From:	Ashley Ager
To:	Aimee Cole
Subject:	FW: Closures and a Deferral
Date:	Thursday, December 19, 2019 2:29:03 PM
Attachments:	4552 Closure Report-defferral BEU DI #9 2RP-4552.pdf XTO Closures.docx

Ashley Ager
Vice President of Regional Offices

(970) 385-1096 office
(970) 946-1093 mobile

From: Littrell, Kyle <Kyle_Littrell@xtoenergy.com>
Sent: Tuesday, November 26, 2019 1:27 PM
To: Ashley Ager <aager@ltenv.com>
Cc: Baker, Adrian <Adrian_Baker@xtoenergy.com>
Subject: FW: Closures and a Deferral

Happy Thanksgiving!

From: Billings, Bradford, EMNRD [mailto:Bradford.Billings@state.nm.us]
Sent: Tuesday, November 26, 2019 2:18 PM
To: Littrell, Kyle <Kyle_Littrell@xtoenergy.com>
Subject: Closures and a Deferral

11/26/2019

XTO
Kyle Littrell

Concerning Thirty-Five (35) Closures and One (1) Deferral the following:

The attached Word document is a listing of 35 2RP's that have been recently closed by the Oil Conservation Division (OCD) and one site (2RP-4552) in PDF that has been deferred.

These RP's have been or will be shortly added to the on line e-imaging access on OCD website. Please keep this communication and attachments for your files, as NO paper copy will follow.

OCD appreciates your efforts and patience. If this information has been previously sent, our apologies.

Sincerely,

Bradford Billings

E.Spec.A
EMNRD/OCD
Santa Fe, NM

Souder, Miller & Associates♦201 S. Halagueno St.♦Carlsbad, NM 88220
(575) 689-8801

July 11, 2018

#5E26784-BG5

NMOCD District II
Mike Bratcher
811 S. First St.
Artesia, NM 88210

SUBJECT: SOIL REMEDIATION CLOSURE REPORT FOR THE BIG EDDY UNIT DI #9 (2RP-4552), EDDY COUNTY, NEW MEXICO

Dear Mr. Bratcher,:

On behalf of XTO Energy Inc (XTO), Souder, Miller & Associates (SMA) has prepared this CLOSURE REPORT that describes the assessment, delineation, and remediation for a release associated with the Big Eddy Unit DI #9. The site is located in UNIT H, SECTION 28, TOWNSHIP 21S, RANGE 30E, NMPM, Eddy County, New Mexico, on State land. Figure 1 illustrates the vicinity and location of the site. Table 1 summarizes the release information.

Table 1: Release information and Site Ranking	
Name	Big Eddy Unit DI #9
Company	XTO Energy Inc
Incident Number	2RP-4552
API Number	30-015-42008
Location	32.453746, -103.87823
Estimated Date of Release	12/24/2017
Date Reported to NMOCD	1/5/2018
Land Owner	State
Reported To	NMOCD District II
Source of Release	SWD Pipeline Riser
Released Material	Produced Water
Released Volume	7 bbl
Recovered Volume	3 bbl
Net Release	4 bbl
Nearest Waterway	Nash Draw is approximately 6 miles west of location
Depth to Groundwater	Estimated to be greater than 100’
Nearest Domestic Water Source	Greater than 1,000 feet
NMOCD Ranking	0
SMA Response Dates	1/22/2018, 6/6/2018, 6/7/2018

1.0 Background

Around December 24, 2017, a small leak formed on the riser section of the SWD transfer line. The line was isolated and shut-in until repairs could be make. The surface impact affected approximately 250 square feet of pasture.

2.0 Site Ranking and Land Jurisdiction

The release site is located approximately 19.5 miles east of Carlsbad, with an elevation of approximately 3,145 feet above sea level. SMA searched the New Mexico State Engineer's Office (NMOSE) online water well database for water wells in the vicinity of the release. Several wells are located within a three-mile radius of the site, most of which represent soil borings installed for site delineations and did not encounter water. After evaluation of the site using aerial photography and topographic maps, depth to groundwater is estimated to be greater than 100 feet below ground surface (bgs).

Recommended Remediation Action Levels (RRALs) are determined by the site ranking according to the NMOCD *Guidelines for Remediation of Leaks, Spills, and Releases* (1993). Below in Table 2 are the remediation standards and the site ranking for this location. Justification for this site ranking is found in Figure 1 and Appendix B.

Table 2.

Soil Remediation 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

Depth to Groundwater	NMOCD Numeric Rank
< 50 BGS = 20	
50' to 99' = 10	
>100' = 0	0
Distance to Nearest Surface Water	**NMOCD Numeric Rank**
< 200' = 20	
200' - 1000' = 10	
>1000' = 0	0
Well Head Protection	**NMOCD Numeric Rank**
<1000' (or <200' domestic) = 20	
> 1000' = 0	0
Total Site Ranking	**0**

3.0 Release Characterization

On January 22, 2018, SMA field personnel assessed the release area. The buried pipeline had been excavated to approximately seven feet below ground surface (bgs) on either side of the riser for repairs. This excavation was performed after the release and removed a majority of the impacted soil. Sample

Location L1 was collected from the north wall of the excavation closest to the point of release. Vertical delineation samples were collected from approximately 0.5 feet to a depth of seven feet bgs. These previously excavated areas were backfilled for safety reasons.

All samples were collected and processed according to NMOCD soil sampling procedures. The samples were sent under chain-of-custody protocols to Hall Environmental Analysis Laboratory for analysis for MRO, DRO, and GRO by EPA Method 8015D, BTEX by EPA Method 8021, and Chlorides by Method 300. The release area, excavated area, and sample locations are depicted on Figure 2. All laboratory results are summarized in Table 3. Laboratory reports are included in Appendix C. Initial sample results indicated that contamination extends beyond the seven-foot bgs delineation, and laterally in each direction from the riser.

4.0 Soil Remediation

On June 6 and 7, 2018, after 811 clearance, SMA returned to the location to further delineate the release area and provide oversight of the excavation where necessary.

Due to safety reasons and the presence of underground gas and SWD lines, excavation was completed with a hydrovac to the maximum extent safely possible, which was 4 feet bgs. Discrete samples were collected from the bottom of the hydro excavation near the riser and 2, 3 and 4 feet bgs (BH). The release area was excavated to an area approximately 10 feet by 12 feet. Four sidewall samples (North SW, South SW, East SW, West SW) were collected to demonstrate horizontal delineation. Due to the presence of the buried lines, SMA recommends deferral of the remaining contaminated soil beyond four feet bgs. Laboratory results demonstrate that the release has been defined horizontally, and that vertical contamination decreases with depth. The area surrounding L1 could not be further mechanically excavated due to the proximity of the riser, pipelines and nearby gas lines.

The samples were sent under chain-of-custody protocols to Hall Environmental Analysis Laboratory for analysis for Chlorides by Method 300. Contaminated soils were removed and replaced with clean backfill material to return the surface to previous contours. The contaminated soil was transported for proper disposal at an NMOCD permitted disposal facility. Sample locations are depicted on Figure 2. All laboratory results are summarized in Table 3. Laboratory reports are included in Appendix C.

5.0 Scope and Limitations

The scope of our services consisted of the performance of assessment sampling, verification of release stabilization, regulatory liaison, remediation, and preparation of this closure report. Work has been performed in accordance with generally accepted professional environmental consulting practices for oil and gas releases in the Permian Basin in New Mexico.

If there are any questions regarding this report, please contact either Austin Weyant at 575-689-8801 or Shawna Chubbuck at 505-325-7535.

Submitted by:
SOUDER, MILLER & ASSOCIATES

Austin Weyant
Project Scientist

Reviewed by:

Shawna Chubbuck
Senior Scientist

ATTACHMENTS:

Figures:

Figure 1: Vicinity and Well Head Protection Map
Figure 2: Site and Sample Location Map

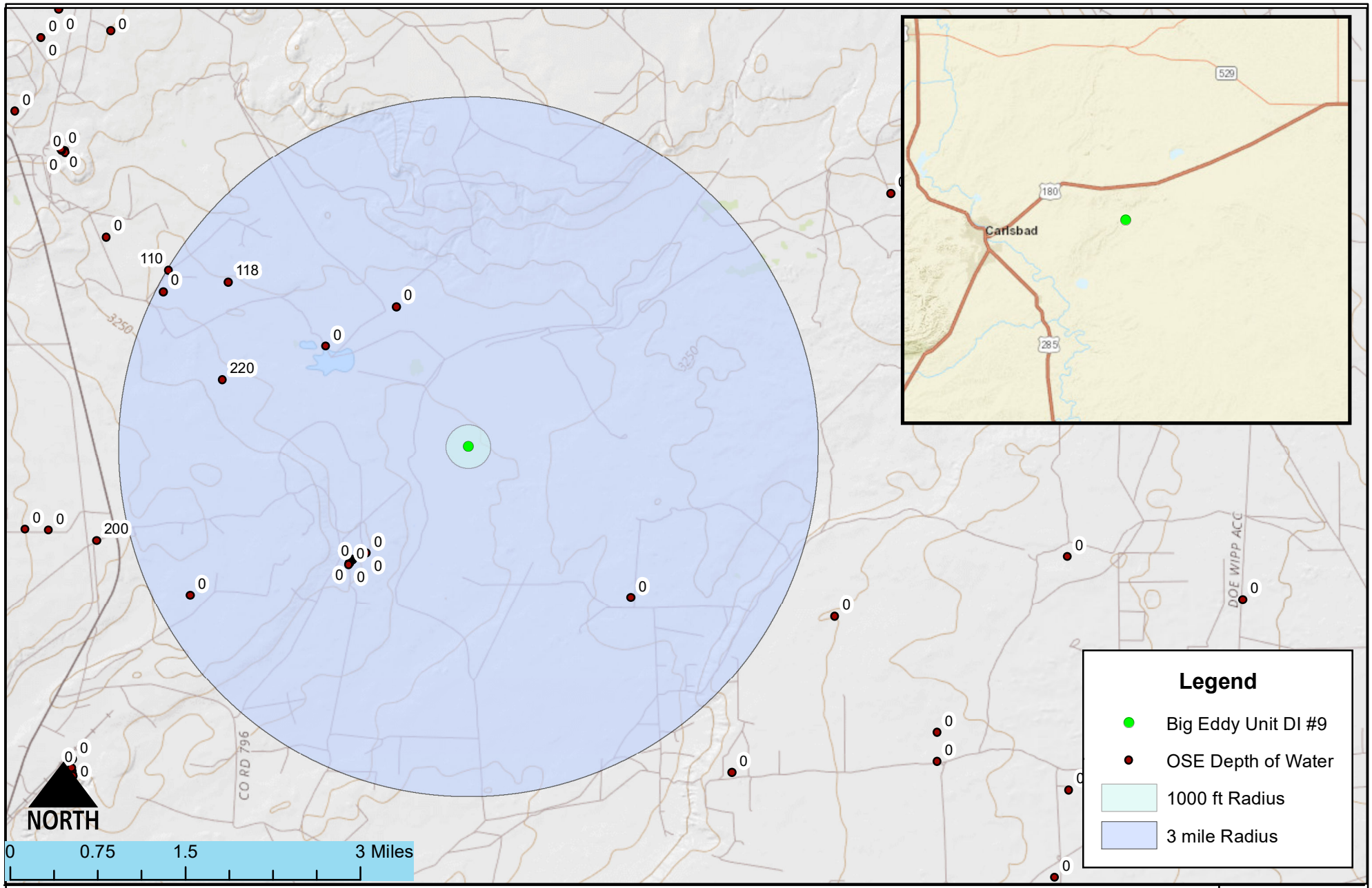
Tables:

Table 3: Summary of Sample Results

Appendices:

Appendix A: Form C141 Initial and Final
Appendix B: NMOSE Wells Report
Appendix C: Laboratory Analytical Reports

FIGURE 1
VICINITY AND NMOSE DATA MAP



Vicinity and Well Head Protection Map
Big Eddy Unit DI #9 - XTO
S 28-T21S-R30E, New Mexico

Figure 1

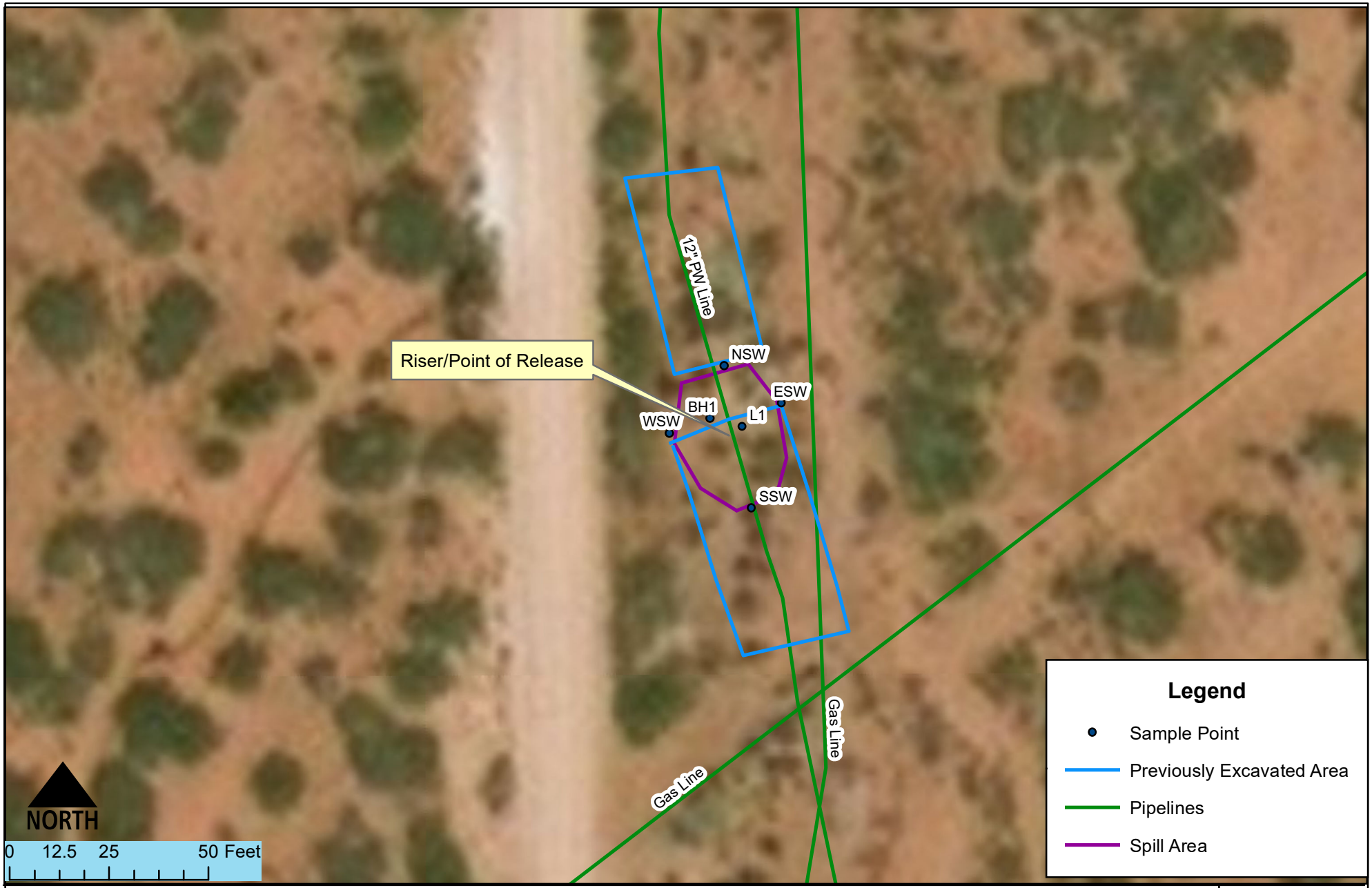
Date Saved: 1/12/2018

Revisions
By: Date: Descr:
By: Date: Descr:

Drawn Heather Patterson
Checked
Approved

SMA
201 South Halaguena Street
Carlsbad, New Mexico 88221
(575) 689-7040
www.soudermiller.com
Serving the Southwest & Rocky Mountains

FIGURE 2
SITE AND SAMPLE LOCATION MAP



Site and Sample Location Map
Big Eddy Unit DI #9 - XTO
S 28-T21S-R30E, New Mexico

Figure 2

Revisions
By: Date: Descr:
By: Date: Descr:

Date Saved: 7/5/2018

Drawn Heather Patterson
Checked
Approved

SMA
201 South Halaguena Street
Carlsbad, New Mexico 88221
(575) 689-7040
www.soudermiller.com
Serving the Southwest & Rocky Mountains

TABLE 3
SUMMARY SAMPLE RESULTS

Big Eddy Unit DI #9

Table 3.

Sample Number on Figure 2	Sample Date	Depth (feet bgs)	Completed Action	BTEX mg/Kg	Benzene mg/Kg	GRO mg/Kg	DRO mg/Kg	MRO mg/Kg	**Total TPH** mg/Kg	Cl- Laboratory mg/Kg
NMOCD RRAL's for Site Ranking 0				50 mg/Kg	10 mg/Kg				5000 mg/Kg	
North SW	6/7/2018	sidewall	in-situ	--	--	--	--	--	--	480
South SW	6/7/2018	sidewall	in-situ	--	--	--	--	--	--	<30
East SW	6/7/2018	sidewall	in-situ	--	--	--	--	--	--	270
West SW	6/7/2018	sidewall	in-situ	--	--	--	--	--	--	140
BH	6/7/2018	2	excavated	--	--	--	--	--	--	**8600**
	6/7/2018	3	excavated	--	--	--	--	--	--	**1000**
	6/7/2018	4	excavated	--	--	--	--	--	--	**1400**
L1	1/22/2018	0.5	excavated	<0.21	<0.023	<4.7	91	68	159	**37000**
		2	excavated	<0.23	<0.025	<5.0	<10	<50	<65	**35000**
		4	excavated	<0.21	<0.024	<4.7	<10	<51	<66	**36000**
		6	deferral	<0.21	<0.024	<4.9	<9.1	<46	<60	**20000**
		7	defferal	<0.21	<0.023	<4.6	<9.1	<45	<59	**43000**

"--" = Not Analyzed

Elevated Cl-

APPENDIX A
FORM C141 INITIAL AND FINAL

NM OIL CONSERVATION
ARTESIA DISTRICT
JAN 05 2018
RECEIVED

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

Form C-141
Revised April 3, 2017

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

Release Notification and Corrective Action

nAB1800947208 BAPO2200737

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company: XTO Energy	Contact: Kyle Littrell
Address: 522 W. Mermod, Suite 704 Carlsbad, N.M. 88220	Telephone No: 432-221-7331
Facility Name: Big Eddy Unit DI #9 SWD (API for BEU DI9 #034H)	Facility Type: Exploration and Production

Surface Owner: State of NM	Mineral Owner: State of NM	API No: 30-015-42008

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
H	28	21S	30E	1365	North	400	East	Eddy

Latitude 32.453746° **Longitude** -103.87823° NAD83

NATURE OF RELEASE

Type of Release: Produced Water	Volume of Release: 7 bbls	Volume Recovered: 3 bbls
Source of Release: SWD pipeline riser	Date and Hour of Occurrence: 12/24/2017 time unknown	Date and Hour of Discovery: 12/24/2017 8 am
Was Immediate Notice Given? ☐ Yes ☐ No ☒ Not Required	If YES, To Whom? N/A	
By Whom? N/A	Date and Hour: N/A	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse. N/A	

If a Watercourse was Impacted, Describe Fully.*
N/A

Describe Cause of Problem and Remedial Action Taken.*
The 12" SWD transfer line developed a leak in the riser section due to corrosion. The line was isolated and LOTO until it can be repaired.

Describe Area Affected and Cleanup Action Taken.*
The leak affected approximately 250 square feet of pasture on the pipeline ROW. Free standing fluids were recovered. A remediation contractor will be contacted to assist with the delineation and remediation effort.

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:

Printed Name: Kyle Littrell

Title: Environmental Coordinator

E-mail Address: Kyle_Littrell@xtoenergy.com

Date: 01/05/2018 Phone: 432-221-7331

OIL CONSERVATION DIVISION

Approved by Environmental Specialist:

Approval Date: 1/8/18 Expiration Date: N/A

Conditions of Approval: see attached

Attached ☒ 2RP-4552

* Attach Additional Sheets If Necessary

1/8/18 AB

Operator/Responsible Party,

The OCD has received the form C-141 you provided on **1/5/18** regarding an unauthorized release. The information contained on that form has been entered into our incident database and remediation case number 2RP-4562 has been assigned. **Please refer to this case number in all future correspondence.**

It is the Division's obligation under both the Oil & Gas Act and Water Quality Act to provide for the protection of public health and the environment. Our regulations (19.15.29.11 NMAC) state the following,

> *The responsible person shall complete division-approved corrective action for releases that endanger public health or the environment. The responsible person shall address releases in accordance with a remediation plan submitted to and approved by the division or with an abatement plan submitted in accordance with 19.15.30 NMAC.* [emphasis added]

Release characterization is the first phase of corrective action unless the release is ongoing or is of limited volume and all impacts can be immediately addressed. Proper and cost-effective remediation typically cannot occur without adequate characterization of the impacts of any release. Furthermore, the Division has the ability to impose reasonable conditions upon the efforts it oversees. **As such, the Division is requiring a workplan for the characterization of impacts associated with this release be submitted to the OCD District II office in Artesia on or before 2/5/18. If and when the release characterization workplan is approved, there will be an associated deadline for submittal of the resultant investigation report. Modest extensions of time to these deadlines may be granted, but only with acceptable justification.**

The goals of a characterization effort are: 1) determination of the lateral and vertical extents along with the magnitude of soil contamination. 2) determine if groundwater or surface waters have been impacted. 3) If groundwater or surface waters have been impacted, what are the extents and magnitude of that impact. 4) The characterization of any other adverse impacts that may have occurred (examples: impacts on vegetation, impacts on wildlife, air quality, loss of use of property, etc.). To meet these goals as quickly as possible, the following items must, at a minimum, be addressed in the release characterization workplan and subsequent reporting:

- Horizontal delineation of soil impacts in each of the four cardinal compass directions. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C_6 thru C_{36}), and for chloride by Method 300. This is not an exclusive list of potential contaminants. Analyzed parameters should be modified based on the nature of the released substance(s). Soil sampling must be both within the impacted area and beyond.

- Vertical delineation of soil impacts. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C_6 thru C_{36}), and for chloride by Method 300. As above, this is not an exclusive list of potential contaminants and can be modified. Vertical characterization samples should be taken at depth intervals no greater than five feet apart. Lithologic description of encountered soils must also be provided. At least ten vertical feet of soils with contaminant concentrations at or below these values must be demonstrated as existing above the water table.

- Nominal detection limits for field and laboratory analyses must be provided.

- Composite sampling is not generally allowed.

- Field screening and assessment techniques are acceptable (headspace, titration, EC [include algorithm for validation purposes], EM, etc.), but the sampling and assay procedures must be clearly defined. Copies of field notes are highly desirable. A statistically significant set of split samples must be submitted for confirmatory laboratory analysis, including the laterally farthest and vertically deepest sets of soil samples. Make sure there are at least two soil samples submitted

for laboratory analysis from each borehole or test pit (highest observed contamination and deepest depth investigated). Copies of the actual laboratory results must be provided including chain of custody documentation.

●Probable depth to shallowest protectable groundwater and lateral distance to nearest surface water. If there is an estimate of groundwater depth, the information used to arrive at that estimate must be provided. If there is a reasonable assumption that the depth to protectable water is 50 feet or less, the responsible party should anticipate the need for at least one groundwater monitoring well to be installed in the area of likely maximum contamination.

● If groundwater contamination is encountered, an additional investigation workplan may be required to determine the extents of that contamination. Groundwater and/or surface water samples, if any, must be analyzed by a competent laboratory for volatile organic hydrocarbons (typically Method 8260 full list), total dissolved solids, pH, major anions and cations including chloride and sulfate, dissolved iron, and dissolved manganese. The investigation workplan must provide the groundwater sampling method(s) and sample handling protocols. To the fullest extent possible, aqueous analyses must be undertaken using nominal method detection limits. As with the soil analyses, copies of the actual laboratory results must be provided including chain of custody documentation.

● Accurately scaled and well-drafted site maps must be provided providing the location of borings, test pits, monitoring wells, potentially impacted areas, and significant surface features including roads and site infrastructure that might limit either the release characterization or remedial efforts. Field sketches may be included in subsequent reporting, but should not be considered stand-alone documentation of the site's layout. Digital photographic documentation of the location and fieldwork is recommended, especially if unusual circumstances are encountered.

Nothing herein should be interpreted to preclude emergency response actions or to imply immediate remediation by removal cannot proceed as warranted. Nonetheless, characterization of impacts and confirmation of the effectiveness of remedial efforts must still be provided to the OCD before any release incident will be closed.

Jim Griswold
OCD Environmental Bureau Chief
1220 South St. Francis Drive
Santa Fe, New Mexico 87505
505-476-3465
jim.griswold@state.nm.us

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

Form C-141
Revised April 3, 2017

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

Release Notification and Corrective Action

nAB1800947208 **OPERATOR** ☐ Initial Report ☒ Final Report

Name of Company: XTO Energy	Contact: Amy Ruth
Address: 522 W. Mermod, Suite 704 Carlsbad, NM 88220	Telephone No.: 432-689-3380
Facility Name: Big Eddy Unit DI #9 SWD (API for BEU D19 #034H)	Facility Type: Exploration & Production

Surface Owner: State of NM	Mineral Owner: State of NM	API No. 30-015-42008

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
H	28	21S	30E	1365	North	400	East	Eddy

Latitude 32.453746 **Longitude** -103.87823 NAD83

NATURE OF RELEASE

Type of Release: Produced Water	Volume of Release: 7 bbls	Volume Recovered: 3 bbls
Source of Release: SWD Pipeline Riser	Date and Hour of Occurrence 12/24/2017	Date and Hour of Discovery 12/24/2017
Was Immediate Notice Given? ☐ Yes ☐ No ☒ Not Required	If YES, To Whom? N/A	
By Whom? N/A	Date and Hour: N/A	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*
N/A

Describe Cause of Problem and Remedial Action Taken.*
The 12" SWD transfer line developed a leak in the rise section due to corrosion. The line was isolated and LOTO until the repair occurred. The buried line was excavated to approximately 7 feet bgs on either side of the riser for repairs, which removed a majority of the impacted soil.

Describe Area Affected and Cleanup Action Taken.*
The leak affected approximately 250 square feet of pasture on the pipeline ROW. Remediation was completed by delineation and excavation with a hydrovac, per an NMOCD approved work plan.

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: Amy Ruth	Approved by Environmental Specialist: Bradford Billings
Title: Environmental Coordinator	Approval Date: 11/19/2019 Expiration Date:
E-mail Address: Amy_Ruth@xtoenergy.com	Conditions of Approval: See Below Attached ☐
Date: 7/9/2018 Phone: 432-689-3380	

* Attach Additional Sheets If Necessary

2RP-4552

Site closure deferred until full access to contamination for remediation is available.

Bradford Billings

APPENDIX B
NMOSE WELLS REPORT

New Mexico Office of the State Engineer
Water Column/Average Depth to Water

(A CLW##### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)

(R=POD has been replaced, O=orphaned, C=the file is closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters) (In feet)

POD Number	Code	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
C 03773 POD1	C	CUB	ED	4	2	2	32	21S	30E	604039	3589799	2042	55		
C 03774 POD1	C	CUB	ED	2	4	2	32	21S	30E	604039	3589799	2042	32		
C 02722			ED	1	2	1	21	21S	30E	604435	3593203*	2163	592		
C 03772 POD1	C	CUB	ED	2	4	2	32	21S	30E	603859	3589714	2228	30		
C 03772 POD2	C	CUB	ED	4	2	2	32	21S	30E	603850	3589707	2240	30		
C 03772 POD3	C	CUB	ED	4	2	2	32	21S	30E	603840	3589699	2252	30		
C 03772 POD4	C	CUB	ED	4	2	2	32	21S	30E	603824	3589692	2269	30		
C 03772 POD5	C	CUB	ED	4	2	2	32	21S	30E	603823	3589681	2277	30		
C 03772 POD6	C	CUB	ED	4	2	2	32	21S	30E	603814	3589666	2294	30		
C 03772 POD7	C	CUB	ED	4	2	2	32	21S	30E	603805	3589655	2308	30		
C 03772 POD8	C	CUB	ED	4	2	2	32	21S	30E	603797	3589636	2327	30		
C 03726 POD3		CUB	ED	4	3	2	20	21S	30E	603463	3592652	2402	166		
C 03234 EXPLORE			ED	1	2	3	35	21S	30E	607695	3589207*	3068	410		
C 03726 POD1		CUB	ED	3	2	4	19	21S	30E	602039	3592182	3515		220	
C 03625 POD1		CUB	ED	1	4	4	18	21S	30E	602108	3593530	4015	310	118	192
C 03726 POD2		CUB	ED	3	4	3	18	21S	30E	601214	3593389	4719	210		
C 03624 POD1		CUB	ED	3	2	3	18	21S	30E	601286	3593689	4797	370	110	260

Average Depth to Water: **149 feet**

Minimum Depth: **110 feet**

Maximum Depth: **220 feet**

Record Count: 17

UTMNAD83 Radius Search (in meters):

Easting (X): 605438.7 **Northing (Y):** 3591286.3 **Radius:** 5000

***UTM location was derived from PLSS - see Help**

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 01, 2018

Austin Weyant
Souder, Miller & Associates
201 S Halagueno
Carlsbad, NM 88221
TEL: (575) 689-7040
FAX

RE: Big Eddy Unit 9 OrderNo.: 1801B18

Dear Austin Weyant:

Hall Environmental Analysis Laboratory received 5 sample(s) on 1/24/2018 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 qualifiers 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 **1801B18**
Date Reported: **2/1/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: L1-S
Project: Big Eddy Unit 9
Collection Date: 1/22/2018 12:42:00 PM
Lab ID: 1801B18-001 **Matrix:** SOIL **Received Date:** 1/24/2018 9:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	37000	3000		mg/Kg	2E	1/31/2018 3:01:41 AM	36235
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	91	9.7		mg/Kg	1	1/28/2018 1:27:54 AM	36208
Motor Oil Range Organics (MRO)	68	48		mg/Kg	1	1/28/2018 1:27:54 AM	36208
Surr: DNOP	113	70-130		%Rec	1	1/28/2018 1:27:54 AM	36208
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	1/27/2018 3:31:35 AM	36205
Surr: BFB	90.7	15-316		%Rec	1	1/27/2018 3:31:35 AM	36205
EPA METHOD 8021B: VOLATILES						Analyst: **AG**	
Methyl tert-butyl ether (MTBE)	ND	0.093		mg/Kg	1	1/29/2018 2:02:44 PM	36205
Benzene	ND	0.023		mg/Kg	1	1/27/2018 3:31:35 AM	36205
Toluene	ND	0.047		mg/Kg	1	1/27/2018 3:31:35 AM	36205
Ethylbenzene	ND	0.047		mg/Kg	1	1/27/2018 3:31:35 AM	36205
Xylenes, Total	ND	0.093		mg/Kg	1	1/27/2018 3:31:35 AM	36205
Surr: 4-Bromofluorobenzene	84.5	80-120		%Rec	1	1/27/2018 3:31:35 AM	36205

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
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1801B18**
Date Reported: **2/1/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: L1-2'
Project: Big Eddy Unit 9
Collection Date: 1/22/2018 12:43:00 PM
Lab ID: 1801B18-002 **Matrix:** SOIL **Received Date:** 1/24/2018 9:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	35000	1500		mg/Kg	1E	1/31/2018 3:14:05 AM	36261
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	1/26/2018 12:44:17 PM	36208
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	1/26/2018 12:44:17 PM	36208
Surr: DNOP	95.5	70-130		%Rec	1	1/26/2018 12:44:17 PM	36208
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	1/27/2018 12:39:51 AM	36205
Surr: BFB	92.1	15-316		%Rec	1	1/27/2018 12:39:51 AM	36205
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.10		mg/Kg	1	1/27/2018 12:39:51 AM	36205
Benzene	ND	0.025		mg/Kg	1	1/27/2018 12:39:51 AM	36205
Toluene	ND	0.050		mg/Kg	1	1/27/2018 12:39:51 AM	36205
Ethylbenzene	ND	0.050		mg/Kg	1	1/27/2018 12:39:51 AM	36205
Xylenes, Total	ND	0.10		mg/Kg	1	1/27/2018 12:39:51 AM	36205
Surr: 4-Bromofluorobenzene	107	80-120		%Rec	1	1/27/2018 12:39:51 AM	36205

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
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1801B18**
Date Reported: **2/1/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: L1-4'
Project: Big Eddy Unit 9
Collection Date: 1/22/2018 12:50:00 PM
Lab ID: 1801B18-003 **Matrix:** SOIL **Received Date:** 1/24/2018 9:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	36000	1500		mg/Kg	1E	1/30/2018 1:59:51 PM	36261
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	1/26/2018 1:08:30 PM	36208
Motor Oil Range Organics (MRO)	ND	51		mg/Kg	1	1/26/2018 1:08:30 PM	36208
Surr: DNOP	91.4	70-130		%Rec	1	1/26/2018 1:08:30 PM	36208
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	1/27/2018 1:03:19 AM	36205
Surr: BFB	90.5	15-316		%Rec	1	1/27/2018 1:03:19 AM	36205
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.094		mg/Kg	1	1/27/2018 1:03:19 AM	36205
Benzene	ND	0.024		mg/Kg	1	1/27/2018 1:03:19 AM	36205
Toluene	ND	0.047		mg/Kg	1	1/27/2018 1:03:19 AM	36205
Ethylbenzene	ND	0.047		mg/Kg	1	1/27/2018 1:03:19 AM	36205
Xylenes, Total	ND	0.094		mg/Kg	1	1/27/2018 1:03:19 AM	36205
Surr: 4-Bromofluorobenzene	105	80-120		%Rec	1	1/27/2018 1:03:19 AM	36205

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
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1801B18**
Date Reported: **2/1/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: L1-6'
Project: Big Eddy Unit 9
Collection Date: 1/22/2018 12:52:00 PM
Lab ID: 1801B18-004 **Matrix:** SOIL **Received Date:** 1/24/2018 9:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst:	**MRA**
Chloride	20000	750		mg/Kg	500	1/30/2018 2:12:15 PM	36261
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst:	**TOM**
Diesel Range Organics (DRO)	ND	9.1		mg/Kg	1	1/26/2018 1:32:52 PM	36208
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	1/26/2018 1:32:52 PM	36208
Surr: DNOP	102	70-130		%Rec	1	1/26/2018 1:32:52 PM	36208
EPA METHOD 8015D: GASOLINE RANGE						Analyst:	**NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	1/27/2018 1:26:49 AM	36205
Surr: BFB	90.3	15-316		%Rec	1	1/27/2018 1:26:49 AM	36205
EPA METHOD 8021B: VOLATILES						Analyst:	**NSB**
Methyl tert-butyl ether (MTBE)	ND	0.098		mg/Kg	1	1/27/2018 1:26:49 AM	36205
Benzene	ND	0.024		mg/Kg	1	1/27/2018 1:26:49 AM	36205
Toluene	ND	0.049		mg/Kg	1	1/27/2018 1:26:49 AM	36205
Ethylbenzene	ND	0.049		mg/Kg	1	1/27/2018 1:26:49 AM	36205
Xylenes, Total	ND	0.098		mg/Kg	1	1/27/2018 1:26:49 AM	36205
Surr: 4-Bromofluorobenzene	104	80-120		%Rec	1	1/27/2018 1:26:49 AM	36205

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
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order **1801B18**
Date Reported: **2/1/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates
Client Sample ID: L1-7'
Project: Big Eddy Unit 9
Collection Date: 1/22/2018 12:54:00 PM
Lab ID: 1801B18-005 **Matrix:** SOIL **Received Date:** 1/24/2018 9:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst:	**MRA**
Chloride	4300	150		mg/Kg	100	1/30/2018 2:24:39 PM	36261
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst:	**TOM**
Diesel Range Organics (DRO)	ND	9.1		mg/Kg	1	1/26/2018 1:57:04 PM	36208
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	1/26/2018 1:57:04 PM	36208
Surr: DNOP	89.3	70-130		%Rec	1	1/26/2018 1:57:04 PM	36208
EPA METHOD 8015D: GASOLINE RANGE						Analyst:	**NSB**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	1/27/2018 1:50:15 AM	36205
Surr: BFB	90.9	15-316		%Rec	1	1/27/2018 1:50:15 AM	36205
EPA METHOD 8021B: VOLATILES						Analyst:	**NSB**
Methyl tert-butyl ether (MTBE)	ND	0.092		mg/Kg	1	1/27/2018 1:50:15 AM	36205
Benzene	ND	0.023		mg/Kg	1	1/27/2018 1:50:15 AM	36205
Toluene	ND	0.046		mg/Kg	1	1/27/2018 1:50:15 AM	36205
Ethylbenzene	ND	0.046		mg/Kg	1	1/27/2018 1:50:15 AM	36205
Xylenes, Total	ND	0.092		mg/Kg	1	1/27/2018 1:50:15 AM	36205
Surr: 4-Bromofluorobenzene	107	80-120		%Rec	1	1/27/2018 1:50:15 AM	36205

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
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1801B18**
01-Feb-18

Client: Souder, Miller & Associates
Project: Big Eddy Unit 9

Sample ID	**MB-36235**	SampType:	**mblk**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID:	**36235**	RunNo:	**48756**					
Prep Date:	**1/29/2018**	Analysis Date:	**1/29/2018**	SeqNo:	**1569479**	Units:	**mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	**LCS-36235**	SampType:	**lcs**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID:	**36235**	RunNo:	**48756**					
Prep Date:	**1/29/2018**	Analysis Date:	**1/29/2018**	SeqNo:	**1569480**	Units:	**mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	92.0	90	110			

Sample ID	**MB-36261**	SampType:	**mblk**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID:	**36261**	RunNo:	**48793**					
Prep Date:	**1/30/2018**	Analysis Date:	**1/30/2018**	SeqNo:	**1570157**	Units:	**mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	**LCS-36261**	SampType:	**lcs**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID:	**36261**	RunNo:	**48793**					
Prep Date:	**1/30/2018**	Analysis Date:	**1/30/2018**	SeqNo:	**1570158**	Units:	**mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	92.1	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1801B18**
01-Feb-18

Client: Souder, Miller & Associates
Project: Big Eddy Unit 9

Sample ID	**LCS-36208**	SampType:	**LCS**		TestCode:	**EPA Method 8015M/D: Diesel Range Organics**				
Client ID:	**LCSS**	Batch ID:	**36208**		RunNo:	**48716**				
Prep Date:	**1/25/2018**	Analysis Date:	**1/26/2018**		SeqNo:	**1567286**	Units:	**mg/Kg**		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	43	10	50.00	0	85.4	70	130			
Surr: DNOP	4.1		5.000		81.8	70	130			

Sample ID	**MB-36208**	SampType:	**MBLK**		TestCode:	**EPA Method 8015M/D: Diesel Range Organics**				
Client ID:	**PBS**	Batch ID:	**36208**		RunNo:	**48716**				
Prep Date:	**1/25/2018**	Analysis Date:	**1/26/2018**		SeqNo:	**1567287**	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	8.8		10.00		88.4	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1801B18**
01-Feb-18

Client: Souder, Miller & Associates
Project: Big Eddy Unit 9

Sample ID	**MB-36205**	SampType:	**MBLK**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**PBS**	Batch ID:	**36205**	RunNo:	**48738**					
Prep Date:	**1/25/2018**	Analysis Date:	**1/26/2018**	SeqNo:	**1567794**	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	830		1000		83.1	15	316			

Sample ID	**LCS-36205**	SampType:	**LCS**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**LCSS**	Batch ID:	**36205**	RunNo:	**48738**					
Prep Date:	**1/25/2018**	Analysis Date:	**1/26/2018**	SeqNo:	**1567795**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	5.0	25.00	0	104	75.9	131			
Surr: BFB	1000		1000		102	15	316			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1801B18**
01-Feb-18

Client: Souder, Miller & Associates
Project: Big Eddy Unit 9

Sample ID	**MB-36205**	SampType:	**MBLK**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**PBS**	Batch ID:	**36205**	RunNo:	**48738**					
Prep Date:	**1/25/2018**	Analysis Date:	**1/26/2018**	SeqNo:	**1567836**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	0.10								
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.89		1.000		89.3	80	120			

Sample ID	**LCS-36205**	SampType:	**LCS**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**LCSS**	Batch ID:	**36205**	RunNo:	**48738**					
Prep Date:	**1/25/2018**	Analysis Date:	**1/26/2018**	SeqNo:	**1567837**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	0.90	0.10	1.000	0	89.6	70.1	121			
Benzene	0.96	0.025	1.000	0	96.2	77.3	128			
Toluene	0.97	0.050	1.000	0	97.3	79.2	125			
Ethylbenzene	0.96	0.050	1.000	0	95.9	80.7	127			
Xylenes, Total	2.9	0.10	3.000	0	98.3	81.6	129			
Surr: 4-Bromofluorobenzene	0.97		1.000		97.2	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

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-CARLSBAD Work Order Number: 1801B18 RcptNo: 1

Received By: Isaiah Ortiz 1/24/2018 9:45:00 AM

Completed By: Erin Melendrez 1/24/2018 2:13:48 PM

Reviewed By: DDS 1/24/18

Chain of Custody

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

Log In

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

15. 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: _____

16. Additional remarks:

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.1	Good	Yes			

Chain-of-Custody Record

Client: SMA - Carlsbad

Mailing Address: on file.

Phone #:

email or Fax#:

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

Accreditation
☐ NELAP ☐ Other

☐ EDD (Type)

Turn-Around Time:
☐ Standard ☒ Rush 5 day

Project Name: Big Eddy Unit #9

Project #:

Project Manager: Austin Weyant

Sampler: MRS/HMP

On Ice: ☒ Yes ☐ No

Sample Temperature: 0.1

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. 1801B18	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)
1/22/18	12:42	soil	L1-S	4oz.		-001	X		X					X								
	12:43		L1-2'			-002	X		X					X								
	12:50		L1-4'			-003	X		X					X								
	12:52		L1-6'			-004	X		X					X								
	12:54		L1-7'			-005	X		X					X								

Date:	Time:	Relinquished by:	Received by:	Date	Time	Remarks:
				1/23/18	0830	XTO
1/23/18	1900			1/24/18	945	

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

June 22, 2018

Austin Weyant
Souder, Miller & Associates
201 S Halagueno
Carlsbad, NM 88221
TEL: (575) 689-7040
FAX

RE: D1 9 OrderNo.: 1806637

Dear Austin Weyant:

Hall Environmental Analysis Laboratory received 7 sample(s) on 6/12/2018 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 qualifiers 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 #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order: **1806637**
Date Reported: **6/22/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates **Lab Order:** 1806637
Project: D1 9

Lab ID: 1806637-001 **Collection Date:** 6/7/2018 11:05:00 AM
Client Sample ID: South SW **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	6/18/2018 2:26:58 PM	38725

Lab ID: 1806637-002 **Collection Date:** 6/7/2018 12:06:00 PM
Client Sample ID: North SW **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	480	30		mg/Kg	20	6/18/2018 2:39:22 PM	38725

Lab ID: 1806637-003 **Collection Date:** 6/7/2018 12:35:00 PM
Client Sample ID: West SW **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	140	30		mg/Kg	20	6/18/2018 2:51:47 PM	38725

Lab ID: 1806637-004 **Collection Date:** 6/7/2018 1:30:00 PM
Client Sample ID: East SW **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	270	30		mg/Kg	20	6/18/2018 3:29:00 PM	38725

Lab ID: 1806637-005 **Collection Date:** 6/7/2018 10:15:00 AM
Client Sample ID: BH-2' **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	8600	750		mg/Kg	500	6/20/2018 5:16:31 AM	38733

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
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit

Analytical Report
Lab Order: **1806637**
Date Reported: **6/22/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Souder, Miller & Associates **Lab Order:** 1806637
Project: D1 9

Lab ID: 1806637-006 **Collection Date:** 6/7/2018 10:30:00 AM
Client Sample ID: BH-3' **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	1000	30		mg/Kg	20	6/18/2018 4:06:14 PM	38725

Lab ID: 1806637-007 **Collection Date:** 6/7/2018 10:45:00 AM
Client Sample ID: BH-4' **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	1400	75		mg/Kg	50	6/20/2018 11:35:18 AM	38725

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
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1806637**

22-Jun-18

Client: Souder, Miller & Associates

Project: D1 9

Sample ID	**MB-38725**	SampType:	**MBLK**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID:	**38725**	RunNo:	**52050**					
Prep Date:	**6/18/2018**	Analysis Date:	**6/18/2018**	SeqNo:	**1703853**	Units:	**mg/Kg**			

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

Sample ID	**LCS-38725**	SampType:	**LCS**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID:	**38725**	RunNo:	**52050**					
Prep Date:	**6/18/2018**	Analysis Date:	**6/18/2018**	SeqNo:	**1703854**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	94.0	90	110			

Sample ID	**MB-38733**	SampType:	**MBLK**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID:	**38733**	RunNo:	**52050**					
Prep Date:	**6/18/2018**	Analysis Date:	**6/18/2018**	SeqNo:	**1703885**	Units:	**mg/Kg**			

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

Sample ID	**LCS-38733**	SampType:	**LCS**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID:	**38733**	RunNo:	**52050**					
Prep Date:	**6/18/2018**	Analysis Date:	**6/18/2018**	SeqNo:	**1703886**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	94.9	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

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Sample Log-In Check List

Client Name: SMA-CARLSBAD Work Order Number: 1806637 RcptNo: 1

Received By: Erin Melendrez 6/12/2018 9:43:00 AM

Completed By: Erin Melendrez 6/12/2018 9:58:15 AM

Reviewed By: 06/12/18

LB: 06/12/18

Chain of Custody

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

Log In

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

15. 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: _____

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.1	Good	Yes			

Chain-of-Custody Record

Client: SMA Carlsbad

Mailing Address:

Phone #:

email or Fax#:

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

Accreditation
☐ NELAP ☐ Other

☐ EDD (Type)

Turn-Around Time:
☐ Standard ☒ Rush 5 day

Project Name: DI #9

Project #:

Project Manager: Austin Weyant

Sampler: MPS

On Ice: ☒ Yes ☐ No

Sample Temperature: 1. | -1.0(CF)=0.1

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. 1806637	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)
6/7/18	11:05	soil	South SW	4oz.		-001								X								
	12:06		North SW			-002								X								
	12:35		West SW			-003								X								
	1:30		East SW			-004								X								
	10:15		BH-2'			-005								X								
	10:20		BH-3'			-006								X								
	10:45		BH-4'			-007								X								

Date:	Time:	Relinquished by:	Received by:	Date	Time	Remarks:
6/11/18	1400			6/11/18	1500	XTO
6/11/18	1900			6/12/18	0943	

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.

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

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

CONDITIONS

Action 314891

CONDITIONS

Operator: XTO PERMIAN OPERATING LLC. 6401 HOLIDAY HILL ROAD MIDLAND, TX 79707	OGRID: 373075
	Action Number: 314891
	Action Type: [IM-SD] Incident File Support Doc (ENV) (IM-BNF)

CONDITIONS

Created By	Condition	Condition Date
amaxwell	Historical document review. Status updated to deferral approved.	2/15/2024