1507283**

14-Jul-15

Client: Souder, Miller and Associates

Project: Masden Gas Comm #1E

Sample ID **MB-20224**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **20224**	RunNo: **27466**
Prep Date: **7/13/2015**	Analysis Date: **7/13/2015**	SeqNo: **824117** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID **LCS-20224**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **20224**	RunNo: **27466**
Prep Date: **7/13/2015**	Analysis Date: **7/13/2015**	SeqNo: **824118** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.9	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
E	Value above quantitation range
J	Analyte detected below quantitation limits
O	RSD is greater than RSDlimit
R	RPD outside accepted recovery limits
S	Spike Recovery 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
P	Sample pH Not In Range
RL	Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507283**

14-Jul-15

Client: Souder, Miller and Associates
Project: Masden Gas Comm #1E

Sample ID **MB-20154**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **20154**	RunNo: **27405**
Prep Date: **7/8/2015**	Analysis Date: **7/10/2015**	SeqNo: **823073** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Surr: DNOP	9.6		10.00		95.9	57.9	140			

Sample ID **LCS-20154**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **20154**	RunNo: **27405**
Prep Date: **7/8/2015**	Analysis Date: **7/10/2015**	SeqNo: **823074** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	53	10	50.00	0	106	57.4	139			
Surr: DNOP	4.9		5.000		98.8	57.9	140			

Sample ID **1507283-001AMS**	SampType: **MS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **MW-1 @ 3'**	Batch ID: **20154**	RunNo: **27405**
Prep Date: **7/8/2015**	Analysis Date: **7/10/2015**	SeqNo: **823076** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	51	10	49.80	0	102	42.3	146			
Surr: DNOP	5.1		4.980		102	57.9	140			

Sample ID **1507283-001AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **MW-1 @ 3'**	Batch ID: **20154**	RunNo: **27405**
Prep Date: **7/8/2015**	Analysis Date: **7/10/2015**	SeqNo: **823077** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	55	10	50.71	0	109	42.3	146	8.77	28.9	
Surr: DNOP	5.3		5.071		105	57.9	140	0	0	

Sample ID **MB-20179**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **20179**	RunNo: **27449**
Prep Date: **7/9/2015**	Analysis Date: **7/13/2015**	SeqNo: **823595** Units: **%REC**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	9.4		10.00		94.3	57.9	140			

Sample ID **LCS-20179**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **20179**	RunNo: **27449**
Prep Date: **7/9/2015**	Analysis Date: **7/13/2015**	SeqNo: **823596** Units: **%REC**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.5		5.000		90.2	57.9	140			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery 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
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507283**

14-Jul-15

Client: Souder, Miller and Associates

Project: Masden Gas Comm #1E

Sample ID **MB-20172**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **20172**	RunNo: **27422**
Prep Date: **7/9/2015**	Analysis Date: **7/10/2015**	SeqNo: **822756** 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	930		1000		92.6	75.4	113			

Sample ID **LCS-20172**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **20172**	RunNo: **27422**
Prep Date: **7/9/2015**	Analysis Date: **7/10/2015**	SeqNo: **822757** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	5.0	25.00	0	95.6	64	130			
Surr: BFB	990		1000		99.4	75.4	113			

Sample ID **1507283-001AMS**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **MW-1 @ 3'**	Batch ID: **20172**	RunNo: **27422**
Prep Date: **7/9/2015**	Analysis Date: **7/10/2015**	SeqNo: **822759** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	24.78	0	93.7	62.5	151			
Surr: BFB	980		991.1		98.7	75.4	113			

Sample ID **1507283-001AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **MW-1 @ 3'**	Batch ID: **20172**	RunNo: **27422**
Prep Date: **7/9/2015**	Analysis Date: **7/10/2015**	SeqNo: **822760** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	5.0	25.00	0	96.6	62.5	151	3.88	22.1	
Surr: BFB	980		1000		98.2	75.4	113	0	0	

Sample ID **MB-20188**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **20188**	RunNo: **27446**
Prep Date: **7/9/2015**	Analysis Date: **7/13/2015**	SeqNo: **823980** Units: **%REC**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	910		1000		90.7	75.4	113			

Sample ID **LCS-20188**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **20188**	RunNo: **27446**
Prep Date: **7/9/2015**	Analysis Date: **7/13/2015**	SeqNo: **823981** Units: **%REC**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	970		1000		97.1	75.4	113			

Qualifiers:

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- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery 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
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507283**

14-Jul-15

Client: Souder, Miller and Associates

Project: Masden Gas Comm #1E

Sample ID **MB-20172**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **20172**	RunNo: **27422**
Prep Date: **7/9/2015**	Analysis Date: **7/10/2015**	SeqNo: **822799** 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		102	80	120			

Sample ID **LCS-20172**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **20172**	RunNo: **27422**
Prep Date: **7/9/2015**	Analysis Date: **7/10/2015**	SeqNo: **822800** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.99	0.050	1.000	0	98.9	76.6	128			
Toluene	0.95	0.050	1.000	0	95.2	75	124			
Ethylbenzene	1.0	0.050	1.000	0	99.8	79.5	126			
Xylenes, Total	3.0	0.10	3.000	0	99.4	78.8	124			
Surr: 4-Bromofluorobenzene	1.0		1.000		104	80	120			

Sample ID **1507283-002AMS**	SampType: **MS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **MW-2 @ 3'**	Batch ID: **20172**	RunNo: **27422**
Prep Date: **7/9/2015**	Analysis Date: **7/10/2015**	SeqNo: **822803** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	2.4	0.049	0.9891	1.469	89.6	69.6	136			
Toluene	17	0.049	0.9891	17.55	-6.53	76.2	134			ES
Ethylbenzene	5.7	0.049	0.9891	4.687	98.3	75.8	137			E
Xylenes, Total	43	0.099	2.967	42.22	13.7	78.9	133			ES
Surr: 4-Bromofluorobenzene	3.2		0.9891		319	80	120			S

Sample ID **1507283-002AMSD**	SampType: **MSD**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **MW-2 @ 3'**	Batch ID: **20172**	RunNo: **27422**
Prep Date: **7/9/2015**	Analysis Date: **7/10/2015**	SeqNo: **822804** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	2.3	0.050	0.9940	1.469	82.5	69.6	136	2.85	20	
Toluene	15	0.050	0.9940	17.55	-238	76.2	134	14.1	20	ES
Ethylbenzene	5.0	0.050	0.9940	4.687	29.0	75.8	137	12.9	20	ES
Xylenes, Total	37	0.099	2.982	42.22	-167	78.9	133	13.5	20	ES
Surr: 4-Bromofluorobenzene	2.5		0.9940		253	80	120	0	0	S

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery 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
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507283**

14-Jul-15

Client: Souder, Miller and Associates

Project: Masden Gas Comm #1E

Sample ID **MB-20188**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **20188**	RunNo: **27446**
Prep Date: **7/9/2015**	Analysis Date: **7/13/2015**	SeqNo: **824010** Units: **%REC**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.0		1.000		99.6	80	120			

Sample ID **LCS-20188**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **20188**	RunNo: **27446**
Prep Date: **7/9/2015**	Analysis Date: **7/13/2015**	SeqNo: **824011** Units: **%REC**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.1		1.000		106	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery 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
- P Sample pH Not In Range
- 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: SMA-FARM | Work Order Number: 1507283 | RcptNo: 1

Received by/date: [signature] 07/08/15

Logged By: Lindsay Mangin 7/8/2015 7:00:00 AM [signature]

Completed By: Lindsay Mangin 7/8/2015 8:24:02 AM [signature]

Reviewed By: KMS 7/9/15

Chain of Custody

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

Log In

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

16. 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: _____

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.2	Good	Yes			

Chain-of-Custody Record

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Client: SMA

Mailing Address: 401 W Broadway Farmington, NM 87401

Phone #: (505)325-7535

Email or Fax#: jesse.sprague@soudermiller.com

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

Accreditation: NELAP ☐ Other

EDD (Type)

Turn-Around Time: ☒ Standard ☐ Rush

Project Name: Masden Gas Comm # 1E

Project #: 5123699

Project Manager: Steve Moskal

Sampler: JES

On Ice: ☑ Yes ☐ No

Sample Temperature: 3.2

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1507283	BTEX (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	300.0 Chlorides				Air Bubbles (Y or N)
7/6	0845	Soil	MW-1 @ 3'	(1) 4 oz jar	—	-001	X		X									X				
	1245		MW-2 @ 3'			-002	X		X									X				
	1325		MW-3 @ 3'			-003	X		X									X				
	1330		MW-4 @ 3'			-004	X		X									X				
	1345		MW-5 @ 3'			-005	X		X									X				
	0900		SC-1 Trench E wall			-006	X		X									X				
	0915		SC-2 Trench W wall			-007	X		X									X				

Date	Time	Relinquished by:	Received by:	Date	Time
7/7/15	1710		Mustafa Walt	7/7/15	1710
7/7/15	1747	Mustafa Walker		07/08/15	0700

Remarks: please copy alicia.patterson@soudermiller.com

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.

Appendix D
Monitoring Well Permit

File No.

NEW MEXICO OFFICE OF THE STATE ENGINEER

APPLICATION FOR PERMIT TO DRILL A WELL WITH NO CONSUMPTIVE USE OF WATER

(check applicable box):

For fees, see State Engineer website: http://www.ose.state.nm.us/

Purpose:	☐ Pollution Control And / Or Recovery	☐ Geo-Thermal
☐ Exploratory	☐ Construction Site De-Watering	☐ Other (Describe):
☒ Monitoring	☐ Mineral De-Watering	

A separate permit will be required to apply water to beneficial use.

☒ Temporary Request - Requested Start Date: **7/6/15** Requested End Date: **Unknown**

Plugging Plan of Operations Submitted? ☒ Yes ☐ No

---

1. APPLICANT(S)

Name: **Enterprise Products represented by: Souder, Miller & Associates**	Name: **Enterprise Products represented by: Souder, Miller & Associates**
Contact or Agent: **Alicia Patterson** check here if Agent ☒	Contact or Agent: **Steve Moskal** check here if Agent ☒
Mailing Address: **401 W. Broadway**	Mailing Address: **401 W. Broadway**
City: **Farmington**	City: **Farmington**
State: **NM** Zip Code: **87401**	State: **NM** Zip Code: **87401**
Phone: **505-325-7535** ☐ Home ☐ Cell Phone (Work): **505-320-0626**	Phone: **505-325-7535** ☐ Home ☐ Cell Phone (Work):
E-mail (optional): **alicia.patterson@soudermiller.com**	E-mail (optional): **steven.moskal@soudermiller.com**

FOR OSE INTERNAL USE

Application for Permit, Form wr-07, Rev 4/12/12

File Number:	Trn Number:
Trans Description (optional):	
Sub-Basin:	
PCW/LOG Due Date:	

2. **WELL(S)** Describe the well(s) applicable to this application.

Location Required: Coordinate location must be reported in NM State Plane (NAD 83), UTM (NAD 83), or Latitude/Longitude (Lat/Long - WGS84).
District II (Roswell) and District VII (Cimarron) customers, provide a PLSS location in addition to above.

☐ NM State Plane (NAD83) (Feet)
☐ NM West Zone
☐ NM East Zone
☐ NM Central Zone

☐ UTM (NAD83) (Meters)
☐ Zone 12N
☐ Zone 13N

☒ Lat/Long (WGS84) (to the nearest 1/10th of second)

Well Number (if known):	X or Easting or Longitude:	Y or Northing or Latitude:	Provide if known: -Public Land Survey System (PLSS) (*Quarters or Halves , Section, Township, Range*) OR - Hydrographic Survey Map & Tract; OR - Lot, Block & Subdivision; OR - Land Grant Name
PMW-1	**-108.001644**	**36.700959**	**NW qtr of NW qtr; S28, T29N, R11W**
PMW-2	**-108.001692**	**36.700827**	**NW qtr of NW qtr; S28, T29N, R11W**
PMW-3	**-108.001852**	**36.700823**	**NW qtr of NW qtr; S28, T29N, R11W**
PMW-4	**-108.001598**	**36.701061**	**NW qtr of NW qtr; S28, T29N, R11W**
PMW-5	**-108.001686**	**36.700698**	**NW qtr of NW qtr; S28, T29N, R11W**

NOTE: If more well locations need to be described, complete form WR-08 (Attachment 1 – POD Descriptions)
Additional well descriptions are attached: ☐ **Yes** ☒ **No** **If yes, how many**_____

Other description relating well to common landmarks, streets, or other: **See Attached Map**

Well is on land owned by:

Well Information: NOTE: If more than one (1) well needs to be described, provide attachment. Attached? ☐ **Yes** ☒ **No**
If yes, how many **5**

Approximate depth of well (feet): **10.00**	Outside diameter of well casing (inches): **2.00**
Driller Name: **Enviro-Drill**	Driller License Number: **WD 1186**

3. **ADDITIONAL STATEMENTS OR EXPLANATIONS**

Proposed Soil Borings/Wells are on land owned by: Ronald and Particia Johnson, Burrell TC Trustees ET AL and Road 5008 maintained by Enterprise Products. Completion of a subsurface water investigation including five (5) soil borings that will be drilled to 10 feet. Soil borings will be completed as monitoring wells for the purpose of groundwater monitoring and subsurface contamination delineation associated with the Masden Gas Comm #1 E pipeline release site, as requested and approved by Enterprise Products (Thomas Long, Senior Environmental Specialist)

FOR OSE INTERNAL USE

Application for Permit, Form wr-07

File Number:	Trn Number:

4. SPECIFIC REQUIREMENTS: The applicant must include the following, as applicable to each well type. Please check the appropriate boxes, to indicate the information has been included and/or attached to this application:

Exploratory: ☐ Include a description of any proposed pump test, if applicable.	**Pollution Control and/or Recovery:** ☐ Include a plan for pollution control/recovery, that includes the following: ☐ A description of the need for the pollution control or recovery operation. ☒ The estimated maximum period of time for completion of the operation. ☐ The annual diversion amount. ☐ The annual consumptive use amount. ☐ The maximum amount of water to be diverted and injected for the duration of the operation. ☐ The method and place of discharge.	**Construction De-Watering:** ☐ Include a description of the proposed dewatering operation, ☐ The estimated duration of the operation, ☐ The maximum amount of water to be diverted, ☐ A description of the need for the dewatering operation, and, ☐ A description of how the diverted water will be disposed of.	**Mine De-Watering:** ☐ Include a plan for pollution control/recovery, that includes the following: ☐ A description of the need for mine dewatering. ☐ The estimated maximum period of time for completion of the operation. ☐ The source(s) of the water to be diverted. ☐ The geohydrologic characteristics of the aquifer(s). ☐ The maximum amount of water to be diverted per annum. ☐ The maximum amount of water to be diverted for the duration of the operation. ☐ The quality of the water. ☐ The method of measurement of water diverted. ☐ The recharge of water to the aquifer. ☐ Description of the estimated area of hydrologic effect of the project. ☐ The method and place of discharge. ☐ An estimation of the effects on surface water rights and underground water rights from the mine dewatering project. ☐ A description of the methods employed to estimate effects on surface water rights and underground water rights. ☐ Information on existing wells, rivers, springs, and wetlands within the area of hydrologic effect.
Monitoring: ☒ Include the reason for the monitoring well, and, ☒ The duration of the planned monitoring.	☐ The method of measurement of water produced and discharged. ☐ The source of water to be injected. ☐ The method of measurement of water injected. ☐ The characteristics of the aquifer. ☐ The method of determining the resulting annual consumptive use of water and depletion from any related stream system. ☐ Proof of any permit required from the New Mexico Environment Department. ☒ An access agreement if the applicant is not the owner of the land on which the pollution plume control or recovery well is to be located.	**Geo-Thermal:** ☐ Include a description of the geothermal heat exchange project, ☐ The amount of water to be diverted and re-injected for the project, ☐ The time frame for constructing the geothermal heat exchange project, and, ☐ The duration of the project. ☐ Preliminary surveys, design data, and additional information shall be included to provide all essential facts relating to the request.	

ACKNOWLEDGEMENT

I, We (name of applicant(s)), **Souder, Miller & Associates - Alicia Patterson & Steve Moskal, Agents**
Print Name(s)

affirm that the foregoing statements are true to the best of (my, our) knowledge and belief.

Alicia Patterson
Applicant Signature

Applicant Signature

ACTION OF THE STATE ENGINEER

This application is:

☐ approved ☐ partially approved ☐ denied

provided it is not exercised to the detriment of any others having existing rights, and is not contrary to the conservation of water in New Mexico nor detrimental to the public welfare and further subject to the attached conditions of approval.

Witness my hand and seal this _____ day of _____ 20 _____ , for the State Engineer,

_____, State Engineer

By: _____ _____
Signature Print

Title: _____
Print

FOR OSE INTERNAL USE

Application for Permit, Form wr-07

File Number:	Trn Number:

WELL PLUGGING PLAN OF OPERATIONS

NOTE: A Well Plugging Plan of Operations shall be filed with and accepted by the Office of the State Engineer prior to plugging.

I. FILING FEE: There is no filing fee for this form.

II. GENERAL / WELL OWNERSHIP:

Existing Office of the State Engineer POD Number (Well Number) for well to be plugged: _____

Name of well owner: Enterprise Products represented by Souder, Miller & Associates

Mailing address: 401 W Broadway

City: Farmington State: NM Zip code: 87401

Phone number: 505-325-7535 E-mail: alicia.patterson@soudermiller.com

III. WELL DRILLER INFORMATION:

Well Driller contracted to provide plugging services: Enviro-Drill, Inc.

New Mexico Well Driller License No.: WD1186 Expiration Date: March 31, 2016

IV. WELL INFORMATION:

Note: A copy of the existing Well Record for the well to be plugged should be attached to this plan.

1) GPS Well Location:

PSB-1 Latitude: 36 deg, 42 min, 3.45 sec
Longitude: 108 deg, 0 min, 5.92 sec, NAD 83

PSB-2 Latitude: 36 deg, 42 min, 2.98 sec
Longitude: 108 deg, 0 min, 6.09 sec, NAD 83

PSB-3 Latitude: 36 deg, 42 min, 2.96 sec
Longitude: 108 deg, 0 min, 6.67 sec, NAD 83

PSB-4 Latitude: 36 deg, 42 min, 3.82 sec
Longitude: 108 deg, 0 min, 5.75 sec, NAD 83

PSB-5 Latitude: 36 deg, 42 min, 2.51 sec
Longitude: 108 deg, 0 min, 6.07 sec, NAD 83

2) Reason(s) for plugging well: Enterprise Products determined that Monitoring Wells are no longer needed.

3) Was well used for any type of monitoring program? yes If yes, please use section VII of this form to detail what hydrogeologic parameters were monitored. If the well was used to monitor contaminated or poor quality water, authorization from the New Mexico Environment Department may be required prior to plugging.

4) Does the well tap brackish, saline, or otherwise poor quality water? No If yes, provide additional detail, including analytical results and/or laboratory report(s):

5) Static water level: expected to be 3 to 8 feet below land surface / feet above land surface (circle one)

6) Depth of the well: 10.00 feet

7) Inside diameter of innermost casing: 2.0 inches.

8) Casing material: none or PVC

9) The well was constructed with:

an open-hole production interval, state the open interval:

2 ft sump a well screen or perforated pipe, state the screened interval(s): assumed to be 3 to 8 feet

10) What annular interval surrounding the artesian casing of this well is cement-grouted? N/A

11) Was the well built with surface casing? YES (1 of 5) If yes, is the annulus surrounding the surface casing grouted or otherwise sealed? YES If yes, please describe: The annulus is cemented with a 2 foot round pad with a minimum thickness of 4 inches.

12) Has all pumping equipment and associated piping been removed from the well? N/A If not, describe remaining equipment and intentions to remove prior to plugging in Section VII of this form.

V. DESCRIPTION OF PLANNED WELL PLUGGING:

Note: If this plan proposes to plug an artesian well in a way other than with cement grout, placed bottom to top with a tremie pipe, a detailed diagram of the well showing proposed final plugged configuration shall be attached, as well as any additional technical information, such as geophysical logs, that are necessary to adequately describe the proposal.

1) Describe the method by which cement grout shall be placed in the well, or describe requested plugging methodology proposed for the well: Plug and abandon five 2-inch wells by filling with cement mixture from bottom to top

2) Will well head be cut-off below land surface after plugging? Yes, remove steel well shrouds and manway cover and upper 3 feet of casing, then install a 1 foot cement cap and bury 2 feet below ground surface.

VI. PLUGGING AND SEALING MATERIALS:

Note: The plugging of a well that taps poor quality water may require the use of a specialty cement or specialty sealant

1) For plugging intervals that employ cement grout, complete and attach Table A.

2) For plugging intervals that will employ approved non-cement based sealant(s), complete and attach Table B.

3) Theoretical volume of grout required to plug the well to land surface: 10.90 gallons per well/2.5 gallons per boring

4) Type of Cement proposed: OSE Notation: Portland Type I/II cement to be used.

5) Proposed cement grout mix: 6.0 gallons of water per 94 pound sack of Portland cement.

6) Will the grout be: _____ batch-mixed and delivered to the site
X mixed on site

7) Grout additives requested, and percent by dry weight relative to cement: None

8) Additional notes and calculations:

VII. ADDITIONAL INFORMATION: List additional information below, or on separate sheet(s):

Five soil borings will be drilled to a depth of 10 feet below ground surface. All five (5) soil borings will be completed as groundwater monitoring wells. Groundwater monitoring wells will be plugged in the future, when Enterprise Products determines the wells are no longer needed.

VIII. SIGNATURE:

VIII. SIGNATURE:

I, Alicia Patterson , say that I have carefully read the foregoing Well Plugging Plan of Operations and any attachments, which are a part hereof; that I am familiar with the rules and regulations of the State Engineer pertaining to the plugging of wells and will comply with them, and that each and all of the statements in the Well Plugging Plan of Operations and attachments are true to the best of my knowledge and belief.

Alicia Patterson 6/24/2015

Signature of Applicant Date

IX. ACTION OF THE STATE ENGINEER:

This Well Plugging Plan of Operations is:

_____ Approved subject to the attached conditions.
_____ Not approved for the reasons provided on the attached letter.

Witness my hand and official seal this _____ day of _____, _____

Scott A. Verhines, State Engineer

By: _____

TABLE A - For plugging intervals that employ cement grout. Start with deepest interval.

	Interval 1 – deepest	Interval 2	Interval 3 – most shallow
			Note: if the well is non-artesian and breaches only one aquifer, use only this column.
Top of proposed interval of grout placement (ft bgl)			2.0 feet
Bottom of proposed interval of grout placement (ft bgl)			10 feet for boring or monitoring well
Theoretical volume of grout required per interval (gallons)			1.63 gallons for boring or monitoring well
Proposed cement grout mix gallons of water per 94-lb. sack of Portland cement			6.0
Mixed on-site or batch-mixed and delivered?			Mixed Onsite
Grout additive 1 requested			
Additive 1 percent by dry weight relative to cement			
Grout additive 2 requested			
Additive 2 percent by dry weight relative to cement			

TABLE B - For plugging intervals that will employ approved non-cement based sealant(s). Start with deepest interval.

	Interval 1 – deepest	Interval 2	Interval 3 – most shallow
			Note: if the well is non-artesian and breaches only one aquifer, use only this column.
Top of proposed interval of sealant placement (ft bgl)			
Bottom of proposed sealant of grout placement (ft bgl)			
Theoretical volume of sealant required per interval (gallons)			
Proposed abandonment sealant (manufacturer and trade name)			

Souder, Miller & Associates ♦ 401 W. Broadway ♦ Farmington, NM 87401
(505) 325-7535 ♦ (800) 519-0098 ♦ fax (505) 326-0045

May 6, 2015 #5123699

Mr. Tom Long
Senior Environmental Scientist
Enterprise Products
614 Reilly Ave
Farmington, NM 87401

RE: WORK PLAN FOR THE INVESTIGATION AND DELINEATION OF CONTAMINATION AT THE MASDEN GC #1 E PIPELINE RELEASE SITE, SAN JUAN COUNTY, NEW MEXICO

Dear Mr. Long:

Souder, Miller & Associates (SMA) is pleased to submit this work plan for initial investigation of subsurface water contamination at the Masden #1 E pipeline release site. The site is located in Unit K (NE ¼, NW ¼), Section 28, T29N R11W, Latitude North 36.700959°, Longitude West -108.001644° in San Juan County, New Mexico located on private land.

The enclosed cost estimate is provided based on the scope of work for hydro excavation for pipeline and City of Bloomfield waterline clearance, drilling, monitor well installations, well development and sampling of potentially five monitoring wells at the subject site. The proposed wells are to be installed within accordance of the New Mexico Oil Conservation Division (NMOCD) to determine if subsurface water impacts exist at the release site. The wells will be completed and permitted in accordance with the New Mexico Office of the State Engineer.

SMA proposes to subcontract Nelson Revegetation Field Services for hydro excavation to positively identify the location of the Masden GC #1 E pipeline and the City of Bloomfield waterline prior to drilling. Hydro excavation of the waterline will also remove any remaining contaminated soils in contact with the PVC water line. All soil borings will be advanced via hydro excavation to 5 feet below ground surface (BGS) prior to drilling to ensure clearance of all underground infrastructures. SMA will subcontract Yellow Jacket Drilling Services to advance five soil borings to 10 feet below ground surface and install 2 inch subsurface water monitoring wells. The borings will be sampled as continuous as possible using a split-spoon sampler. Samples will be field screened using a calibrated photoionization detector (PID). One to two soil samples will be collected for laboratory analysis from each boring; one at the highest field screening reading and one at total depth of each boring. If no significant detection is indicated by field screening, only one sample will be collected at the total depth of the boring. The soil samples will be submitted to Hall Environmental Analytical Laboratory located in Albuquerque, NM for analysis via the following methods:

- **EPA Method 8021:** Benzene, toluene, ethylbenzene and xylenes (BTEX),
- **EPA Method 8015:** Gasoline and diesel range organics (GRO/DRO; TPH)

Each well will be constructed with a 2 inch PVC slip end cap on a two foot sediment sump, five feet of 0.010" slotted screen and approximately 3 feet of blank PVC pipe. Four of the five wells will feature above ground surface completions, one will be completed with a traffic rated flush mount completion in a cement pad in San Juan County Road 5008. SMA anticipates three days to complete drilling and monitor well construction.

Once the wells are complete, SMA will develop the wells using a surge and bail technique. Development will be performed per EPA's Standard Operating Procedure 2044. SMA anticipates one

day to complete well development. SMA will allow approximately 24 hours after well development to perform monitoring. During monitoring, SMA will purge a minimum of three well volumes and collect field screening data for pH, conductivity and temperature. SMA will collect one subsurface water sample from each well for laboratory analysis at Hall Laboratory via the following method:

- **EPA Method 8021:** Benzene, Toluene, Ethyl-Benzene and Xylenes (BTEX),
- **EPA Method 300.0:** Chlorides and Sulfates

SMA anticipates one day for completion of monitoring activities. Please note, all soil and subsurface water samples will be submitted for standard laboratory turn around times. No samples will be required for waste characterization as it is anticipated that a MNOCD Form C-138 will be filed for the exempt waste. All soil cutting will be collected and drummed during drilling activities for offsite disposal. Similarly, all drilling equipment decontamination water, development water and purged water will be collected and drummed for offsite disposal. All collected wastes will be disposed of at Envirotech Landfarm under the anticipated form C-138. SMA will contract Envirotech Inc. to pick up and transport the materials to the final disposal location.

Once all field activities are complete and laboratory results are received, SMA will provide a comprehensive report documenting the field activities, well installations and laboratory results. The report will include a narrative, site maps, soil and subsurface water contaminant concentration maps, well logs, laboratory reports and a potentiometric surface map, provided survey data is collected by Enterprise Products survey group.

If you have any additional questions, please do not hesitate to call our office at 505-325-7535.

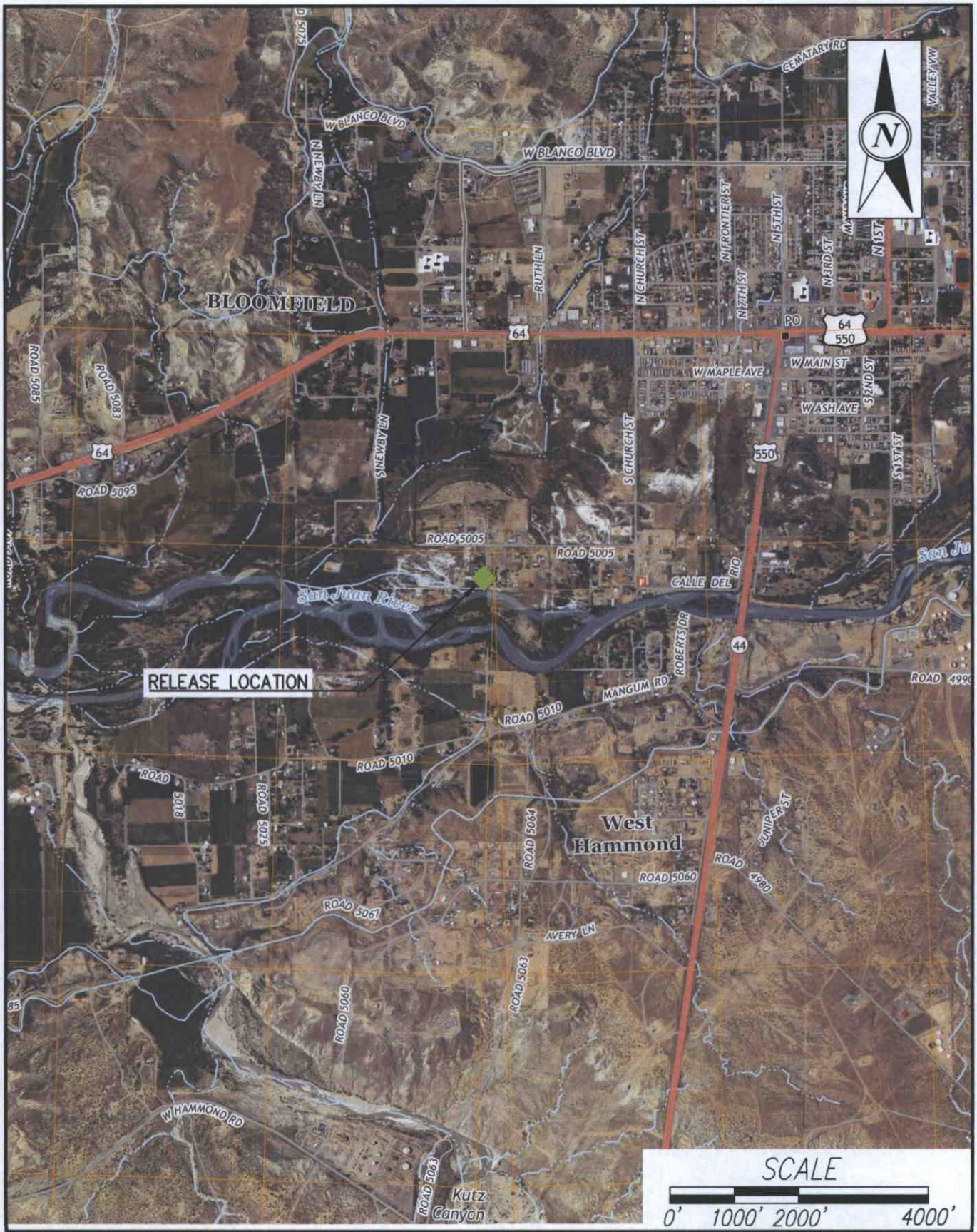
Sincerely,

SOUDER, MILLER & ASSOCIATES

Steve Moskal
Project Scientist

Reid S. Allan, P.G.
Vice President/Principal Scientist

Attached:
Figure 1- Site Vicinity Map
Figure 2 - Proposed Monitoring Well Location Map
Masden #1 E Subsurface water Investigation Cost Estimate



SMA
Engineering
Environmental
Surveying

SOUDER, MILLER & ASSOCIATES
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Farmington, NM 87401-5907
Phone (505) 325-7535 Toll-Free (800) 519-0098 Fax (505) 326-0045
www.soudermiller.com
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THIS DRAWING IS INCOMPLETE AND NOT TO BE USED FOR CONSTRUCTION UNLESS IT IS STAMPED, SIGNED AND DATED

ENTERPRISE FARMINGTON, NEW MEXICO

VICINITY MAP
MASDEN GAS COMM #1E
SECTION 28, T29N, R11W
SAN JUAN COUNTY, NEW MEXICO

Designed	Drawn	Checked
SM	DJB	RSA

Date: FEBRUARY 16, 2015
Scale: Horiz: 1" = 2000'
Vert: NA
Project No: 5123699
Sheet: 1

P:\S-Enterprise MSA (2015) 5123699\Release Response\BG9 - Masden Gas Comm #1E\CAD\Masden Gas Comm #1E Release Site.dwg, GJF, 4/17/2015 3:24 PM

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ENTERPRISE FARMINGTON, NEW MEXICO

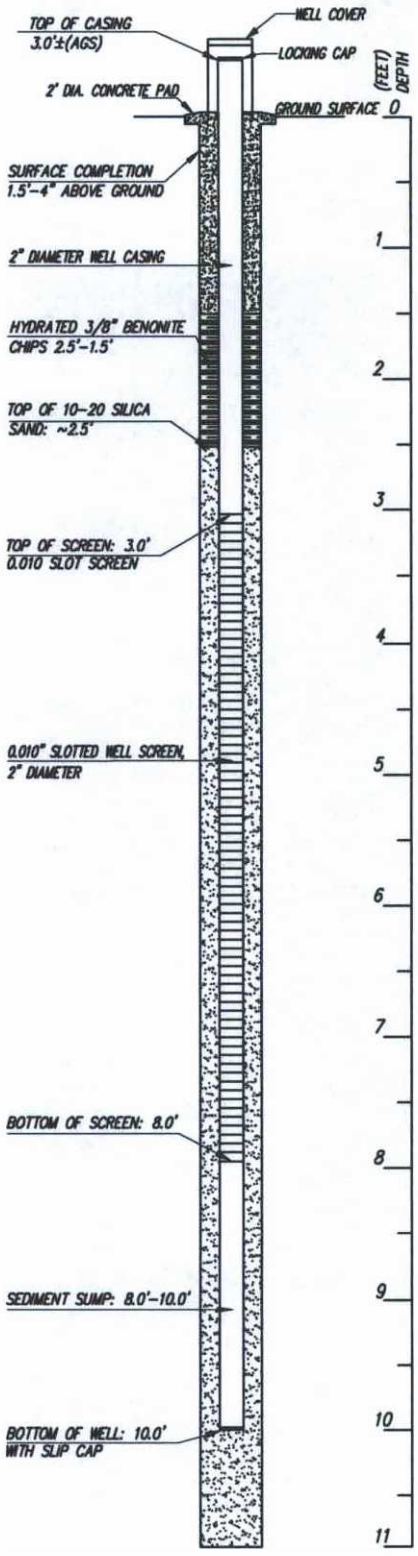
PROPOSED MONITORING WELL LOCATIONS
MASDEN GAS COMM #1E
SECTION 28, T29N, R11W
SAN JUAN COUNTY, NEW MEXICO

Designed	Drawn	Checked
JES	DJB	RSA

Date: MAY, 2015
Scale: Horiz: 1"=40'
Vert: N/A
Project No: 5123699
Sheet: 2

P:\E-Enterprise MSA (2015) 5123699\Release Response\BOB - Masden Gas Comm #1E\CAD\Masden Gas Comm #1E Release Site.dwg , SJM, 5/6/2015 4:20 PM

PROPOSED WELL COMPLETION DIAGRAM



DRILLER: T.B.D.
DATE COMPLETED: N/A
BOREHOLE DIAMETER: 6–8" O.D.
DRILLING METHOD: HOLLOW STEM AUGER
TOTAL BORING DEPTH: ~10.5 FT.
LOGGED BY: T.B.D.

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ENTERPRISE FARMINGTON, NEW MEXICO

PROPOSED MONITORING WELL
COMPLETION DIAGRAM
MASDEN GAS COMM #1E

SAN JUAN COUNTY

Designed	Drawn	Checked
SJM	SJM	RSA

Date: 2/20/2015
Scale: Horiz: NA Vert: NA
Project No: 5123699
Sheet: 5

P:\5-Enterprise MSA (2015) 5123699\Release Response\BG9 - Masden Gas Comm #1E\CAD\Masden GC #1E Proposed Well Completion Diagram.dwg, ADP, 4/17/2015 1:28 PM

Appendix E
Property Access Documentation

ENTERPRISE

June 10, 2015

Ronald and Patricia Johnson
4 Road 5008
Bloomfield, NM 87413

Re: Enterprise Field Service – Ground Water Monitor Wells
In the NE/4 NW/4 of Section 28, T29N, R11W, NMPM, San Juan County, New Mexico

Dear Mr. and Mrs. Johnson,

In relation to the recent repairs made to the pipeline crossing the road in front of your property (CR 5008) Enterprise Field Services, LLC has been instructed by the State of New Mexico to install ground water monitoring wells around the work location. Therefore Enterprise has proposed to install monitoring wells on your property. The wells will be drilled to a depth of eleven feet and will be positioned just off the county road down at the southern end of your property across from the XTO-Masden Gas Com #1E well location. There will be a three foot high riser above ground at the monitor well locations used for taking periodic test samples. The work is scheduled to take place in the next thirty days and will take approximately two days to complete.
The State of New Mexico Engineers office requires Enterprise to submit signed permission from the affected land owners before issuing a drilling permit. I ask that you please sign this notification letter below and return in the self-addressed envelope.

Please call me at (505) 599-2214 to answer any questions you may have concerning this project.

Your cooperation in this matter is appreciated.

Land Owner

Sincerely,

Michael G. Waszut
Sr. Land Representative

ENTERPRISE

June 10, 2015

T C Burrell Trustees, et al.
P. O. Box 1076
Bloomfield, NM 87413

Re: Enterprise Field Service – Ground Water Monitor Wells
In the NW/4 NW/4 of Section 28, T29N, R11W, NMPM, San Juan County, New Mexico

Dear Sirs,

In relation to the recent repairs made to the pipeline crossing County Road 5008 Enterprise Field Services, LLC has been instructed by the State of New Mexico to install ground water monitoring wells around the work location. Therefore Enterprise has proposed to install monitoring wells on your property. The monitoring wells will be located on the XTO-Masden Gas Com #1E well location at the southeast corner of your property. The wells will be drilled to a depth of eleven feet and will be positioned just off the county road. There will be a three foot high square column above ground at the monitor well locations used for taking periodic test samples.

The State of New Mexico Engineers office requires Enterprise to submit signed permission from the affected land owners before issuing a drilling permit. I ask that you please sign this notification letter below and return in the self-addressed envelope.

Please call me at (505) 599-2214 to answer any questions you may have concerning this project.

Your cooperation in this matter is appreciated.

Tom Burrell
Land Owner

Sincerely,

Michael G. Waszut

Michael G. Waszut
Sr. Land Representative