3R – 457

2015 GWMR

06 / 29 / 2015

Enterprise Products

ENTERPRISE PRODUCTS PARTNERS L.P.
ENTERPRISE PRODUCTS HOLDINGS LLC
(General Partner)

ENTERPRISE PRODUCTS OPERATING LLC

June 29, 2015

Submitted to the NMOCD ftp website

Mr. Glenn von Gonten
New Mexico Energy, Minerals & Natural Resources
Department - Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

Re: Groundwater Investigation Report
Lateral C-64 July 2013 Line Drip Release
NW ¼ NE ¼, Sec 24, T27N, R6W
Rio Arriba County, New Mexico

Dear Mr. von Gonten:

Enterprise Field Services, LLC (Enterprise) is submitting the enclosed report entitled: *Groundwater Investigation Report Lateral C-64 Natural Gas Pipeline Drip Release,* (Souder, Miller & Assoc. April 14, 2015). This report documents the initial groundwater investigation at the Lateral C-64 release discovered in July 2013.

Laboratory analytical results from the soil borings for monitoring wells indicate total petroleum hydrocarbon (TPH) concentrations in soil above the New Mexico Oil Conservation Division (NMOCD) action levels. Additionally, groundwater analytical results from monitoring wells indicate benzene, total xylenes, and sulfate concentrations in groundwater at concentrations that exceed the New Mexico Water Quality Control Commission (WQCC) drinking water standards. Based on conditions observed during and after the installation of the monitoring wells, it is possible that a confined or semi-confined aquifer is present at the site.

Enterprise plans to plug and abandon the existing monitoring wells due to the uncertain aquifer conditions at the site. Enterprise will further evaluate the groundwater conditions and will install additional monitoring wells at the site with appropriate construction (screen and plug placement) to further evaluate groundwater chemistry and characteristics. If you have any questions concerning the enclosed report and workplan, please do not hesitate to contact me at (713) 381-8780, or via email at: gemiller@eprod.com.

Sincerely,

Gregory E. Miller P.G.
Supervisor, Remediation

Rodney M. Sartor, REM
Director, Environmental

/dep
Enclosure

cc: Nick Candelaria – 511 E. Broadway, Farmington, NM 87401 – ***(Hand Delivered by Enterprise)***
Cory Smith - NMOCD, Aztec, NM
Jim Griswold – NMOCD, Santa Fe, NM

P. O. BOX 4324
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713.381.6500

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HOUSTON, TX 77002-5227
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GROUNDWATER INVESTIGATION REPORT
LATERAL C-64 NATURAL GAS PIPELINE DRIP RELEASE

UNIT B, SECTION 24, TOWNSHIP 27 NORTH, RANGE 6 WEST,
36.563695°, -107.414268°
RIO ARRIBA COUNTY, NEW MEXICO

April 14, 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 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 line drip on the Lateral C-64 site. The initial excavation and backfill soil remediation activities were completed by a third party environmental consulting company, Animas Environmental Services (AES) on July 31, 2013. The well installation and sampling is intended to complete the groundwater impact investigation submitted to the New Mexico Oil Conservation Division (OCD) on December 2, 2013.

2.0 Introduction

Background

The Lateral C-64 line drip release was discovered on July 24, 2013 and was associated with internal corrosion. An unknown amount of natural gas and pipeline liquids were released. The Lateral C-64 line drip release is located in (NW ¼ / NE ¼) Unit B, Section 24, Township 27 North, Range 6 West, 36.563695°, -107.414268°, Rio Arriba County, New Mexico. Figure 1, Vicinity Map, illustrates the general location of the release.

AES oversaw the excavation, initial sampling and backfill activities on July 31, 2013. Discreet sidewall samples were collected from 2.5 feet below ground surface (bgs) on all four walls of the excavation, and the base was sampled at 6' and 11' bgs during excavation. Laboratory analysis indicated concentrations above NMOCD remediation standards at both base depths (TPH> 2,000ppm @ 6', TPH> 1,700 @ 11') and in the north wall of the excavation (S-4 TPH = 133ppm). Due to proximity to groundwater and other pipelines, the excavation was backfilled with clean material. AES recommended a continued site assessment by installing soil borings to further delineate the extent of the release. The final excavation measured 24 feet by 12 feet by 11 feet deep.

SMA was subsequently contacted by Enterprise in regards to the continued site assessment activities, and asked to carry forward with the installation of 5 soil borings to be completed as monitoring wells.

New Mexico Oil Conservation Division Site Ranking

The release site is located along the south bank of Carrizo Arroyo Wash on privately owned land with an elevation of approximately 6,339 feet above sea level. The first saturated soils were encountered at approximately 27 feet bgs during the drilling activities for soil investigations and monitoring well installation.

SMA searched the New Mexico Office of the State Engineer's (OSE) online water well data base for water wells in the vicinity of the release. No recorded wells were located within 1,000 feet of the site.

The physical location of this release is within the jurisdiction of the OCD. This release location has been assigned an OCD ranking of 40 because Carrizo Arroyo is located about 115' to the northeast and groundwater is less than 50'. A site ranking of 40 requires soil remediation standards of 10 parts per million (ppm) benzene, 50 ppm total benzene, toluene, ethyl-benzene, and total xylenes (BTEX), and 100 ppm total petroleum hydrocarbons (TPH).

3.0 Summary of Field Activities

Site Access and Control: The Lateral C-64 site is located on private property. Property access was granted via an agreement with Enterprise Products and the private landowner.

Well Permits: Enterprise Products provided New Mexico Office of the State Engineer (OSE) monitoring well permits, executed by AES. OSE issued the well permits approval on December 26, 2014.

Utility Location
On February 17, 2015, SMA oversaw the hydro excavation potholing activities on site to expose the Lateral C-64 pipeline in the vicinity of the proposed boreholes. To ensure pipeline clearance the Lateral C-64 pipeline was exposed in two locations. Due to the close proximity of pipelines and electrical utilities on site, it was decided to hydro excavate 4 of the 5 soil boring locations beyond the anticipated depth of any possible underground infrastructure. The locations of MW-1, MW-3, and MW-4 were advanced to 5 feet below ground surface (bgs) and MW-2 was advanced to 9 feet bgs. The soil from the hydro excavation was transported for disposal at Envirotech Landfarm located near Hilltop, NM.

Soil Boring and Monitoring Well Locations: The five monitoring well locations were chosen to establish the groundwater gradient and to determine the extent of possible groundwater contamination at the Lateral C-64 site. Figure 2 illustrates the drilling locations.

Soil Boring Advancement
During the drilling, soil samples were continuously collected for field screening and laboratory analysis at five foot intervals. Field screening was conducted using a properly calibrated photoionization detector (PID). Saturated soils were encountered at approximately 27 feet bgs however static water levels were measured between 15' and 19' below TOC in each boring after completion as monitoring wells. Drill cuttings and purged water was placed onto 55 gallon drums and transported to Envirotech Landfarm near Bloomfield, NM. Soil and purge water disposal documentation is included in Appendix B.

Monitoring Well Installation

Drilling and Monitoring Well Completions: From February 17, 2015 through February 20, 2015 the drilling and well installations were performed by Enviro-Drill, Inc. of Albuquerque, NM utilizing a CME 75 drill rig with a Hollow Stem Auger (HSA) tool string. Split spoon samples were collected at 5 foot intervals for field screening using a calibrated PID. Laboratory samples were collected from the capillary fringe and also from the sample with the highest PID reading. Field screening results ranged from 2.6 ppm to 2,931 ppm, field screening results and borehole lithology logs are included on the Monitoring Well Completion Diagrams (Figures 3-7).

Due to underground infrastructure limiting access and mobility on the site, the well installation order progressed from farthest from the road to closest to the road. All five soil borings were advanced to 30 feet bgs with decontaminated augers. Monitoring wells MW-1, MW-2, MW-3 were constructed with 15' of threaded PVC 0.010" slotted screen and 15' of threaded 2" PVC well pipe, MW-4 and MW-5 were constructed with 20' of threaded PVC 0.010" slotted screen and 10' of threaded 2" PVC well pipe. Well Completion Diagrams for each monitoring well are included as Figures 3-7.

The wells were completed with aboveground steel well shrouds cemented into 2 foot round pads. Each well was fitted with 3 protective bollards to prevent damage from vehicle collisions, livestock or wildlife.

Well Development and Sampling: On February 20, 2015 the monitoring wells were developed by rapidly inserting a solid slug into the well and allowing the well to sit and return to equilibrium for approximately five minutes. The slug was then rapidly removed and allowed to return to equilibrium for approximately five minutes. The process was repeated in each well approximately 8 times, per well. The wells were then purged (over-pump method) of approximately three borehole volumes of water using an electric, submersible pump. 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 Envirotech Landfarm. Disposal documentation is included in Appendix B.

Once development was complete, sampling was scheduled approximately 48 hours later to allow the wells to recover and stabilize, however inclement weather delayed site access and sampling for 6 days. On February 26, 2015, SMA, with oversight from Cory Smith of the OCD, purged an additional three well volumes and collected groundwater samples from two wells, MW-1 and MW-2. However, due to impending inclement weather the remaining three wells were not sampled. SMA returned to the site on March, 5 2015 to collect samples, as previously described, from all five monitoring wells. The samples were collected in laboratory provided 40 milliliter (ml) VOAs preserved with $HgCl_2$ and 250 ml unpreserved plastic containers, 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) and Method 300.0 for chlorides and sulfates.

4.0 Conclusions and Recommendations

Borehole Soil Sampling Results: Laboratory analytical results of the soil samples collected from the five monitoring well boreholes are above remediation standards for TPH in three samples, MW-2 @ 15' with combined TPH = 146 ppm, MW-3 @ 10' with TPH = 230 ppm, and MW-4 @ 15' with TPH = 123 ppm. A summary of 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 monitor wells are above standard for benzene in 3 samples, MW-2 with 39 µg/L, MW-3 with 140 µ/L, and MW-4 with 37 µg/L. Total xylenes where below standard in all samples except for MW-3 with 1,400 µg/L. Chloride was below standard in all samples and Sulfate was above standard in all samples. A summary of laboratory results is included as Table 2, and a summary of groundwater elevations is included in Table 3. A copy of the laboratory report is included in Appendix C.

Recommendations: Because soil contaminant concentrations are above OCD and New Mexico Water Quality Control Commission standards, SMA recommends the excavation of remaining contaminated soils. A target layer of contaminated soil exists between 12 and 25 feet in varying thicknesses across the site. Based on lab analysis and field screening of the soil borings SMA anticipates the overburden soil can be stockpiled and sampled for use as backfill material. SMA also recommends removal of any infiltrating water during the excavation to be collected and hauled off for disposal to further remove any contamination.

SMA recommends plugging the monitor wells with bentonite and cement slurry to isolate any possible conduit of groundwater to shallower soil contamination. Further excavation at the Lateral C-64 site will involve the removal of the plugged monitor wells. After the excavation has been backfilled, SMA recommends the installation of 3 monitoring wells for quarterly groundwater monitoring.

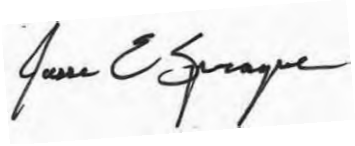
5.0 Closure and Limitations

The scope of our services consisted of 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 Steve Moskal or Reid Allan at 505-325-7535.

Submitted by:

SOUDER, MILLER & ASSOCIATES

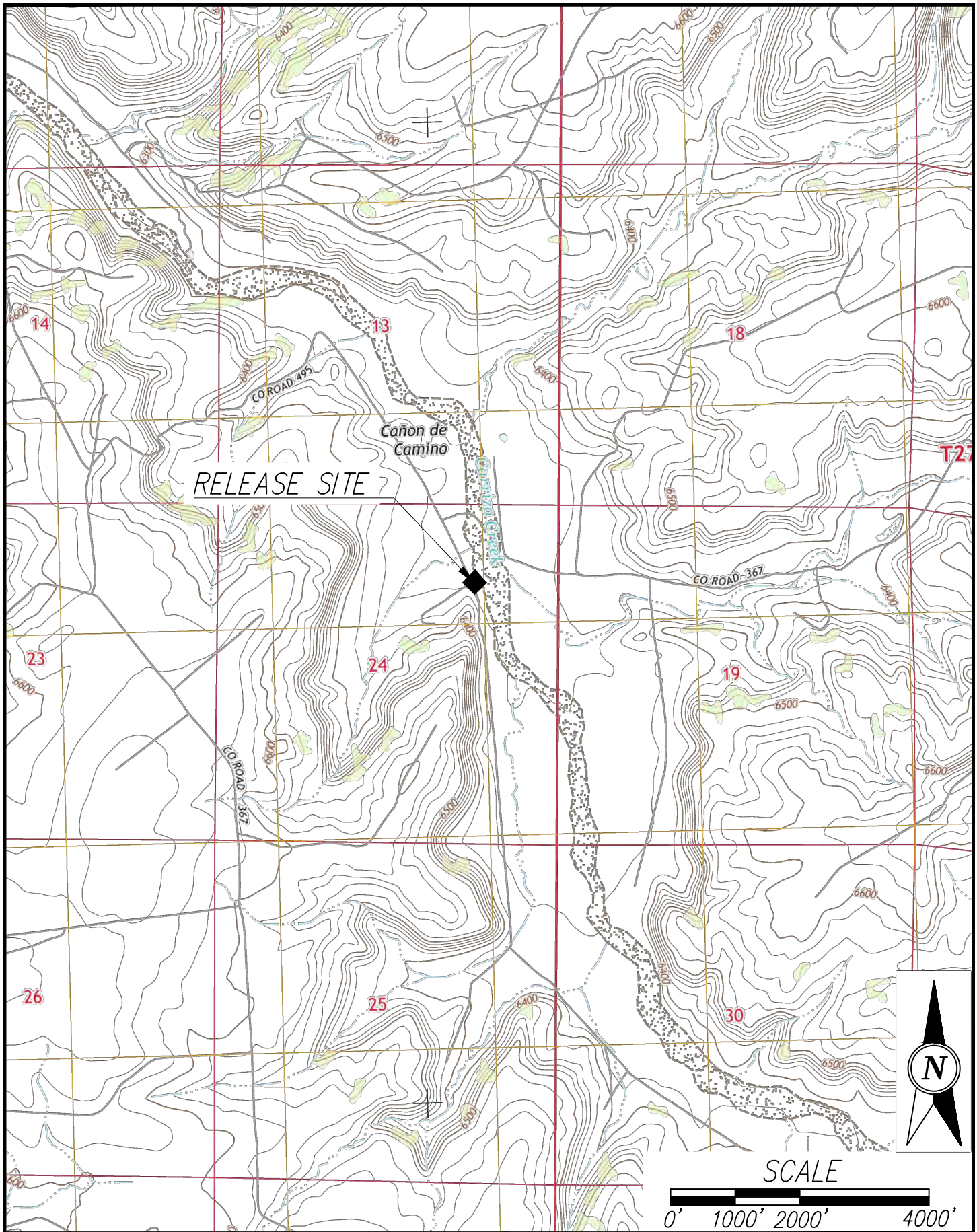


Jesse Sprague
Staff Scientist

Reviewed by:

Reid S. Allan, PG
Principal Scientist

Figures



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VICINITY MAP
LATERAL C-64
SECTION 24, T27N, R6W

RIO ARRIBA COUNTY, NEW MEXICO

Designed	Drawn	Checked
SM	DJB	RSA

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

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SITE LOCATION MAP WITH WELL LOCATIONS
LATERAL C-64
SECTION 24, T27N, R6W

RIO ARRIBA COUNTY, NEW MEXICO

Designed	Drawn	Checked
SM	DJB	RSA

Date: APRIL, 2015

Scale: Horiz: 1"=40'
Vert: N/A

Project No: 5123699

Sheet: 2

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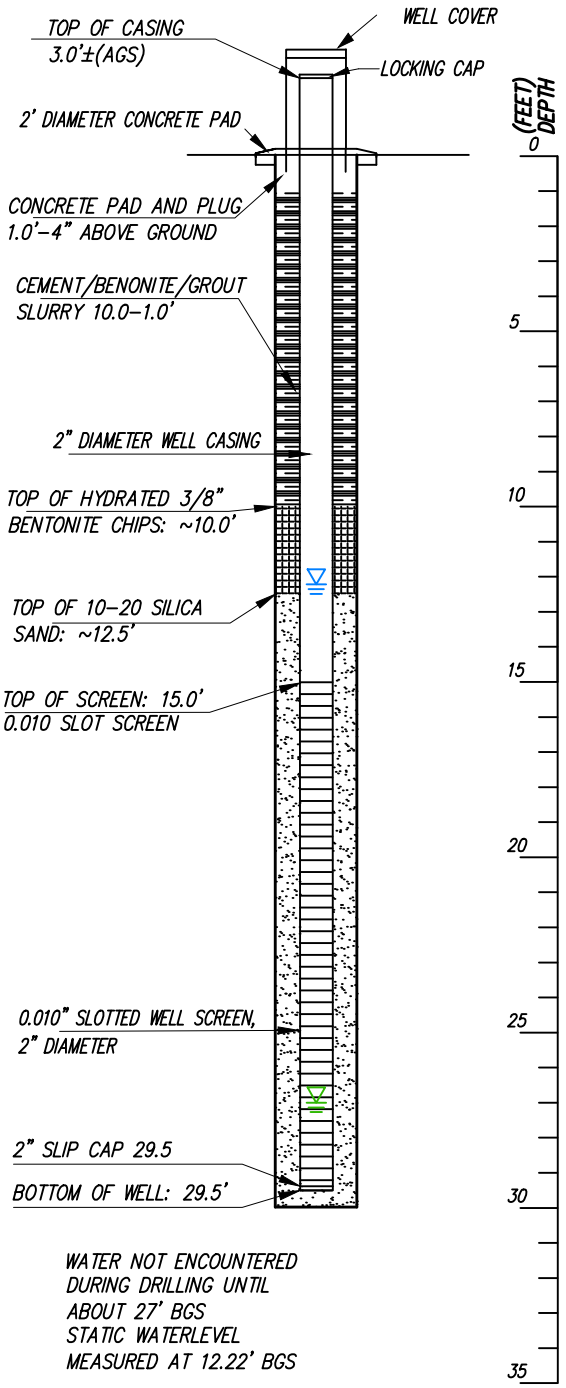
MONITORING WELL CONSTRUCTION LOG



WATER NOT ENCOUNTERED
DURING DRILLING UNTIL
ABOUT 27' BGS
STATIC WATERLEVEL
MEASURED AT 12.22' BGS

SOIL TYPE	PID (PPM)	COLOR	SAMPLE DESCRIPTION
			NS
	2.5	7.5YR 4/4	BROWN CLAYEY SAND, FINE TO MEDIUM GRAINED SUB ANGULAR POORLY GRADED SAND LOW MOISTURE CONTENT
			NS
	100.7	7.5YR 4/3	BROWN SANDY CLAY SAND IS SUB ANGULAR, FINE, LOW MOISTURE CONTENT
			NS
	65.1	7.5YR 25/2	BROWN SANDY CLAY, 30% FINE GRAIN SUB ANGULAR WELL GRADED SAND, LOW MOISTURE CONTENT
			NS
	44.6	7.5YR 4/4	BROWN SANDY CLAY, FINE GRAIN SUB ANGULAR WELL GRADED SAND, LOW MOISTURE CONTENT
			NS
	SAMPLED WET		BROWN SANDY CLAY, FINE GRAIN SUB ANGULAR WELL GRADED SAND, HIGHER MOISTURE CONTENT THAN 20' SAMPLE
			NS
	SAMPLED WET	7.5YR 6/6	YELLOW COURSE GRAINED SAND, MODERATELY GRADED, SUB ANGULAR WITH BROWN CLAY LENSES, WET

END OF HOLE

DRILLER: ENVIRO-DRILL, INC.
DATE COMPLETED: FEBRUARY 17, 2015
BOREHOLE DIAMETER: 6" O.D.
SAMPLER TYPE: SPLIT SPOON
DRILLING METHOD: HOLLOW STEM AUGER
TOTAL BORING DEPTH: 30 FT.
LOGGED BY: JES
NS = NOT SAMPLED

LOG LEGEND

SAND

CLAY

WATER ENCOUNTERED DURING DRILLING

STATIC WATER LEVEL

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MW-1 CONSTRUCTION LOG
LATERAL C-64
SECTION 24, T27N, R6W

Designed	Drawn	Checked
JES	GJF	RSA

Date: APRIL, 2015
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Project No: 5123699
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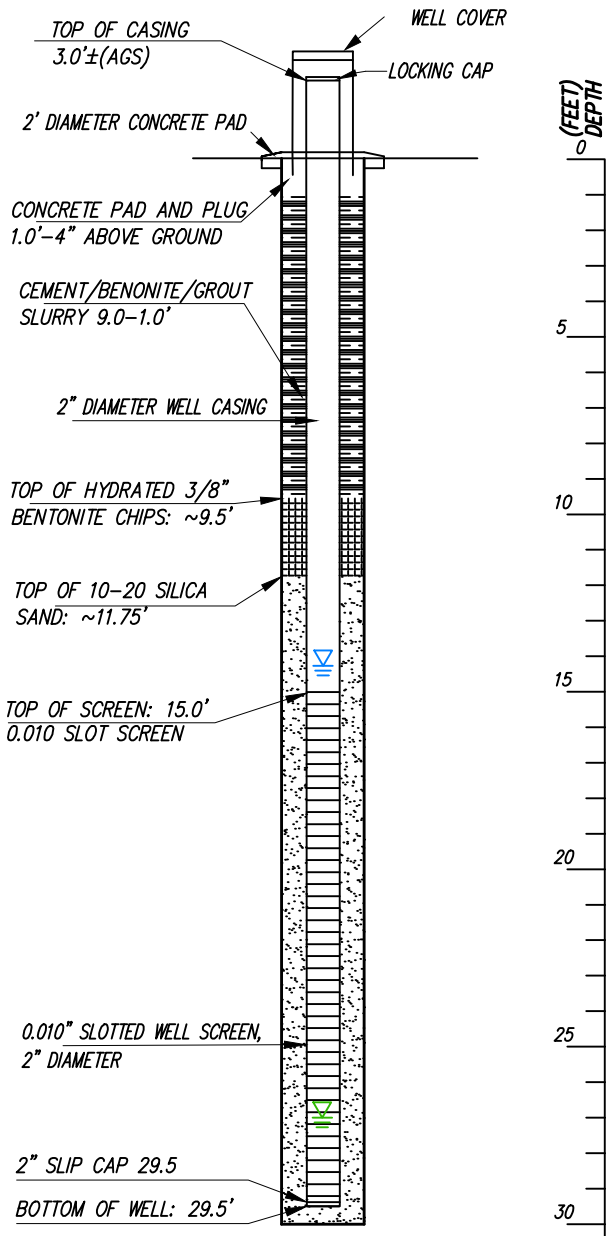
MONITORING WELL CONSTRUCTION LOG



WATER NOT ENCOUNTERED
DURING DRILLING UNTIL
ABOUT 27' BGS
STATIC WATERLEVEL
MEASURED AT 14.26' BGS

(FEET) DEPTH	SOIL TYPE	PID (PPM)	COLOR	SAMPLE DESCRIPTION
0				NS
5		38.2	10YR 4/3	CLAYEY SAND; FINE TO MEDIUM GRAIN, WELL GRADED SUB ANGULAR SAND
				NS
10		49.1	2.5YR 7/3	LIGHT TAN SAND FINE TO MEDIUM GRAIN, POORLY GRADED (MOSTLY MEDIUM GRAIN) QUARTZ SAND, LOW MOISTURE, CLAY FILMS, 5% CLAY
				NS
15		2355		BLACK LAYER STRONG HYDROCARBON ODOR, ABOUT 1' THICK, BOUNDED ABOVE AND BELOW BY SANDY CLAY. 25% SAND, BROWN THICK CLAY
				NS
20		562	10YR 4/3	SOME BLACK STAINING, SLIGHT ODOR, SANDY CLAY, WELL GRADED SUB ANGULAR SAND IN BROWN (TIGHT) CLAYS
				NS
25		70.6	10YR 3/1	THICK TIGHT CLAY WITH QUARTZ GRAINS
				NS
30		SAMPLED WET	10YR 6/4	INTERBEDDED WET CLAY LENSES AND WET SAND, COURSE GRAINED POORLY GRADED SUB ANGULAR SAND
35	END OF HOLE			

LOG LEGEND

- SAND
- CLAY
- WATER ENCOUNTERED DURING DRILLING
- STATIC WATER LEVEL

DRILLER: ENVIRO–DRILL, INC.
DATE COMPLETED: FEBRUARY 18, 2015
BOREHOLE DIAMETER: 6" O.D.
SAMPLER TYPE: SPLIT SPOON
DRILLING METHOD: HOLLOW STEM AUGER
TOTAL BORING DEPTH: 30 FT.
LOGGED BY: JES
NS = NOT SAMPLED

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MW-2 CONSTRUCTION LOG
LATERAL C-64
SECTION 24, T27N, R6W

Designed	Drawn	Checked
JES	GJF	RSA

Date: APRIL, 2015
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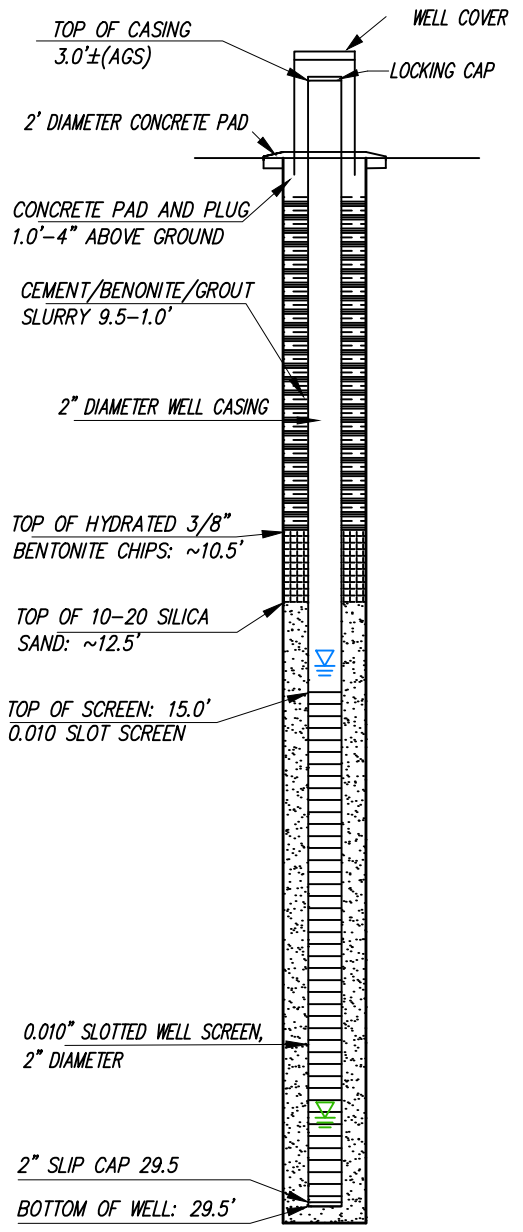

WATER NOT ENCOUNTERED
DURING DRILLING UNTIL
ABOUT 27' BGS
STATIC WATERLEVEL
MEASURED AT 14.26' BGS

DEPTH (FEET)	SOIL TYPE	PID (PPM)	COLOR	SAMPLE DESCRIPTION
0				
				NS
5		84.3	10YR 4/3	CLAYEY SAND, WELL GRADED, SUB ANGULAR FINE TO COURSE GRAIN SAND
				NS
10		2931	10YR 4/3	BROWN CLAY LAYER OVER BLACK LAYER WITH STRONG HYDROCARBON ODOR
				NS
15		1948	10YR 5/4	SOME BLACK STAINING IN SANDY CLAY; WELL GRADED FINE TO COARSE GRAIN SAND
				NS
20		514	10YR 4/4 5YR 2.5/1	BROWN SANDY CLAY TO GRAY SHALE (DARK) SANDY CLAY 10YR 4/4 SHALE STONE 5YR 2.5/
				NS
25		107.9	10YR 4/3	BROWN SANDY CLAY, FINE GRAIN SUB ANGULA MODERATE MOISTURE CONTENT
				NS
30		SAMPLED WET	10YR 4/3	INTERBEDDED WET CLAY AND SANDSTONE
35				END OF HOLE

LOG LEGEND

SAND
SANDSTONE
CLAY
SHALE
WATER ENCOUNTERED DURING DRILLING
STATIC WATER LEVEL

DRILLER: ENVIRO–DRILL, INC.
DATE COMPLETED: FEBRUARY 18, 2015
BOREHOLE DIAMETER: 6" O.D.
SAMPLER TYPE: SPLIT SPOON
DRILLING METHOD: HOLLOW STEM AUGER
TOTAL BORING DEPTH: 30 FT.
LOGGED BY: JES
NS = NOT SAMPLED

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MW-3 CONSTRUCTION LOG
LATERAL C-64
SECTION 24, T27N, R6W

Designed	Drawn	Checked
JES	GJF	RSA

Date: 2/11/15
Scale: Horiz: n/a Vert: n/a
Project No: 5123699
Figure: 5

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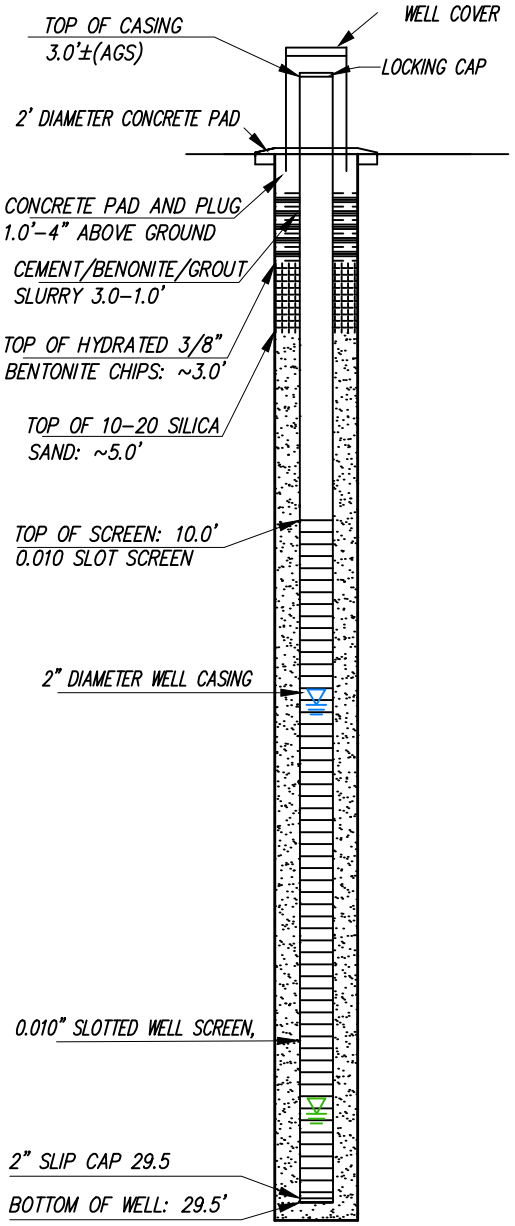
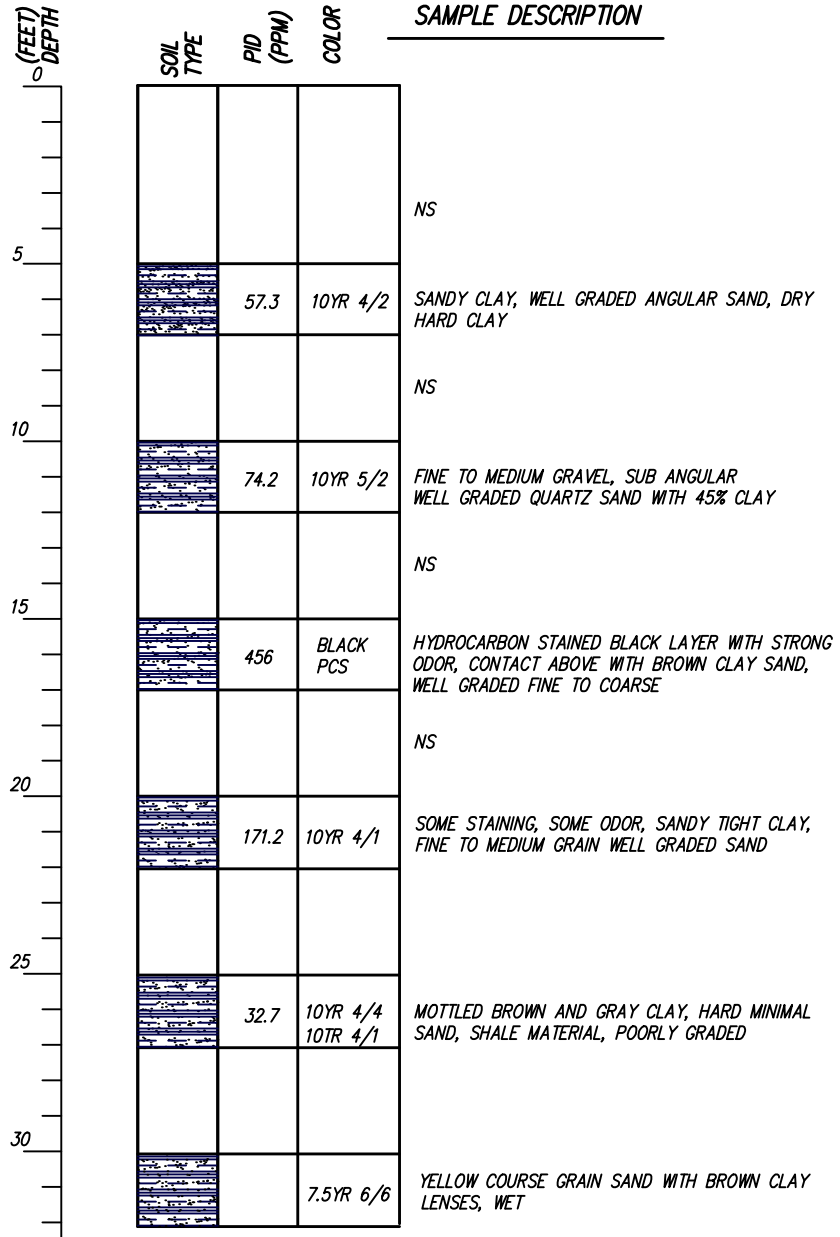
MONITORING WELL CONSTRUCTION LOG





WATER NOT ENCOUNTERED
DURING DRILLING UNTIL
ABOUT 27' BGS
STATIC WATERLEVEL
MEASURED AT 15.48' BGS

LOG LEGEND

SAND

CLAY

WATER ENCOUNTERED DURING DRILLING

STATIC WATER LEVEL

DRILLER: ENVIRO-DRILL, INC.
DATE COMPLETED: FEBRUARY 18, 2015
BOREHOLE DIAMETER: 6" O.D.
SAMPLER TYPE: SPLIT SPOON
DRILLING METHOD: HOLLOW STEM AUGER
TOTAL BORING DEPTH: 30 FT.
LOGGED BY: JES
NS = NOT SAMPLED

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MW-4 CONSTRUCTION LOG
LATERAL C-64
SECTION 24, T27N, R6W

Designed	Drawn	Checked
JES	GJF	RSA

Date: APRIL, 2015
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Project No: 5123699
Figure: 6

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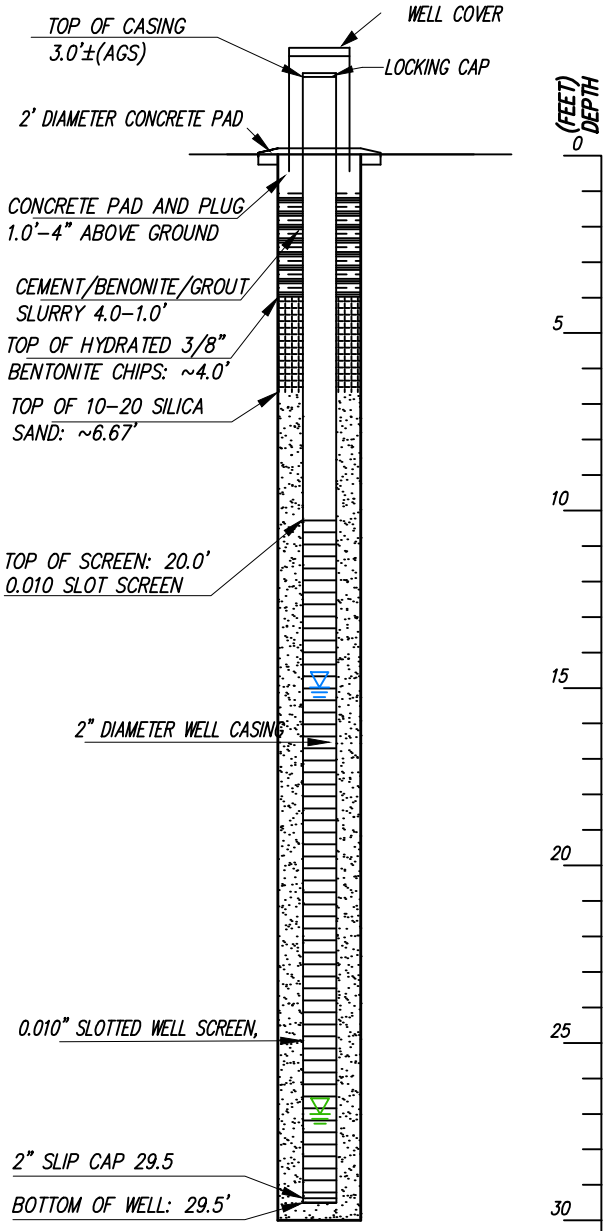
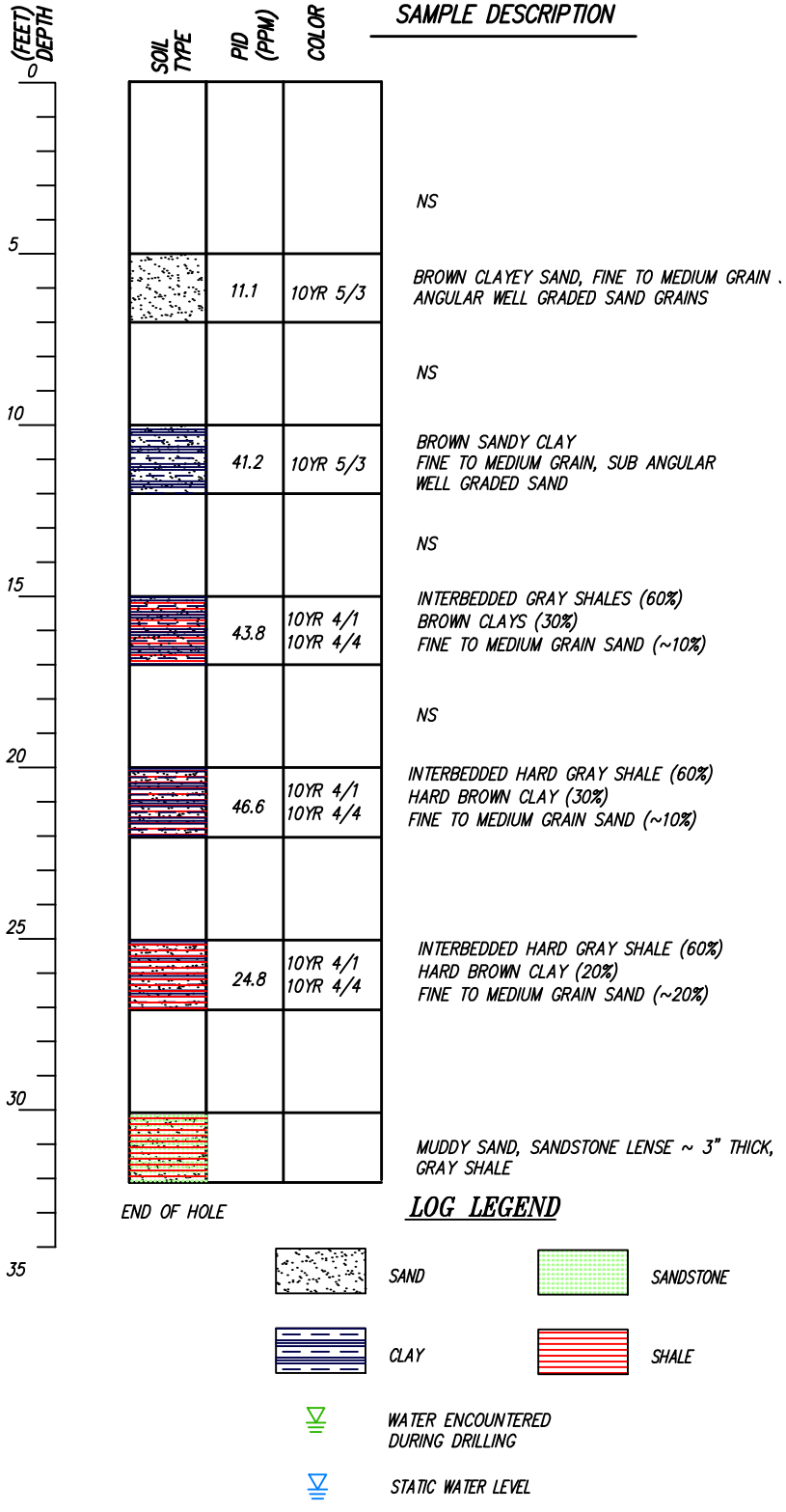
MONITORING WELL CONSTRUCTION LOG





WATER NOT ENCOUNTERED
DURING DRILLING UNTIL
ABOUT 27' BGS
STATIC WATERLEVEL
MEASURED AT 14.99' BGS

DRILLER: ENVIRO-DRILL, INC.
DATE COMPLETED: FEBRUARY 18, 2015
BOREHOLE DIAMETER: 6" O.D.
SAMPLER TYPE: SPLIT SPOON
DRILLING METHOD: HOLLOW STEM AUGER
TOTAL BORING DEPTH: 30 FT.
LOGGED BY: JES
NS = NOT SAMPLED

LOG LEGEND

THIS DRAWING IS INCOMPLETE AND NOT TO BE USED FOR CONSTRUCTION UNLESS IT IS STAMPED, SIGNED AND DATED

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Engineering
Environmental
Surveying

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ENTERPRISE FARMINGTON, NEW MEXICO

MW-5 CONSTRUCTION LOG
LATERAL C-64
SECTION 27 , T27N, R6W

Designed	Drawn	Checked
JES	GJF	RSA

Date: APRIL, 2015
Scale: Horiz: n/a Vert: n/a
Project No: 5123699
Figure: 7

P:\5-Enterprise MSA (2015) 5123699\Release Response\BG8 - C-64\CAD\Civil\Soil Boring Log.dwg, GJF, 4/16/2015 11:44 AM

Date	Time	Sample ID	Sample Depth (Feet BGS)	Method 8015 GRO	Method 8015 DRO	Method 8021 Benzene	Method 8021 BTEX	Method 300.0 Chloride	Walkey Black TOC
NMOCD Guidelines		NMOCD Site Ranking: 40		100 ppm		10 ppm	50 ppm		
2/17/2015	13:15	MW-1 @ 10'	10'	<4.9	31	<0.049	<0.099	--	--
2/17/2015	13:45	MW-1 @ 25'	25'	<4.8	<10	<0.048	<0.096	--	--
2/18/2015	9:20	MW-2 @ 15'	15'	**82**	**64**	<0.097	3.24	--	--
2/18/2015	9:45	MW-2 @ 25'	25'	12	<9.8	<0.048	0.446	--	--
2/18/2015	11:50	MW-3 @ 10'	10'	**110**	**120**	<0.10	25.72	120	0.24
2/18/2015	12:15	MW-3 @ 25'	25'	30	32	<0.049	1.77	13	0.14
2/18/2015	13:50	MW-4 @ 15'	15'	**71**	**52**	<0.05	4.93	--	--
2/18/2015	14:10	MW-4 @ 25'	25'	11	<10	<0.050	0.587	--	--
2/19/2015	9:15	MW-5 @ 20'	20'	<4.7	<9.9	<0.047	<0.094	--	--
2/19/2015	9:30	MW-5 @ 25'	25'	<5	<10	<0.050	<0.1	--	--

LEGEND

MW-2 MONITORING WELL LOCATION

N

SCALE

0' 15' 30' 20'

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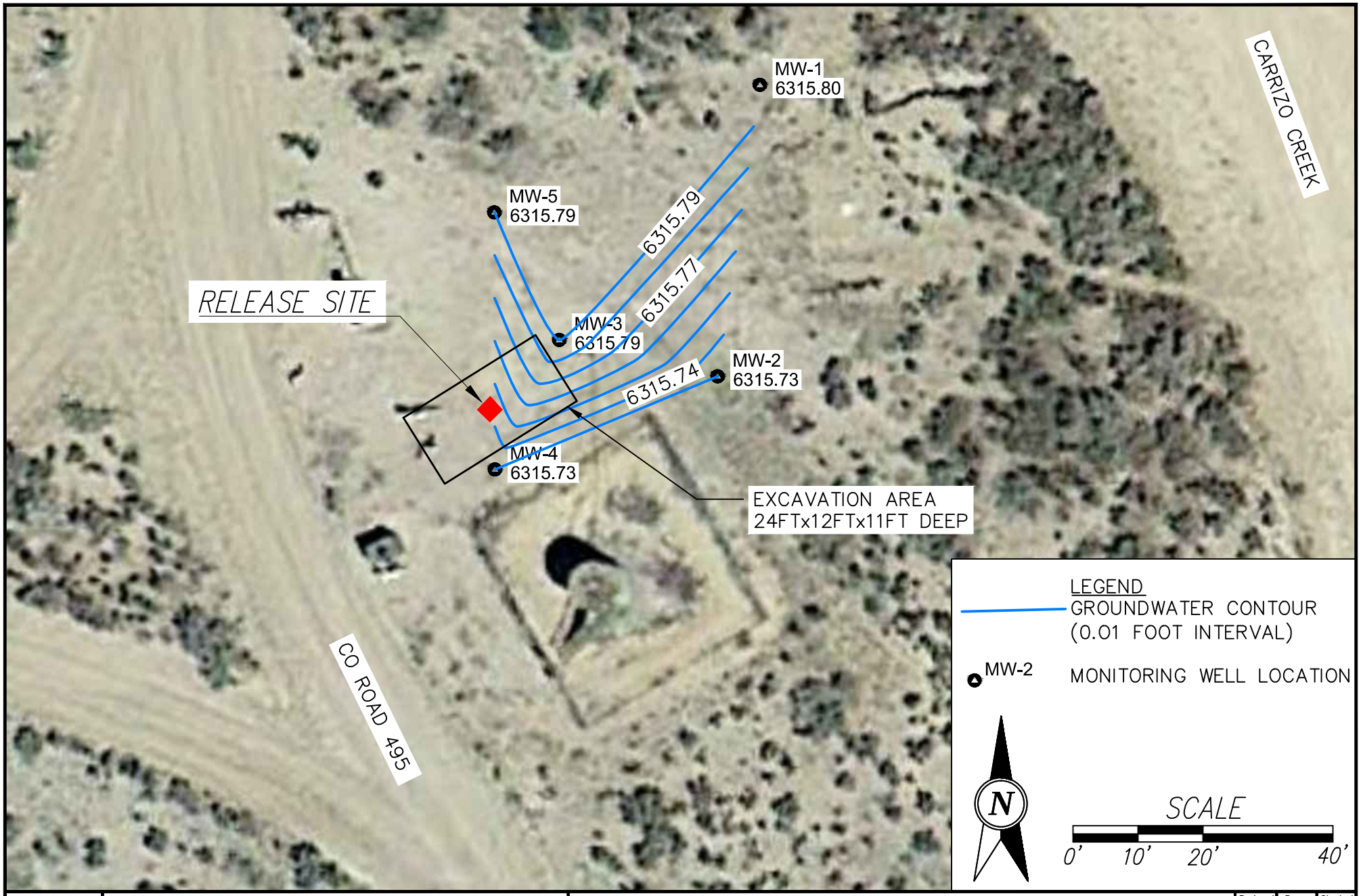
SOIL SAMPLE ANALYTICAL MAP
LATERAL C-64
SECTION 24, T27N, R6W

RIO ARRIBA COUNTY, NEW MEXICO

Designed	Drawn	Checked
JES	GJF	RSA

Date: APRIL, 2015
Scale: Horiz: 1"=20' Vert: N/A
Project No: 5123699
Figure: 8

P:\5-Enterprise MSA (2015) 5123699\Release Response\BG8 - C-64\CAD\Civil\C-64 POTENTIOMETRIC 3-15.dwg, GJF, 4/16/2015 10:20 AM



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FARMINGTON, NEW MEXICO

GROUNDWATER CONTOUR MAP
LATERAL C-64
SECTION 24, T27N, R6W

RIO ARRIBA COUNTY, NEW MEXICO

Designed	Drawn	Checked
JES	DJB	RSA

Date: APRIL, 2015

Scale: Horiz: 1"=40'
Vert: N/A

Project No: 5123699

Figure: 9

P:\5-Enterprise MSA (2015) 5123699\Release Response\BG8 - C-64\CAD\Civil\C-64 POTENTIOMETRIC 3-15.dwg, GJF, 4/16/2015 10:21 AM

Date	Time	Sample ID	Method 8021				Method 300.0	
			Benzene	Toluene	Ethylbenzene	Total Xylenes	Chloride	Sulfate
			(µg/l)				(mg/L)	
NMWQCC/EIB/PSTB Standards			10	750	750	620	250	600
3/5/2015	10:30	MW-1	<2.0	<2.0	<2.0	<4.0	12	**1300**
3/5/2015	11:40	MW-2	**39**	37	15	110	12	**1400**
3/5/2015	12:10	MW-3	**140**	420	87	**1400**	14	**1400**
3/5/2015	11:05	MW-4	**37**	38	12	190	16	**1700**
3/5/2015	9:53	MW-5	<2.0	<2.0	<2.0	<4	14	**1500**

LEGEND

MW-2 MONITORING WELL LOCATION

N

SCALE

0' 15' 30' 30'

SMA Engineering Environmental Surveying

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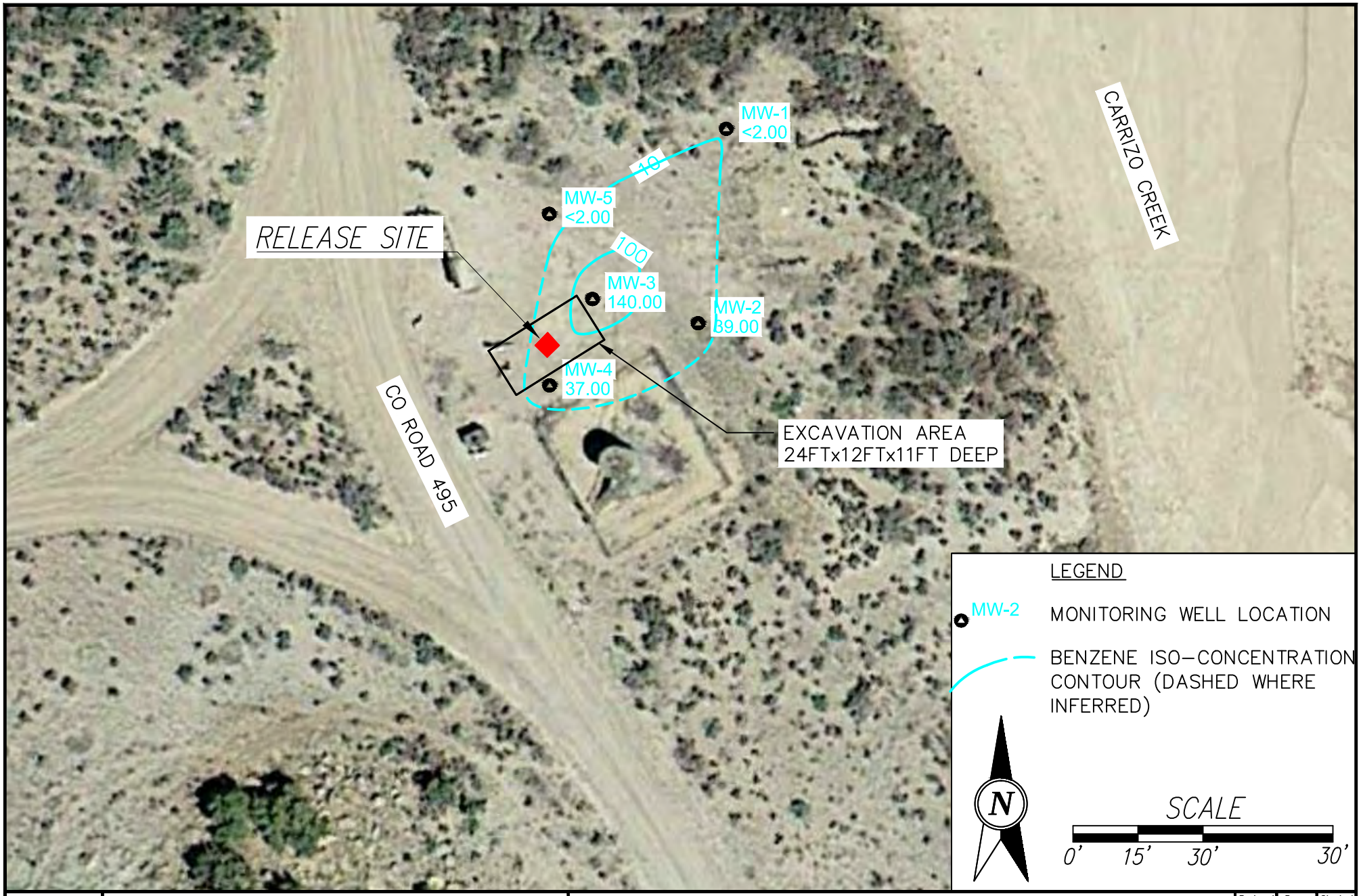
GROUNDWATER SAMPLING MAP
LATERAL C-64
SECTION 24, T27N, R6W

RIO ARRIBA COUNTY, NEW MEXICO

Designed	Drawn	Checked
JES	GJF	RSA

Date: APRIL, 2015
Scale: Horiz: 1"=30'
Vert: N/A
Project No: 5123699
Figure: 10

P:\5-Enterprise MSA (2015) 5123699\Release Response\BG8 - C-64\CAD\Civil\C-64 POTENTIOMETRIC 3-15.dwg, GJF, 4/16/2015 10:21 AM



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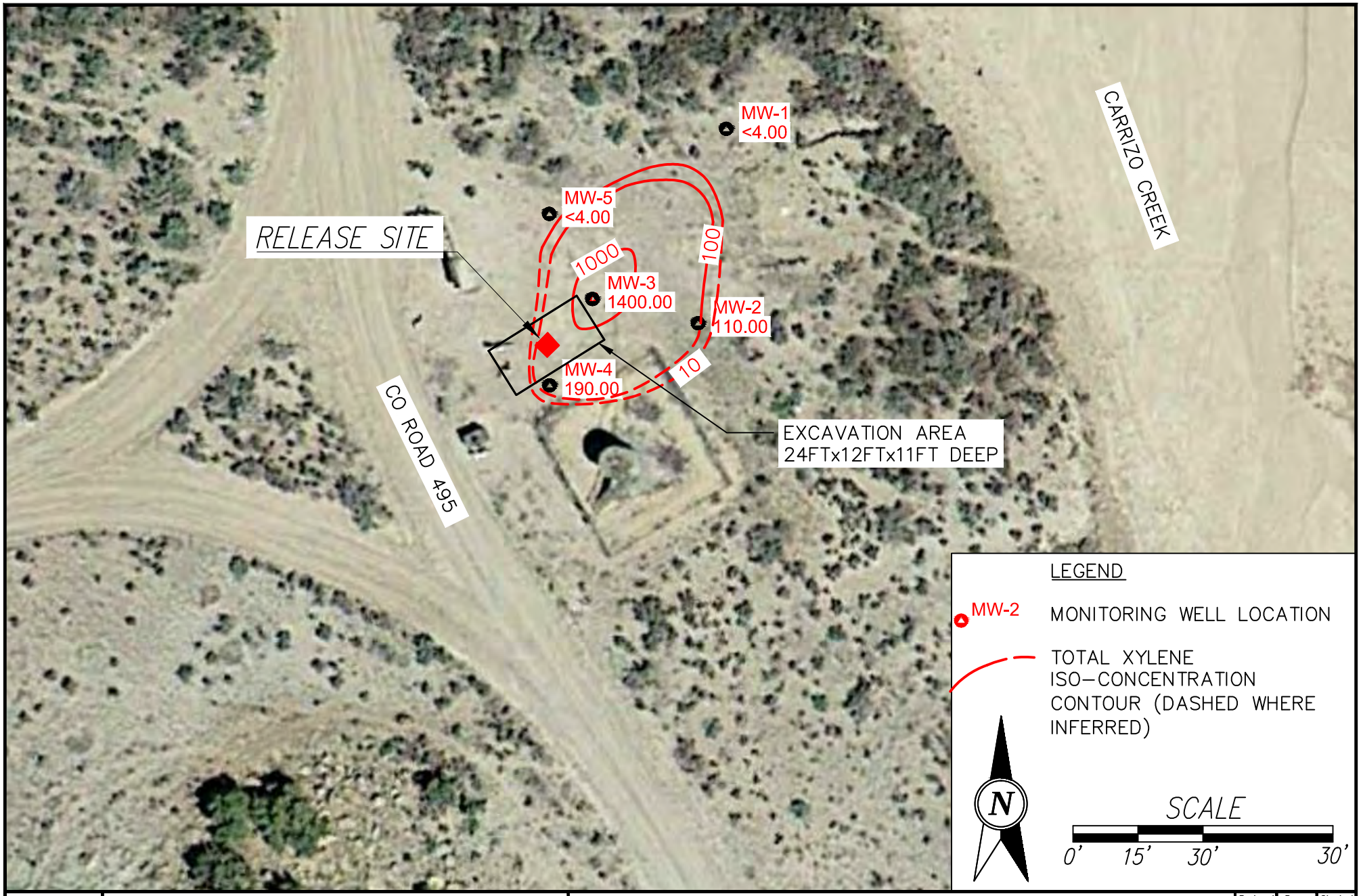
GROUNDWATER BENZENE ISO-CONCENTRATRION MAP
LATERAL C-64
SECTION 24, T27N, R6W

RIO ARRIBA COUNTY, NEW MEXICO

Designed	Drawn	Checked
JES	GJF	RSA

Date: APRIL, 2015
Scale: Horiz: 1"=30'
Vert: N/A
Project No: 5123699
Figure: 11

P:\5-Enterprise MSA (2015) 5123699\Release Response\BG8 - C-64\CAD\Civil\C-64 POTENTIOMETRIC 3-15.dwg, GJF, 5/4/2015 2:45 PM



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GROUNDWATER TOTAL XYLENE ISO-CONCENTRATION MAP
LATERAL C-64
SECTION 24, T27N, R6W

RIO ARRIBA COUNTY, NEW MEXICO

Designed	Drawn	Checked
JES	GJF	RSA

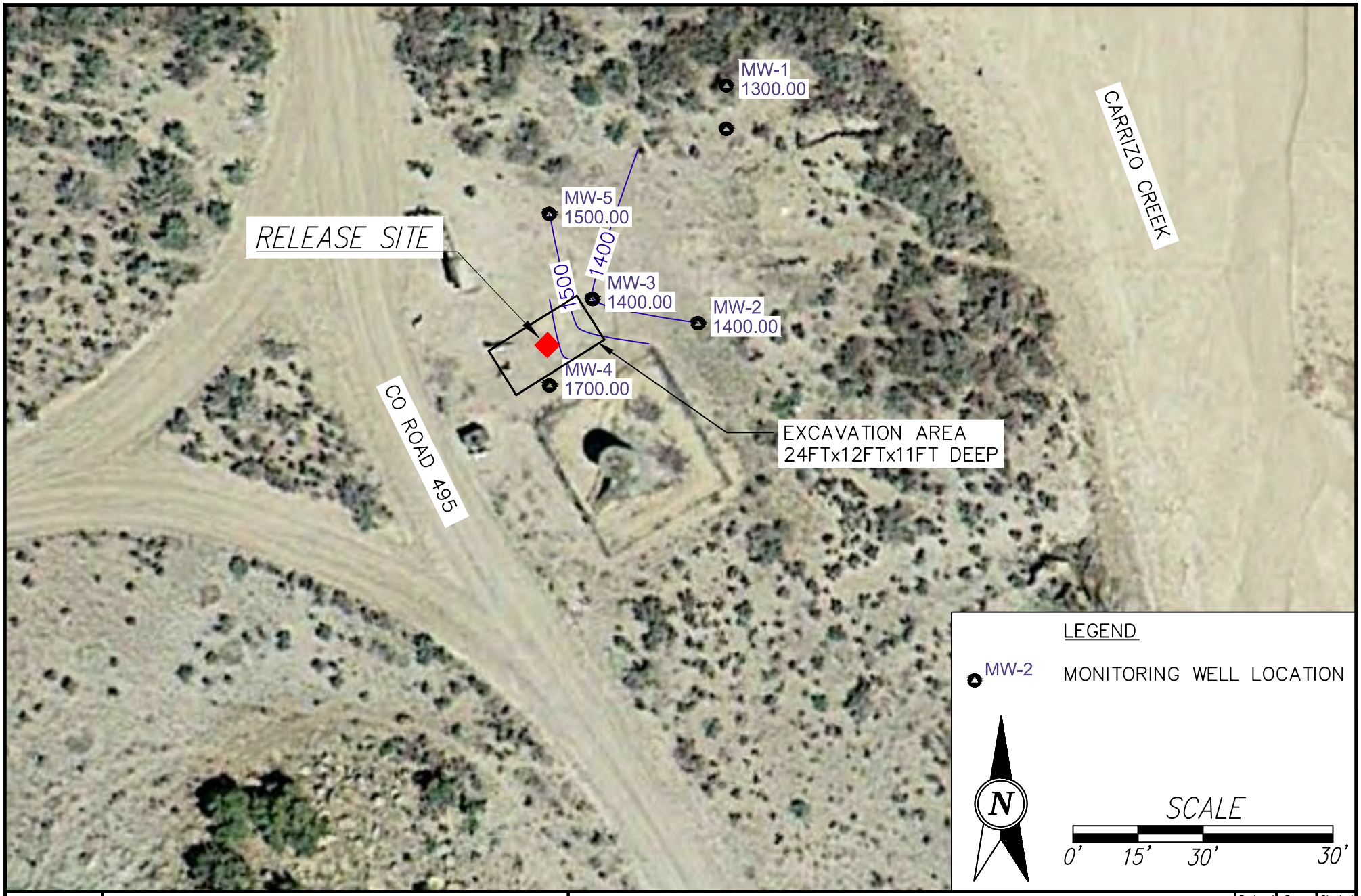
Date: APRIL, 2015

Scale: Horiz: 1"=30'
Vert: N/A

Project No: 5123699

Figure: 12

P:\5-Enterprise MSA (2015) 5123699\Release Response\BG8 - C-64\CAD\Civil\C-64 POTENTIOMETRIC 3-15.dwg, GJF, 5/4/2015 2:45 PM



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FARMINGTON, NEW MEXICO

GROUNDWATER SULFATE ISO-CONCENTRATION MAP
LATERAL C-64
SECTION 24, T27N, R6W

RIO ARRIBA COUNTY, NEW MEXICO

Designed	Drawn	Checked
JES	GJF	RSA

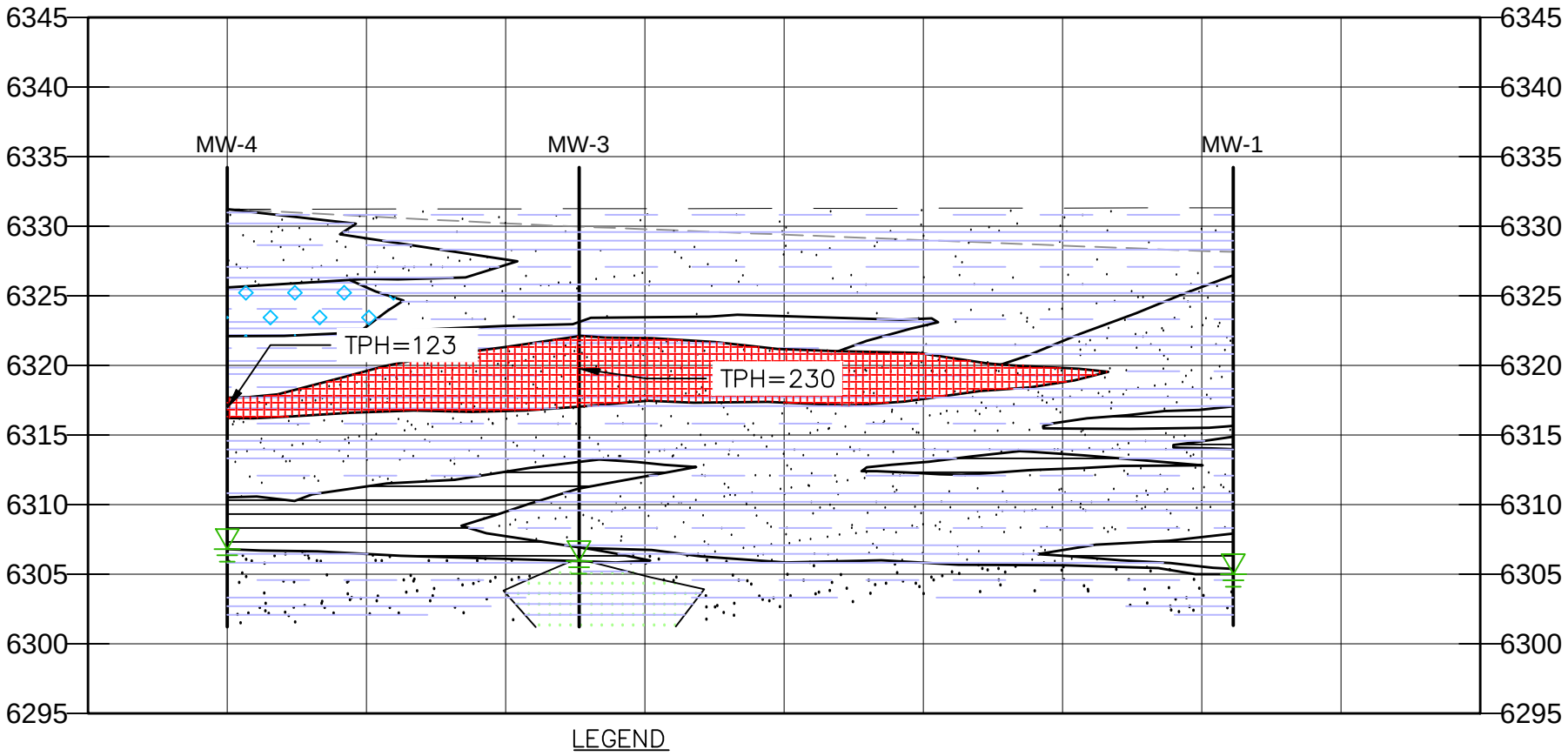
Date: APRIL, 2015

Scale: Horiz: 1"=30'
Vert: N/A

Project No: 5123699

Figure: 13

P:\5-Enterprise MSA (2015) 5123699\Release Response\BG8 - C-64\CAD\Civil\C-64 POTENTIOMETRIC 3-15.dwg, GJF, 5/4/2015 2:44 PM



LEGEND

SANDY CLAY

BLACK STAINING IN SANDY CLAY

CLAY

CLAYEY SAND

SHALE

INTERBEDDED CLAY AND SANDSTONE

CLAYEY SAND

COARSE SAND W/ CLAY LENSES

WATER ENCOUNTERED DURING DRILLING

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ENTERPRISE

GEOLOGIC CROSS-SECTION
LATERAL C-64
SECTION 24, T27N, R6W

RIO ARRIBA COUNTY, NEW MEXICO

Designed	Drawn	Checked
JES	DJB	RSA

Date: APRIL, 2015

Scale: Horiz: 1"=30'
Vert: N/A

Project No: 5123699

Figure: 14

P:\5-Enterprise MSA (2015) 5123699\Release Response\BG8 - C-64\CAD\Civil\C-64 POTENTIOMETRIC 3-15.dwg, GJF, 5/5/2015 9:34 AM

Tables

Enterprise Products
Table 1: Summary of Laboratory Analysis
Results in mg/Kg

Date	Time	Sample ID	Sample Depth (Feet BGS)	Method 8015 GRO	Method 8015 DRO	Method 8021 Benzene	Method 8021 BTEX	Method 300.0 Chloride	Walkey Black TOC
NMOCD Guidelines		NMOCD Site Ranking: 40		100 ppm		10 ppm	50 ppm		
2/17/2015	13:15	MW-1 @ 10'	10'	<4.9	31	<0.049	<0.099	--	--
2/17/2015	13:45	MW-1 @ 25'	25'	<4.8	<10	<0.048	<0.096	--	--
2/18/2015	9:20	MW-2 @ 15'	15'	**82**	**64**	<0.097	3.24	--	--
2/18/2015	9:45	MW-2 @ 25'	25'	12	<9.8	<0.048	0.446	--	--
2/18/2015	11:50	MW-3 @ 10'	10'	**110**	**120**	<0.10	25.72	120	0.24
2/18/2015	12:15	MW-3 @ 25'	25'	30	32	<0.049	1.77	13	0.14
2/18/2015	13:50	MW-4 @ 15'	15'	**71**	**52**	<0.05	4.93	--	--
2/18/2015	14:10	MW-4 @ 25'	25'	11	<10	<0.050	0.587	--	--
2/19/2015	9:15	MW-5 @ 20'	20'	<4.7	<9.9	<0.047	<0.094	--	--
2/19/2015	9:30	MW-5 @ 25'	25'	<5	<10	<0.050	<0.1	--	--

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	Sulfate
			(µg/l)				(mg/L)	
NMWQCC/EIB/PSTB Standards			10	750	750	620	250	600
3/5/2015	10:30	MW-1	<2.0	<2.0	<2.0	<4.0	12	**1300**
3/5/2015	11:40	MW-2	**39**	37	15	110	12	**1400**
3/5/2015	12:10	MW-3	**140**	420	87	**1400**	14	**1400**
3/5/2015	11:05	MW-4	**37**	38	12	190	16	**1700**
3/5/2015	9:53	MW-5	<2.0	<2.0	<2.0	<4	14	**1500**

Enterprise Products

Table 3: Groundwater Elevation Table

Well ID	Depth Below TOC	Elevation of TOC	Grounwater Elevation
MW-1	15.45	6331.25	6315.8
MW-2	17.3	6333.028	6315.728
MW-3	17.26	6333.05	6315.79
MW-4	18.4	6334.188	6315.788
MW-5	17.8	6333.53	6315.73

Appendix A
Photographic Documentation

Site Photographs
Enterprise Products Lateral C-64 Pipeline

Photo 1: Lateral C-64 pipeline release site. The density of utilities and pipeline infrastructure on site constrained the well construction to proceed from farthest to closest to the road.

Photo 2: NRE Field Services hydro excavated the pipeline and advanced the borehole locations beyond the depth of any possible buried infrastructure. .

Site Photographs
Enterprise Products Lateral C-64 Pipeline

Photo 3: Enviro-Drill Inc. from Albuquerque installed the boreholes and monitor wells on site using a CME-75 drill rig with Hollow Stem Auger tooling and a split spoon sampler.

Photo 4: Split spoon sampler was decontaminated between each sample. All cuttings where drummed on site and disposed of by Envirotech.

Site Photographs
Enterprise Products Lateral C-64 Pipeline

Photo 5: MW-3 is located closest to the location of the release, pictured is the split spoon sample driven from 10 to 12 feet. The black interval is between 11 and 12 feet bgs and had a noticeable hydrocarbon odor.

Photo 6: Purging the completed monitor well (MW-1) with a Grunfos submersible electric pump, after wells where surged with a PVC slug. Field parameters where measured with a calibrated HACH meter (on barrel) to monitor stabilization of pH, Temperature and Conductivity.

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
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

97057-0690

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:
Lateral C-64 Groundwater Investigation Feb. 2015

3. Location of Material (Street Address, City, State or ULSTR):
UL A Section 29, T27N, R6W; 36.563695, -107.414268

4. Source and Description of Waste:
Source: Drill Cuttings/purged water associated with a groundwater investigation for a pipeline release.
Description: Hydrocarbon impacted water and soil
Estimated Volume 9 (yd³) / bbls Known Volume (to be entered by the operator at the end of the haul) 20 yd³ / bbls

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) 3-25-15, representative for Enterprise Field Services, LLC authorizes Envirotech, Inc. to complete
Generator Signature
the required testing/sign the Generator Waste Testing Certification.

I, Kendra Rumsey, representative for Envirotech, 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: Nelson Re-Vegetation

OCD Permitted Surface Waste Management Facility
Name and Facility Permit #: **Envirotech, Inc. Soil Remediation Facility * Permit #: NM 01-0011**
Address of Facility: **Hilltop, NM**

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: Kendra Rumsey TITLE: Waste Coordinator DATE: 2/17/15
SIGNATURE: Kendra Rumsey TELEPHONE NO.: 505-632-0615
Surface Waste Management Facility ~~Authorized~~ Agent

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
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources 97057-0690
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:
Lateral C-64 Groundwater Investigation March 2015

3. Location of Material (Street Address, City, State or ULSTR):
UL A Section 29, T27N, R6W; 36.563695, -107.414268

4. Source and Description of Waste:
Source: Drill Cuttings/purged water associated with a groundwater investigation for a pipeline release.
Description: Hydrocarbon impacted water and soil
Estimated Volume 9 (yd³) bbls Known Volume (to be entered by the operator at the end of the haul) 12 yd³ (bbls)

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) 3-25-15, representative for Enterprise Field Services, LLC authorizes Envirotech, Inc. to complete
Generator Signature
the required testing/sign the Generator Waste Testing Certification.

I, Kendra Runnung; representative for Envirotech, 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: ~~**Nelson Re Vegetation**~~ Envirotech

OCD Permitted Surface Waste Management Facility
Name and Facility Permit #: **Envirotech, Inc. Soil Remediation Facility * Permit #: NM 01-0011**
Address of Facility: **Hilltop, NM**

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: Kendra Runnung TITLE: Waste Coordinator DATE: 3/30/15
SIGNATURE: Kendra Runnung TELEPHONE NO.: 505-632-0615
Surface Waste Management Facility Authorized ~~Agent~~

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

March 11, 2015

Shawna Chubbuck

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

RE: Lateral C-64 OrderNo.: 1502A15

Dear Shawna Chubbuck:

Hall Environmental Analysis Laboratory received 10 sample(s) on 2/25/2015 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 **1502A15**
Date Reported: **3/11/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller and Associates
Client Sample ID: MW-1 @ 10'
Project: Lateral C-64
Collection Date: 2/17/2015 1:15:00 PM
Lab ID: 1502A15-001 **Matrix:** SOIL **Received Date:** 2/25/2015 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **BCN**	
Diesel Range Organics (DRO)	31	10		mg/Kg	1	2/27/2015 1:24:58 AM	17890
Motor Oil Range Organics (MRO)	ND	51		mg/Kg	1	2/27/2015 1:24:58 AM	17890
Surr: DNOP	108	63.5-128		%REC	1	2/27/2015 1:24:58 AM	17890
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	2/26/2015 4:15:30 PM	17893
Surr: BFB	103	80-120		%REC	1	2/26/2015 4:15:30 PM	17893
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.049		mg/Kg	1	2/26/2015 4:15:30 PM	17893
Toluene	ND	0.049		mg/Kg	1	2/26/2015 4:15:30 PM	17893
Ethylbenzene	ND	0.049		mg/Kg	1	2/26/2015 4:15:30 PM	17893
Xylenes, Total	ND	0.099		mg/Kg	1	2/26/2015 4:15:30 PM	17893
Surr: 4-Bromofluorobenzene	106	80-120		%REC	1	2/26/2015 4:15:30 PM	17893

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: MW-1 @ 25'
Project: Lateral C-64
Collection Date: 2/17/2015 1:45:00 PM
Lab ID: 1502A15-002 **Matrix:** SOIL **Received Date:** 2/25/2015 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **BCN**	
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	2/27/2015 1:46:12 AM	17890
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	2/27/2015 1:46:12 AM	17890
Surr: DNOP	103	63.5-128		%REC	1	2/27/2015 1:46:12 AM	17890
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	2/26/2015 4:44:16 PM	17893
Surr: BFB	100	80-120		%REC	1	2/26/2015 4:44:16 PM	17893
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.048		mg/Kg	1	2/26/2015 4:44:16 PM	17893
Toluene	ND	0.048		mg/Kg	1	2/26/2015 4:44:16 PM	17893
Ethylbenzene	ND	0.048		mg/Kg	1	2/26/2015 4:44:16 PM	17893
Xylenes, Total	ND	0.096		mg/Kg	1	2/26/2015 4:44:16 PM	17893
Surr: 4-Bromofluorobenzene	108	80-120		%REC	1	2/26/2015 4:44:16 PM	17893

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: MW-2 @ 15'
Project: Lateral C-64
Collection Date: 2/18/2015 9:20:00 AM
Lab ID: 1502A15-003 **Matrix:** SOIL **Received Date:** 2/25/2015 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **BCN**	
Diesel Range Organics (DRO)	64	10		mg/Kg	1	2/27/2015 2:07:28 AM	17890
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	2/27/2015 2:07:28 AM	17890
Surr: DNOP	108	63.5-128		%REC	1	2/27/2015 2:07:28 AM	17890
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	82	9.7		mg/Kg	2	2/27/2015 12:13:39 PM	17893
Surr: BFB	305	80-120	S	%REC	2	2/27/2015 12:13:39 PM	17893
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.097		mg/Kg	2	2/27/2015 12:13:39 PM	17893
Toluene	ND	0.097		mg/Kg	2	2/27/2015 12:13:39 PM	17893
Ethylbenzene	0.34	0.097		mg/Kg	2	2/27/2015 12:13:39 PM	17893
Xylenes, Total	2.9	0.19		mg/Kg	2	2/27/2015 12:13:39 PM	17893
Surr: 4-Bromofluorobenzene	116	80-120		%REC	2	2/27/2015 12:13:39 PM	17893

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: MW-2 @ 25'
Project: Lateral C-64
Collection Date: 2/18/2015 9:45:00 AM
Lab ID: 1502A15-004
Matrix: SOIL
Received Date: 2/25/2015 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **BCN**	
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	2/27/2015 2:28:38 AM	17890
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	2/27/2015 2:28:38 AM	17890
Surr: DNOP	99.9	63.5-128		%REC	1	2/27/2015 2:28:38 AM	17890
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	12	4.8		mg/Kg	1	2/26/2015 5:13:02 PM	17893
Surr: BFB	130	80-120	S	%REC	1	2/26/2015 5:13:02 PM	17893
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.048		mg/Kg	1	2/27/2015 12:42:25 PM	17893
Toluene	ND	0.048		mg/Kg	1	2/27/2015 12:42:25 PM	17893
Ethylbenzene	0.076	0.048		mg/Kg	1	2/27/2015 12:42:25 PM	17893
Xylenes, Total	0.37	0.096		mg/Kg	1	2/27/2015 12:42:25 PM	17893
Surr: 4-Bromofluorobenzene	108	80-120		%REC	1	2/27/2015 12:42:25 PM	17893

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: MW-3 @ 10'
Project: Lateral C-64
Collection Date: 2/18/2015 11:50:00 AM
Lab ID: 1502A15-005 **Matrix:** SOIL **Received Date:** 2/25/2015 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **BCN**	
Diesel Range Organics (DRO)	120	9.8		mg/Kg	1	2/27/2015 2:50:05 AM	17890
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	2/27/2015 2:50:05 AM	17890
Surr: DNOP	102	63.5-128		%REC	1	2/27/2015 2:50:05 AM	17890
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	110	5.0		mg/Kg	1	2/26/2015 5:41:46 PM	17893
Surr: BFB	715	80-120	S	%REC	1	2/26/2015 5:41:46 PM	17893
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.10		mg/Kg	2	2/27/2015 1:11:09 PM	17893
Toluene	0.16	0.10		mg/Kg	2	2/27/2015 1:11:09 PM	17893
Ethylbenzene	0.70	0.10		mg/Kg	2	2/27/2015 1:11:09 PM	17893
Xylenes, Total	12	0.20		mg/Kg	2	2/27/2015 1:11:09 PM	17893
Surr: 4-Bromofluorobenzene	134	80-120	S	%REC	2	2/27/2015 1:11:09 PM	17893
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	120	30		mg/Kg	20	3/2/2015 11:33:22 AM	17957
WALKLEY BLACK TOC/FOC/OM						Analyst: **JRR**	
TOC	0.24	0.13		% C	1	3/3/2015 2:13:00 PM	17981

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: MW-3 @ 25'
Project: Lateral C-64
Collection Date: 2/18/2015 12:15:00 PM
Lab ID: 1502A15-006 **Matrix:** SOIL **Received Date:** 2/25/2015 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **BCN**	
Diesel Range Organics (DRO)	32	9.9		mg/Kg	1	2/27/2015 3:11:21 AM	17890
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	2/27/2015 3:11:21 AM	17890
Surr: DNOP	105	63.5-128		%REC	1	2/27/2015 3:11:21 AM	17890
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	30	4.9		mg/Kg	1	2/26/2015 6:10:29 PM	17893
Surr: BFB	211	80-120	S	%REC	1	2/26/2015 6:10:29 PM	17893
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.049		mg/Kg	1	2/27/2015 2:08:34 PM	17893
Toluene	ND	0.049		mg/Kg	1	2/27/2015 2:08:34 PM	17893
Ethylbenzene	0.17	0.049		mg/Kg	1	2/27/2015 2:08:34 PM	17893
Xylenes, Total	1.6	0.098		mg/Kg	1	2/27/2015 2:08:34 PM	17893
Surr: 4-Bromofluorobenzene	116	80-120		%REC	1	2/27/2015 2:08:34 PM	17893
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	13	1.5		mg/Kg	1	3/3/2015 5:40:22 PM	17957
WALKLEY BLACK TOC/FOC/OM						Analyst: **JRR**	
TOC	0.14	0.13		% C	1	3/3/2015 2:13:00 PM	17981

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: MW-4 @ 15'
Project: Lateral C-64
Collection Date: 2/18/2015 1:50:00 PM
Lab ID: 1502A15-007 **Matrix:** SOIL **Received Date:** 2/25/2015 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **BCN**	
Diesel Range Organics (DRO)	52	9.8		mg/Kg	1	2/27/2015 3:32:42 AM	17890
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	2/27/2015 3:32:42 AM	17890
Surr: DNOP	94.8	63.5-128		%REC	1	2/27/2015 3:32:42 AM	17890
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	71	5.0		mg/Kg	1	2/26/2015 6:39:09 PM	17893
Surr: BFB	451	80-120	S	%REC	1	2/26/2015 6:39:09 PM	17893
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.050		mg/Kg	1	2/27/2015 2:37:14 PM	17893
Toluene	ND	0.050		mg/Kg	1	2/27/2015 2:37:14 PM	17893
Ethylbenzene	0.43	0.050		mg/Kg	1	2/27/2015 2:37:14 PM	17893
Xylenes, Total	4.5	0.10		mg/Kg	1	2/27/2015 2:37:14 PM	17893
Surr: 4-Bromofluorobenzene	137	80-120	S	%REC	1	2/27/2015 2:37:14 PM	17893

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: MW-4 @ 25'
Project: Lateral C-64
Collection Date: 2/18/2015 2:10:00 PM
Lab ID: 1502A15-008 **Matrix:** SOIL **Received Date:** 2/25/2015 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **BCN**	
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	2/27/2015 3:53:56 AM	17890
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	2/27/2015 3:53:56 AM	17890
Surr: DNOP	102	63.5-128		%REC	1	2/27/2015 3:53:56 AM	17890
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	11	5.0		mg/Kg	1	2/26/2015 7:07:49 PM	17893
Surr: BFB	123	80-120	S	%REC	1	2/26/2015 7:07:49 PM	17893
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.050		mg/Kg	1	2/27/2015 3:05:56 PM	17893
Toluene	ND	0.050		mg/Kg	1	2/27/2015 3:05:56 PM	17893
Ethylbenzene	0.057	0.050		mg/Kg	1	2/27/2015 3:05:56 PM	17893
Xylenes, Total	0.53	0.099		mg/Kg	1	2/27/2015 3:05:56 PM	17893
Surr: 4-Bromofluorobenzene	110	80-120		%REC	1	2/27/2015 3:05:56 PM	17893

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: MW-5 @ 20'
Project: Lateral C-64
Collection Date: 2/19/2015 9:15:00 AM
Lab ID: 1502A15-009
Matrix: SOIL
Received Date: 2/25/2015 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **BCN**	
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	2/27/2015 4:15:19 AM	17890
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	2/27/2015 4:15:19 AM	17890
Surr: DNOP	106	63.5-128		%REC	1	2/27/2015 4:15:19 AM	17890
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	2/26/2015 7:36:28 PM	17893
Surr: BFB	93.2	80-120		%REC	1	2/26/2015 7:36:28 PM	17893
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.047		mg/Kg	1	2/26/2015 7:36:28 PM	17893
Toluene	ND	0.047		mg/Kg	1	2/26/2015 7:36:28 PM	17893
Ethylbenzene	ND	0.047		mg/Kg	1	2/26/2015 7:36:28 PM	17893
Xylenes, Total	ND	0.094		mg/Kg	1	2/26/2015 7:36:28 PM	17893
Surr: 4-Bromofluorobenzene	101	80-120		%REC	1	2/26/2015 7:36:28 PM	17893

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: MW-5 @ 25'
Project: Lateral C-64
Collection Date: 2/19/2015 9:30:00 AM
Lab ID: 1502A15-010 **Matrix:** SOIL **Received Date:** 2/25/2015 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **BCN**	
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	2/27/2015 4:36:34 AM	17890
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	2/27/2015 4:36:34 AM	17890
Surr: DNOP	105	63.5-128		%REC	1	2/27/2015 4:36:34 AM	17890
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	2/27/2015 12:33:44 AM	17893
Surr: BFB	90.2	80-120		%REC	1	2/27/2015 12:33:44 AM	17893
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.050		mg/Kg	1	2/27/2015 12:33:44 AM	17893
Toluene	ND	0.050		mg/Kg	1	2/27/2015 12:33:44 AM	17893
Ethylbenzene	ND	0.050		mg/Kg	1	2/27/2015 12:33:44 AM	17893
Xylenes, Total	ND	0.10		mg/Kg	1	2/27/2015 12:33:44 AM	17893
Surr: 4-Bromofluorobenzene	102	80-120		%REC	1	2/27/2015 12:33:44 AM	17893

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#: **1502A15**

11-Mar-15

Client: Souder, Miller and Associates

Project: Lateral C-64

Sample ID	**MB-17957**	SampType:	**MBLK**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID:	**17957**	RunNo:	**24595**					
Prep Date:	**3/2/2015**	Analysis Date:	**3/2/2015**	SeqNo:	**724386**	Units:	**mg/Kg**			

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

Sample ID	**LCS-17957**	SampType:	**LCS**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID:	**17957**	RunNo:	**24595**					
Prep Date:	**3/2/2015**	Analysis Date:	**3/2/2015**	SeqNo:	**724387**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	91.5	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#: **1502A15**

11-Mar-15

Client: Souder, Miller and Associates

Project: Lateral C-64

Sample ID **MB-17890**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **17890**	RunNo: **24589**
Prep Date: **2/25/2015**	Analysis Date: **3/3/2015**	SeqNo: **724281** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	9.5		10.00		94.6	63.5	128			

Sample ID **LCS-17890**	SampType: **LCS**	TestCode: **EPA Method 8015D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **17890**	RunNo: **24589**
Prep Date: **2/25/2015**	Analysis Date: **3/3/2015**	SeqNo: **724282** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	57	10	50.00	0	113	67.8	130			
Surr: DNOP	5.0		5.000		99.9	63.5	128			

Sample ID **MB-17900**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **17900**	RunNo: **24589**
Prep Date: **2/25/2015**	Analysis Date: **3/3/2015**	SeqNo: **724383** Units: **%REC**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	15		10.00		148	63.5	128			S

Sample ID **LCS-17900**	SampType: **LCS**	TestCode: **EPA Method 8015D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **17900**	RunNo: **24589**
Prep Date: **2/25/2015**	Analysis Date: **3/3/2015**	SeqNo: **724454** Units: **%REC**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.9		5.000		98.8	63.5	128			

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#: **1502A15**

11-Mar-15

Client: Souder, Miller and Associates

Project: Lateral C-64

Sample ID	**MB-17905**	SampType:	**MBLK**		TestCode:	**EPA Method 8015D: Gasoline Range**				
Client ID:	**PBS**	Batch ID:	**17905**		RunNo:	**24533**				
Prep Date:	**2/25/2015**	Analysis Date:	**2/26/2015**		SeqNo:	**722950**	Units:	**%REC**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	910		1000		90.5	80	120			

Sample ID	**LCS-17905**	SampType:	**LCS**		TestCode:	**EPA Method 8015D: Gasoline Range**				
Client ID:	**LCSS**	Batch ID:	**17905**		RunNo:	**24533**				
Prep Date:	**2/25/2015**	Analysis Date:	**2/26/2015**		SeqNo:	**722951**	Units:	**%REC**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	990		1000		98.7	80	120			

Sample ID	**LCS-17893**	SampType:	**LCS**		TestCode:	**EPA Method 8015D: Gasoline Range**				
Client ID:	**LCSS**	Batch ID:	**17893**		RunNo:	**24533**				
Prep Date:	**2/25/2015**	Analysis Date:	**2/26/2015**		SeqNo:	**722981**	Units:	**mg/Kg**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	5.0	25.00	0	89.0	64	130			
Surr: BFB	1000		1000		99.5	80	120			

Sample ID	**MB-17893**	SampType:	**MBLK**		TestCode:	**EPA Method 8015D: Gasoline Range**				
Client ID:	**PBS**	Batch ID:	**17893**		RunNo:	**24570**				
Prep Date:	**2/25/2015**	Analysis Date:	**2/27/2015**		SeqNo:	**723586**	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	870		1000		87.1	80	120			

Sample ID	**5ML RB**	SampType:	**MBLK**		TestCode:	**EPA Method 8015D: Gasoline Range**				
Client ID:	**PBS**	Batch ID:	**R24570**		RunNo:	**24570**				
Prep Date:		Analysis Date:	**2/27/2015**		SeqNo:	**723587**	Units:	**%REC**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	890		1000		88.5	80	120			

Sample ID	**2.5UG GRO LCS**	SampType:	**LCS**		TestCode:	**EPA Method 8015D: Gasoline Range**				
Client ID:	**LCSS**	Batch ID:	**R24570**		RunNo:	**24570**				
Prep Date:		Analysis Date:	**2/27/2015**		SeqNo:	**723601**	Units:	**%REC**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	950		1000		95.3	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#: **1502A15**

11-Mar-15

Client: Souder, Miller and Associates

Project: Lateral C-64

Sample ID	**LCS-17893**	SampType:	**LCS**		TestCode:	**EPA Method 8021B: Volatiles**				
Client ID:	**LCSS**	Batch ID:	**17893**		RunNo:	**24533**				
Prep Date:	**2/25/2015**	Analysis Date:	**2/26/2015**		SeqNo:	**723004**	Units:	**mg/Kg**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.98	0.050	1.000	0	98.5	80	120			
Toluene	0.94	0.050	1.000	0	93.6	80	120			
Ethylbenzene	0.94	0.050	1.000	0	94.1	80	120			
Xylenes, Total	2.8	0.10	3.000	0	93.5	80	120			
Surr: 4-Bromofluorobenzene	1.1		1.000		110	80	120			

Sample ID	**MB-17893**	SampType:	**MBLK**		TestCode:	**EPA Method 8021B: Volatiles**				
Client ID:	**PBS**	Batch ID:	**17893**		RunNo:	**24570**				
Prep Date:	**2/25/2015**	Analysis Date:	**2/27/2015**		SeqNo:	**723605**	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		96.4	80	120			

Sample ID	**5ML RB**	SampType:	**MBLK**		TestCode:	**EPA Method 8021B: Volatiles**				
Client ID:	**PBS**	Batch ID:	**R24570**		RunNo:	**24570**				
Prep Date:		Analysis Date:	**2/27/2015**		SeqNo:	**723606**	Units:	**%REC**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.98		1.000		98.3	80	120			

Sample ID	**100NG BTEX LCS**	SampType:	**LCS**		TestCode:	**EPA Method 8021B: Volatiles**				
Client ID:	**LCSS**	Batch ID:	**R24570**		RunNo:	**24570**				
Prep Date:		Analysis Date:	**2/27/2015**		SeqNo:	**723607**	Units:	**%REC**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.0		1.000		104	80	120			

Sample ID	**1502A15-001AMS**	SampType:	**MS**		TestCode:	**EPA Method 8021B: Volatiles**				
Client ID:	**MW-1 @ 10'**	Batch ID:	**17893**		RunNo:	**24570**				
Prep Date:	**2/25/2015**	Analysis Date:	**2/27/2015**		SeqNo:	**723617**	Units:	**mg/Kg**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.050	0.9911	0	107	69.2	126			
Toluene	1.0	0.050	0.9911	0	103	65.6	128			
Ethylbenzene	1.0	0.050	0.9911	0	105	65.5	138			
Xylenes, Total	3.1	0.099	2.973	0.02736	103	63	139			

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#: **1502A15**

11-Mar-15

Client: Souder, Miller and Associates

Project: Lateral C-64

Sample ID	**1502A15-001AMS**	SampType:	**MS**		TestCode:	**EPA Method 8021B: Volatiles**				
Client ID:	**MW-1 @ 10'**	Batch ID:	**17893**		RunNo:	**24570**				
Prep Date:	**2/25/2015**	Analysis Date:	**2/27/2015**		SeqNo:	**723617**	Units:	**mg/Kg**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.1		0.9911		111	80	120			

Sample ID	**1502A15-001AMSD**	SampType:	**MSD**		TestCode:	**EPA Method 8021B: Volatiles**				
Client ID:	**MW-1 @ 10'**	Batch ID:	**17893**		RunNo:	**24570**				
Prep Date:	**2/25/2015**	Analysis Date:	**2/27/2015**		SeqNo:	**723618**	Units:	**mg/Kg**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.050	0.9921	0	105	69.2	126	2.35	18.5	
Toluene	1.0	0.050	0.9921	0	102	65.6	128	1.07	20.6	
Ethylbenzene	1.0	0.050	0.9921	0	104	65.5	138	1.13	20.1	
Xylenes, Total	3.1	0.099	2.976	0.02736	102	63	139	0.839	21.1	
Surr: 4-Bromofluorobenzene	1.1		0.9921		111	80	120	0	0	

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#: **1502A15**

11-Mar-15

Client: Souder, Miller and Associates

Project: Lateral C-64

Sample ID	**1502A15-005AMS**	SampType:	**MS**		TestCode:	**Walkley Black TOC/FOC/OM**				
Client ID:	**MW-3 @ 10'**	Batch ID:	**17981**		RunNo:	**24615**				
Prep Date:	**3/3/2015**	Analysis Date:	**3/3/2015**		SeqNo:	**725508**	Units:	**% C**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
TOC	3.0	0.13	2.713	0.2400	101	75	125			

Sample ID	**1502A15-005AMSD**	SampType:	**MSD**		TestCode:	**Walkley Black TOC/FOC/OM**				
Client ID:	**MW-3 @ 10'**	Batch ID:	**17981**		RunNo:	**24615**				
Prep Date:	**3/3/2015**	Analysis Date:	**3/3/2015**		SeqNo:	**725509**	Units:	**% C**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
TOC	3.0	0.13	2.796	0.2400	98.7	75	125	0.669	20	

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: 1502A15 | RcptNo: 1

Received by/date: KM 02/25/15

Logged By: Ashley Gallegos 2/25/2015 7:30:00 AM

Completed By: Ashley Gallegos 2/25/2015 8:43:34 AM

Reviewed By: JA 02/27/15

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	1.2	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@sovdrillco.com

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

Accreditation
☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:
☑ Standard ☐ Rush _____

Project Name: Lateral C-64

Project #: 5123699

Project Manager: Steve Moskal

Sampler: J. Sprague

On Ice: ☒ Yes ☐ No

Sample Temperature: 1.7

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. 1502A15	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)	300.0 Chlorides	TOC SM 5310			Air Bubbles (Y or N)
/17	1315	Soil	MW-1 @ 10'	1 4oz	—	-001	X		X													
/17	1345		MW-1 @ 25'	1 4oz	—	-002	X		X													
/18	0920		MW-2 @ 15'	1 4oz	—	-003	X		X													
	0945		MW-2 @ 25'	1 4oz	—	-004	X		X													
	1150		MW-3 @ 10'	2 4oz	—	-005	X		X									+	X			
	1215		MW-3 @ 25'	2 4oz	—	-006	X		X									+	X			
	1350		MW-4 @ 15'	1 4oz	—	-007	X		X													
	1410		MW-4 @ 25'	1 4oz	—	-008	X		X													
/19	0915		MW-5 @ 20'	2 4oz	—	-009	X		X													
/19	0930		MW-5 @ 25'	2 4oz	—	-010	X		X													

Date	Time	Relinquished by:	Received by:	Date	Time
/24	1524		Christine Walker	2/24/15	1524
24/15	1714	Christine Walker		02/25/15	0730

Remarks: Invoice Enterprise
Please copy Jesse.Sprague@sovdrillco.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

March 10, 2015

Steve Moskal

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

RE: Lateral C-64 OrderNo.: 1503247

Dear Steve Moskal:

Hall Environmental Analysis Laboratory received 5 sample(s) on 3/6/2015 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 **1503247**
Date Reported: **3/10/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller and Associates
Client Sample ID: MW-1
Project: Lateral C-64
Collection Date: 3/5/2015 10:30:00 AM
Lab ID: 1503247-001
Matrix: AQUEOUS
Received Date: 3/6/2015 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	2.0		µg/L	2	3/6/2015 1:51:04 PM	R24685
Toluene	ND	2.0		µg/L	2	3/6/2015 1:51:04 PM	R24685
Ethylbenzene	ND	2.0		µg/L	2	3/6/2015 1:51:04 PM	R24685
Xylenes, Total	ND	4.0		µg/L	2	3/6/2015 1:51:04 PM	R24685
Surr: 4-Bromofluorobenzene	110	80-120		%REC	2	3/6/2015 1:51:04 PM	R24685
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	12	5.0		mg/L	10	3/6/2015 5:38:36 PM	R24692
Sulfate	1300	50	*	mg/L	100	3/6/2015 5:51:01 PM	R24692

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: MW-2
Project: Lateral C-64
Collection Date: 3/5/2015 11:40:00 AM
Lab ID: 1503247-002
Matrix: AQUEOUS
Received Date: 3/6/2015 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	39	2.0		µg/L	2	3/6/2015 3:18:33 PM	R24685
Toluene	37	2.0		µg/L	2	3/6/2015 3:18:33 PM	R24685
Ethylbenzene	15	2.0		µg/L	2	3/6/2015 3:18:33 PM	R24685
Xylenes, Total	110	4.0		µg/L	2	3/6/2015 3:18:33 PM	R24685
Surr: 4-Bromofluorobenzene	119	80-120		%REC	2	3/6/2015 3:18:33 PM	R24685
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	12	5.0		mg/L	10	3/6/2015 6:03:25 PM	R24692
Sulfate	1400	50	*	mg/L	100	3/6/2015 6:15:50 PM	R24692

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: MW-3
Project: Lateral C-64
Collection Date: 3/5/2015 12:10:00 PM
Lab ID: 1503247-003
Matrix: AQUEOUS
Received Date: 3/6/2015 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	140	20		µg/L	20	3/9/2015 10:04:37 AM	R24710
Toluene	420	20		µg/L	20	3/9/2015 10:04:37 AM	R24710
Ethylbenzene	87	20		µg/L	20	3/9/2015 10:04:37 AM	R24710
Xylenes, Total	1400	40		µg/L	20	3/9/2015 10:04:37 AM	R24710
Surr: 4-Bromofluorobenzene	119	80-120		%REC	20	3/9/2015 10:04:37 AM	R24710
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	14	5.0		mg/L	10	3/6/2015 6:28:15 PM	R24692
Sulfate	1400	50	*	mg/L	100	3/6/2015 6:40:40 PM	R24692

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: MW-4
Project: Lateral C-64
Collection Date: 3/5/2015 11:05:00 AM
Lab ID: 1503247-004
Matrix: AQUEOUS
Received Date: 3/6/2015 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	37	2.0		µg/L	2	3/6/2015 4:16:55 PM	R24685
Toluene	38	2.0		µg/L	2	3/6/2015 4:16:55 PM	R24685
Ethylbenzene	12	2.0		µg/L	2	3/6/2015 4:16:55 PM	R24685
Xylenes, Total	190	4.0		µg/L	2	3/6/2015 4:16:55 PM	R24685
Surr: 4-Bromofluorobenzene	122	80-120	S	%REC	2	3/6/2015 4:16:55 PM	R24685
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	16	5.0		mg/L	10	3/6/2015 6:53:05 PM	R24692
Sulfate	1700	50	*	mg/L	100	3/6/2015 7:05:29 PM	R24692

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: MW-5
Project: Lateral C-64
Collection Date: 3/5/2015 9:53:00 AM
Lab ID: 1503247-005
Matrix: AQUEOUS
Received Date: 3/6/2015 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	2.0		µg/L	2	3/6/2015 4:46:11 PM	R24685
Toluene	ND	2.0		µg/L	2	3/6/2015 4:46:11 PM	R24685
Ethylbenzene	ND	2.0		µg/L	2	3/6/2015 4:46:11 PM	R24685
Xylenes, Total	ND	4.0		µg/L	2	3/6/2015 4:46:11 PM	R24685
Surr: 4-Bromofluorobenzene	99.8	80-120		%REC	2	3/6/2015 4:46:11 PM	R24685
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	14	5.0		mg/L	10	3/6/2015 7:17:53 PM	R24692
Sulfate	1500	50	*	mg/L	100	3/6/2015 7:30:18 PM	R24692

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#: **1503247**

10-Mar-15

Client: Souder, Miller and Associates

Project: Lateral C-64

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R24692**	RunNo: **24692**
Prep Date:	Analysis Date: **3/6/2015**	SeqNo: **727579** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R24692**	RunNo: **24692**
Prep Date:	Analysis Date: **3/6/2015**	SeqNo: **727580** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	94.6	90	110			
Sulfate	9.6	0.50	10.00	0	96.2	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#: **1503247**

10-Mar-15

Client: Souder, Miller and Associates

Project: Lateral C-64

Sample ID	**5ML RB**	SampType:	**MBLK**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**PBW**	Batch ID:	**R24685**	RunNo:	**24685**					
Prep Date:		Analysis Date:	**3/6/2015**	SeqNo:	**727402**	Units:	**µg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Xylenes, Total	ND	2.0								
Surr: 4-Bromofluorobenzene	22		20.00		108	80	120			

Sample ID	**100NG BTEX LCS**	SampType:	**LCS**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**LCSW**	Batch ID:	**R24685**	RunNo:	**24685**					
Prep Date:		Analysis Date:	**3/6/2015**	SeqNo:	**727403**	Units:	**µg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	22	1.0	20.00	0	108	80	120			
Toluene	21	1.0	20.00	0	106	80	120			
Ethylbenzene	21	1.0	20.00	0	105	80	120			
Xylenes, Total	63	2.0	60.00	0	105	80	120			
Surr: 4-Bromofluorobenzene	23		20.00		117	80	120			

Sample ID	**1503247-001AMS**	SampType:	**MS**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**MW-1**	Batch ID:	**R24685**	RunNo:	**24685**					
Prep Date:		Analysis Date:	**3/6/2015**	SeqNo:	**727408**	Units:	**µg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	42	2.0	40.00	0.5920	104	77.5	121			
Toluene	41	2.0	40.00	0.4920	102	78.6	122			
Ethylbenzene	42	2.0	40.00	1.404	101	78.1	128			
Xylenes, Total	120	4.0	120.0	2.240	99.7	80	120			
Surr: 4-Bromofluorobenzene	48		40.00		119	80	120			

Sample ID	**1503247-001AMSD**	SampType:	**MSD**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**MW-1**	Batch ID:	**R24685**	RunNo:	**24685**					
Prep Date:		Analysis Date:	**3/6/2015**	SeqNo:	**727409**	Units:	**µg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	43	2.0	40.00	0.5920	106	77.5	121	1.37	20	
Toluene	42	2.0	40.00	0.4920	104	78.6	122	1.92	20	
Ethylbenzene	42	2.0	40.00	1.404	102	78.1	128	0.753	20	
Xylenes, Total	120	4.0	120.0	2.240	101	80	120	1.03	20	
Surr: 4-Bromofluorobenzene	48		40.00		120	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#: **1503247**

10-Mar-15

Client: Souder, Miller and Associates

Project: Lateral C-64

Sample ID **5ML RB**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBW**	Batch ID: **R24710**	RunNo: **24710**
Prep Date:	Analysis Date: **3/9/2015**	SeqNo: **727979** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Xylenes, Total	ND	2.0								
Surr: 4-Bromofluorobenzene	22		20.00		109	80	120			

Sample ID **100NG BTEX LCS**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSW**	Batch ID: **R24710**	RunNo: **24710**
Prep Date:	Analysis Date: **3/9/2015**	SeqNo: **727980** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	22	1.0	20.00	0	108	80	120			
Toluene	21	1.0	20.00	0	107	80	120			
Ethylbenzene	21	1.0	20.00	0	104	80	120			
Xylenes, Total	62	2.0	60.00	0	103	80	120			
Surr: 4-Bromofluorobenzene	24		20.00		121	80	120			S

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: 1503247 | RcptNo: 1

Received by/date: AT 03/06/15

Logged By: **Anne Thorne** 3/6/2015 7:30:00 AM Anne Thorne

Completed By: **Anne Thorne** 3/6/2015 Anne Thorne

Reviewed By: 03/06/15

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	1.0	Good	Yes			

Chain-of-Custody Record

Client: SMA

Mailing Address: 901 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 _____

Project Name:
Lateral C-64

Project #:
5123699

Project Manager:
Steve Moskal

Sampler: JES

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

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1503247	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)	300.0 Chlorides	300.0 Sulfates			Air Bubbles (Y or N)
3-5	1030	Aq	MW-1	3 HCl VOA 1 250 mL	HCl	-001	X											X	X			
	1140		MW-2			-002	X											X	X			
	1210		MW-3			-003	X											X	X			
	1105		MW-4			-004	X											X	X			
	0953		MW-5			-005	X											X	X			

Date:	Time:	Relinquished by:	Received by:	Date	Time
3/5/15	1604	J. Espe	Christine Walters	3/5/15	1604
3/5/15	1731	Christine Walters		03/06/15	0730

Remarks: Invoice Enterprise
Pls copy
Alicia.patterson@soudermiller.com
Jesse.sprague@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.