Devon Energy

Spud 16 State 8H
Delineation Report & Work Plan

Section 16, Township 23S, Range 29E
Eddy County, New Mexico

30-015-40038

April 17, 2019

Prepared for:
Devon Energy Production Company
6488 Seven Rivers Highway
By:

Safety & Environmental Solutions, Inc.
703 East Clinton Street
Hobbs, New Mexico 88240
(575) 397-0510

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I. Company Contacts

Representative	Company	Telephone	E-mail
Amanda Davis	Devon Energy Corporation	575-748-0176	Amanda.Davis@dvn.com
Bob Allen	SESI	575-397-0510	ballen@sesi-nm.com

II. Background

Safety and Environmental Solutions, Inc., hereinafter referred to as (SESI) was engaged by Devon Energy Corporation to assess and remediate a spill area at the Spud 16 State #008H.
According to the C-141: According to the C-141 the cause of release, was a broken site glass on the heater treater. The affected area measured approximately 125' x 30'. All fluids remained on the location pad area. A Trimble Juno 3B handheld was used to map the spill area. (Figure 2). Approximately 11,307 cubic feet of surface area was impacted.

III. Surface and Ground Water

There is no record of depth to groundwater in the immediate vicinity of the site location. Further research of the New Mexico Office of the State Engineer records indicates the average depth to groundwater for the area to be 31' bgs. Please note: this location is surrounded in its entirety by the salt lakes, and the boundaries are periodically encroached upon by salt water. (Appendix B).

IV. Characterization

The target cleanup levels are determined using the NMAC 19.15.29 revisions dated July 24, 2018. The soil screening criteria presented below, and the applicable Recommended Remediation Action Levels (RRAL) are 10 parts per million (ppm) Benzene, 50 ppm combined Benzene, Toluene, Ethyl Benzene, and Total Xylenes (BTEX), and 2,500 ppm Total Petroleum Hydrocarbons (TPH). Characterization of vertical extent of chloride concentration to a level of 600 mg/kg (PPM) is also required for pasture impact. The soil in this area is characterized as a Reeves Gypsum. Classified as a loamy soils that are very shallow to moderately deep over Gypsum beds, and Gypsum land.

Table 1 Closure Criteria for Soils Impacted by a Release			
Minimum depth below any point within the horizontal boundary of the release to ground water less than 10,000 mg/l TDS	Constituent	Method*	Limit**
<50 feet	Chloride***	EPA 300.0 or SM4500 Cl B	600 mg/kg
	TPH (GRO+DRO+MRO)	EPA SW-846 Method 8015B	100 mg/kg
	BTEX	EPA SW-846 Method 8021B or 8260B	50 mg/kg
	Benzene	EPA SW-846 Method 8021B or 8260B	10 mg/kg
51 feet-100 feet	Chloride***	EPA 300.0 or SM4500 Cl B	10,000 mg/kg
	TPH (GRO+DRO+MRO)	EPA SW-846 Method 8015B	2,500 mg/kg
	BTEX	EPA SW-846 Method 8021B or 8260B	50 mg/kg
	Benzene	EPA SW-846 Method 8021B or 8260B	10 mg/kg
>100 feet	Chloride***	EPA 300.0 or SM4500 Cl B	20,000 mg/kg
	TPH (GRO+DRO+MRO)	EPA SW-846 Method 8015B	2,500 mg/kg
	BTEX	EPA SW-846 Method 8021B or 8260B	50 mg/kg

V. Work Performed

On March 27, 2019 SESI personnel were on site in order to meet with Devon Energy personnel regarding the safety issues, number of high pressure lines, as well as electrical lines on the location. The area was flagged for future New Mexico One Call clearance.

On April 02, 2019 SESI personnel, together with personnel from Devon Energy were on location in order to begin soil delineation of the spill area. Seven (7) Auger Holes were designated and advance to depths from surface to 2' bgs. Soil samples were grabbed at surface, and one foot increments, field tested, and packaged for laboratory confirmation. All samples were properly packaged, labeled, preserved, and transported to Hall Laboratories via Chain of Custody for analyses. The following constituencies were analyzed:
Chloride (Cl Method 300.0 Anions), Total Petroleum Hydrocarbons (TPH Method 8015), and Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX Method 8021B). The table below is a recap and tabulation of the results from the Hall Laboratory analyses for ease of reference (Appendix C)

Mr. Bob Allen (SESI) contacted Mr. Mike Bratcher of the NMOCD on April 10 or 11, 2019 by telephone. The close proximity of the Spud 16 8H to the salt lake (immediately adjacent) was discussed. Mr. Bratcher indicated that the primary concern at this location would be TPH contamination and not the chloride contamination. The action level for TPH will use the close proximity of the salt lake as a water body, therefore the TPH action level will be 100 mg/kg. The action plan will call for removal of all TPH contaminated soil above the 100 mg/kg level and the chloride levels at that depth will be sampled as retained in the documentation required for this release.

Sample ID	Chloride EPA Method 300 Anions	MRO EPA Method 8015	DRO EPA Method 8015	GRO EPA Method 8015	BTEX EPA Method 8021
AH-1 Surface	**10000**	**7600**	**21000**	**3100**	**130**
AH-1 @ 1 ft.	**7200**	**1200**	**2800**	**250**	**6.6**
AH-1 @ 2 ft.	**2700**	**ND**	**24**	**ND**	**ND**
AH-2 @ Surface	**1600**	**4700**	**15000**	**1900**	**65**
AH-2 @ 1 ft.	**3300**	**53**	**89**	**ND**	**ND**
AH-3 Surface	**910**	**1900**	**5600**	**210**	**4.6**
AH-3 @ 1 ft.	**140**	**55**	**89**	**ND**	**ND**
AH-4 @ Surface	**2400**	**ND**	**14000**	**46**	**ND**
AH-4 @ 1 ft.	**1700**	**ND**	**770**	**17**	**ND**
AH-5 @ Surface	**650**	**7400**	**15000**	**110**	**2.2**
AH-5 @ 1 ft.	**ND**	**ND**	**ND**	**ND**	**ND**
AH-6 @ Surface	**13000**	**6400**	**13000**	**23**	**.62**
AH-6 @ 1 ft.	**ND**	**ND**	**ND**	**ND**	**ND**
AH-7 @ Surface	**21000**	**2500**	**4800**	**ND**	**ND**
AH-7 @ 1 ft.	**61**	**ND**	**ND**	**ND**	**ND**

VI. Action Plan

Based on the NMOCD soil screening levels, depth to groundwater for this area, and number of lines: It is proposed to "hand dig" the interior of the bermed area to a depth whereby TPH levels are below 100 mg/kg. The estimated area of impact is Two Hundred Forty Nine (249) cubic feet. The interior of the bermed area will be backfilled with like material and the berm restored. There is TPH contamination on surface area of pad, however this a heavily trafficked area with transport trucks, and will need to be remediated with caution, and backfilled immediately in order to prevent accidents. The approximate area of impact for the surface area of the pad is Two Thousand Nine Hundred Sixty One (2,961) cubic feet. It is proposed to grab sidewall and bottom samples for field testing as confirmation of the vertical and horizontal remediation respectively. All confirmations samples will be sent to an NMOCD approved laboratory for final analyses.

Due to geographic location, and the salt lakes; chloride levels are naturally occurring on all surface areas. All impacted soils will be transported to an NMOCD approved facility and documented via manifests. The Sidewall and Bottom Samples will be retrieved as confirmation and included in all Closure Documentation.

Upon completion of remediation activities: all surface areas of the pad area will be backfilled with like material and restored to grade. All closure documentation will be drafted and submitted to the proper parties of concern.

VII. Figures & Appendices

Figure 1 - Vicinity Map
Figure 2 - Site Plan
Appendix A – C-141
Appendix B – Groundwater
Appendix C – Analytical Results
Appendix D – Photo Documentation

Figure 1
Vicinity Map

Spud 16 State #008H Vicinity

Legend

08

09

23S 29E

17

16

AH2 @ 1ft

AH1 @ 2ft

AH3 @ 1ft

AH7 @ 1ft

Devon Spud 16 State 8H Battery

AH6 @ 1ft

N

600 ft

Google Earth

Figure 2
Site Plan

Spud 16 State #008H

Figure 2 Site Plan

Legend

- Devon Spud 16 State 8H Battery
- Feature 1
- Manual Excavation
- Mechanized Excavation

AH2 @ 1ft

AH1 @ 2ft

AH3 @ 1ft

Sample Point 7 AH7 @ 1ft

Sample Point 6 A6 @ 1ft

Sample Point 5

Sample Point 4 AH4 @ 1ft

AH5 @ 1ft

N32.31°

Devon Spud 16 State 8H Battery

Google Earth

N

90 ft

Appendix A
C-141

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 Department

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

Form C-141
Revised August 24, 2018
Submit to appropriate OCD District office

Incident ID	NAB1909135211
District RP	2RP-5323
Facility ID	
Application ID	pAB1909134736

Release Notification

Responsible Party

Responsible Party Devon Energy Production Company	OGRID 6137
Contact Name Amanda T. Davis	Contact Telephone 575-748-0176
Contact email amanda.davis@dvn.com	Incident # *(assigned by OCD)* NAB1909135211
Contact mailing address 6488 Seven Rivers Hwy	

Location of Release Source

Latitude 32.31088000 Longitude -103.99559299

(NAD 83 in decimal degrees to 5 decimal places)

Site Name Spud 16 State #008H	Site Type Oil
Date Release Discovered 3/13/2019	API# *(if applicable)* 3001540038

Unit Letter	Section	Township	Range	County
D	16	23S	29E	Eddy

Surface Owner: ☒ State ☐ Federal ☐ Tribal ☒ Private (*Name:* _____)

** According to legal description, it appears as Private AB

Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

☒ Crude Oil	Volume Released (bbls) 4	Volume Recovered (bbls) 4
☒ Produced Water	Volume Released (bbls) 7	Volume Recovered (bbls) 0
	Is the concentration of total dissolved solids (TDS) in the produced water >10,000 mg/l?	☐ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release: This site glass broke on the heater treater. Affected area 125' x 30'. All fluids stayed on location

State of New Mexico
Oil Conservation Division

Incident ID	NAB1909135211
District RP	2RP-5323
Facility ID	
Application ID	pAB1909134736

Was this a major release as defined by 19.15.29.7(A) NMAC? ☐ Yes ■ No	If YES, for what reason(s) does the responsible party consider this a major release?
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?	

Initial Response

The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury

- ■ The source of the release has been stopped.
- ■ The impacted area has been secured to protect human health and the environment.
- ☐ Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.
- ■ All free liquids and recoverable materials have been removed and managed appropriately.

If all the actions described above have not been undertaken, explain why:

This spill occurred at the heater treater, there is no secondary containment around the heater treater.

Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD 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 OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD 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.

Printed Name: Kendra DeHoyos Title: EHS Associate

Signature: Kendra DeHoyos Date: 3/21/2019

email: kendra.dehoyos@dvn.com Telephone: 575-748-0167

OCD Only

Received by: Amalia Barrameda Date: 4/1/2019

Appendix B
Groundwater

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	Depth Well	Depth Water	Water Column
C 00571		CUB	ED	1	3	3	30	23S	29E	591241	3570957*	90	38	52
C 00571 CLW241602	O	CUB	ED	3	3	3	30	23S	29E	591241	3570757*	89	38	51
C 01217 S		CUB	ED	4	1	4	16	23S	29E	595413	3574403*	350		
C 01627		C	ED	1	4	4	28	23S	29E	595649	3570959*	170		
C 02182		C	ED			4	30	23S	29E	592328	3571048*	75	30	45
C 02608		CUB	ED	3	1	4	17	23S	29E	593598	3574387*	400		
C 02613		CUB	ED	4	4	2	20	23S	29E	594203	3573176*	400		
C 02704		C	ED			1	19	23S	29E	591531	3573493*	174		
C 02705		C	ED			2	17	23S	29E	593902	3575093*	68	28	40
C 02706		C	ED			4	18	23S	29E	592302	3574291*	17	10	7
C 02707		C	ED			2	28	23S	29E	595535	3571868*	40	18	22
C 02715		CUB	ED	4	1	3	15	23S	29E	596221	3574411*	400		
C 02716		CUB	ED	4	4	4	16	23S	29E	595818	3574002*	400		
C 02717		CUB	ED	4	2	4	16	23S	29E	595817	3574407*	400		
C 02718		CUB	ED	4	4	2	16	23S	29E	595816	3574812*	400		
C 02720		CUB	ED		2	1	21	23S	29E	594911	3573690*	150		
C 02721		CUB	ED		2	3	21	23S	29E	594915	3572879*	150		
C 02792		CUB	ED		4	3	04	23S	29E	594868	3577336*	200		
C 02793		CUB	ED		4	3	04	23S	29E	594868	3577336*	100		
C 02794		CUB	ED		4	3	10	23S	29E	596518	3575731*	100		
C 02795		CUB	ED		4	3	10	23S	29E	596518	3575731*	200		
C 02797		CUB	ED		2	3	22	23S	29E	596540	3572895*	200		
C 02804		CUB	ED		2	1	08	23S	29E	593262	3576905*	100		
C 02805		CUB	ED		2	1	08	23S	29E	593262	3576905*	100		
C 02806		CUB	ED		1	1	09	23S	29E	594473	3576927*	100		
C 02807		CUB	ED		1	1	09	23S	29E	594473	3576927*	100		
C 02808		CUB	ED		2	3	16	23S	29E	594909	3574501*	100		
C 02809		CUB	ED		2	3	16	23S	29E	594909	3574501*	100		
C 03057 EXPLORE		CUB	ED	4	1	1	21	23S	29E	594605	3573586*	150		
C 03058 EXPLORE		CUB	ED	4	1	1	16	23S	29E	594605	3575206*	150		
C 03059 EXPLORE		CUB	ED	4	1	3	17	23S	29E	592993	3574378*		65	
C 03587 POD1		CUB	ED	1	4	3	29	23S	29E	593338	3570754	99	44	55
C 03587 POD2		CUB	ED	1	2	4	19	23S	29E	592213	3572706	77	16	61

Average Depth to Water:	**31 feet**
Minimum Depth:	**10 feet**
Maximum Depth:	**65 feet**

Record Count: 33

PLSS Search:

Township: 23S **Range:** 29E

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

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

4/16/19 2:27 PM

WATER COLUMN/ AVERAGE DEPTH TO WATER

Appendix C
Analytical Results

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

April 10, 2019

Bob Allen

Safety & Environmental Solutions
PO Box 1613
Hobbs, NM 88241
TEL: (575) 397-0510
FAX (575) 393-4388

RE: Devon SPUD 16 State 8H OrderNo.: 1904252

Dear Bob Allen:

Hall Environmental Analysis Laboratory received 15 sample(s) on 4/4/2019 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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Safety & Environmental Solutions
Client Sample ID: AH-1 Surface
Project: Devon SPUD 16 State 8H
Collection Date: 4/2/2019 9:45:00 AM
Lab ID: 1904252-001 **Matrix:** SOIL
Received Date: 4/4/2019 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **smb**	
Chloride	10000	600		mg/Kg	200	4/8/2019 5:34:46 PM	44174
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **RAA**	
Gasoline Range Organics (GRO)	3100	230		mg/Kg	50	4/6/2019 6:50:00 PM	44098
Surr: BFB	105	70-130		%Rec	50	4/6/2019 6:50:00 PM	44098
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **lrm**	
Diesel Range Organics (DRO)	21000	380		mg/Kg	40	4/5/2019 9:01:07 AM	44126
Motor Oil Range Organics (MRO)	7600	1900		mg/Kg	40	4/5/2019 9:01:07 AM	44126
Surr: DNOP	0	70-130	S	%Rec	40	4/5/2019 9:01:07 AM	44126
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **RAA**	
Benzene	4.8	0.11		mg/Kg	5	4/5/2019 11:23:14 PM	44098
Toluene	72	2.3		mg/Kg	50	4/6/2019 6:50:00 PM	44098
Ethylbenzene	22	0.23		mg/Kg	5	4/5/2019 11:23:14 PM	44098
Xylenes, Total	130	4.6		mg/Kg	50	4/6/2019 6:50:00 PM	44098
Surr: 1,2-Dichloroethane-d4	96.3	70-130		%Rec	5	4/5/2019 11:23:14 PM	44098
Surr: 4-Bromofluorobenzene	120	70-130		%Rec	5	4/5/2019 11:23:14 PM	44098
Surr: Dibromofluoromethane	133	70-130	S	%Rec	5	4/5/2019 11:23:14 PM	44098
Surr: Toluene-d8	100	70-130		%Rec	5	4/5/2019 11:23:14 PM	44098

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

Qualifiers:

E	Value above quantitation range
ND	Not Detected at the Reporting Limit
RL	Reporting Detection Limit
W	Sample container temperature is out of limit as specified at testcode
H	Holding times for preparation or analysis exceeded
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Safety & Environmental Solutions
Client Sample ID: AH-1 1'
Project: Devon SPUD 16 State 8H
Collection Date: 4/2/2019 10:15:00 AM
Lab ID: 1904252-002 **Matrix:** SOIL
Received Date: 4/4/2019 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **smb**	
Chloride	7200	300		mg/Kg	100	4/8/2019 5:47:11 PM	44174
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **RAA**	
Gasoline Range Organics (GRO)	250	24		mg/Kg	5	4/6/2019 3:12:08 AM	44098
Surr: BFB	106	70-130		%Rec	5	4/6/2019 3:12:08 AM	44098
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **lrm**	
Diesel Range Organics (DRO)	2800	96		mg/Kg	10	4/6/2019 9:30:09 PM	44126
Motor Oil Range Organics (MRO)	1200	480		mg/Kg	10	4/6/2019 9:30:09 PM	44126
Surr: DNOP	0	70-130	S	%Rec	10	4/6/2019 9:30:09 PM	44126
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **RAA**	
Benzene	ND	0.12		mg/Kg	5	4/6/2019 7:18:40 PM	44098
Toluene	1.1	0.24		mg/Kg	5	4/6/2019 7:18:40 PM	44098
Ethylbenzene	1.0	0.24		mg/Kg	5	4/6/2019 7:18:40 PM	44098
Xylenes, Total	6.6	0.48		mg/Kg	5	4/6/2019 7:18:40 PM	44098
Surr: 1,2-Dichloroethane-d4	86.3	70-130		%Rec	5	4/6/2019 7:18:40 PM	44098
Surr: 4-Bromofluorobenzene	105	70-130		%Rec	5	4/6/2019 7:18:40 PM	44098
Surr: Dibromofluoromethane	88.7	70-130		%Rec	5	4/6/2019 7:18:40 PM	44098
Surr: Toluene-d8	91.4	70-130		%Rec	5	4/6/2019 7:18:40 PM	44098

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

Qualifiers:

E	Value above quantitation range
ND	Not Detected at the Reporting Limit
RL	Reporting Detection Limit
W	Sample container temperature is out of limit as specified at testcode
H	Holding times for preparation or analysis exceeded
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Safety & Environmental Solutions
Client Sample ID: AH-1 2'
Project: Devon SPUD 16 State 8H
Collection Date: 4/2/2019 10:25:00 AM
Lab ID: 1904252-003 **Matrix:** SOIL
Received Date: 4/4/2019 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **smb**	
Chloride	2700	150		mg/Kg	50	4/8/2019 5:59:35 PM	44174
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **RAA**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	4/6/2019 3:40:33 AM	44098
Surr: BFB	103	70-130		%Rec	1	4/6/2019 3:40:33 AM	44098
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **lrm**	
Diesel Range Organics (DRO)	24	10		mg/Kg	1	4/5/2019 3:31:04 PM	44126
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	4/5/2019 3:31:04 PM	44126
Surr: DNOP	90.9	70-130		%Rec	1	4/5/2019 3:31:04 PM	44126
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **RAA**	
Benzene	ND	0.023		mg/Kg	1	4/6/2019 7:47:08 PM	44098
Toluene	ND	0.047		mg/Kg	1	4/6/2019 7:47:08 PM	44098
Ethylbenzene	ND	0.047		mg/Kg	1	4/6/2019 7:47:08 PM	44098
Xylenes, Total	ND	0.094		mg/Kg	1	4/6/2019 7:47:08 PM	44098
Surr: 1,2-Dichloroethane-d4	86.6	70-130		%Rec	1	4/6/2019 7:47:08 PM	44098
Surr: 4-Bromofluorobenzene	99.9	70-130		%Rec	1	4/6/2019 7:47:08 PM	44098
Surr: Dibromofluoromethane	88.3	70-130		%Rec	1	4/6/2019 7:47:08 PM	44098
Surr: Toluene-d8	92.3	70-130		%Rec	1	4/6/2019 7:47:08 PM	44098

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

Qualifiers:

E	Value above quantitation range
ND	Not Detected at the Reporting Limit
RL	Reporting Detection Limit
W	Sample container temperature is out of limit as specified at testcode
H	Holding times for preparation or analysis exceeded
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Safety & Environmental Solutions
Client Sample ID: AH-2 Surface
Project: Devon SPUD 16 State 8H
Collection Date: 4/2/2019 10:40:00 AM
Lab ID: 1904252-004 **Matrix:** SOIL
Received Date: 4/4/2019 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CJS**	
Chloride	1600	60		mg/Kg	20	4/6/2019 2:19:25 PM	44174
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **RAA**	
Gasoline Range Organics (GRO)	1900	93		mg/Kg	20	4/6/2019 4:09:08 AM	44098
Surr: BFB	112	70-130		%Rec	20	4/6/2019 4:09:08 AM	44098
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **lrm**	
Diesel Range Organics (DRO)	15000	190		mg/Kg	20	4/5/2019 4:15:14 PM	44126
Motor Oil Range Organics (MRO)	4700	930		mg/Kg	20	4/5/2019 4:15:14 PM	44126
Surr: DNOP	0	70-130	S	%Rec	20	4/5/2019 4:15:14 PM	44126
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **RAA**	
Benzene	0.76	0.47		mg/Kg	20	4/6/2019 8:15:35 PM	44098
Toluene	28	0.93		mg/Kg	20	4/6/2019 8:15:35 PM	44098
Ethylbenzene	16	0.93		mg/Kg	20	4/6/2019 8:15:35 PM	44098
Xylenes, Total	65	1.9		mg/Kg	20	4/6/2019 8:15:35 PM	44098
Surr: 1,2-Dichloroethane-d4	87.9	70-130		%Rec	20	4/6/2019 8:15:35 PM	44098
Surr: 4-Bromofluorobenzene	107	70-130		%Rec	20	4/6/2019 8:15:35 PM	44098
Surr: Dibromofluoromethane	93.3	70-130		%Rec	20	4/6/2019 8:15:35 PM	44098
Surr: Toluene-d8	91.6	70-130		%Rec	20	4/6/2019 8:15:35 PM	44098

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

Qualifiers:

E	Value above quantitation range
ND	Not Detected at the Reporting Limit
RL	Reporting Detection Limit
W	Sample container temperature is out of limit as specified at testcode
H	Holding times for preparation or analysis exceeded
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Safety & Environmental Solutions
Client Sample ID: AH-2 1'
Project: Devon SPUD 16 State 8H
Collection Date: 4/2/2019 10:55:00 AM
Lab ID: 1904252-005 **Matrix:** SOIL
Received Date: 4/4/2019 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **smb**	
Chloride	3300	150		mg/Kg	50	4/8/2019 6:11:59 PM	44174
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **RAA**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	4/6/2019 4:37:49 AM	44098
Surr: BFB	105	70-130		%Rec	1	4/6/2019 4:37:49 AM	44098
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **lrm**	
Diesel Range Organics (DRO)	89	9.6		mg/Kg	1	4/5/2019 4:59:11 PM	44126
Motor Oil Range Organics (MRO)	53	48		mg/Kg	1	4/5/2019 4:59:11 PM	44126
Surr: DNOP	91.9	70-130		%Rec	1	4/5/2019 4:59:11 PM	44126
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **RAA**	
Benzene	ND	0.023		mg/Kg	1	4/6/2019 8:44:18 PM	44098
Toluene	ND	0.047		mg/Kg	1	4/6/2019 8:44:18 PM	44098
Ethylbenzene	ND	0.047		mg/Kg	1	4/6/2019 8:44:18 PM	44098
Xylenes, Total	ND	0.094		mg/Kg	1	4/6/2019 8:44:18 PM	44098
Surr: 1,2-Dichloroethane-d4	88.0	70-130		%Rec	1	4/6/2019 8:44:18 PM	44098
Surr: 4-Bromofluorobenzene	96.6	70-130		%Rec	1	4/6/2019 8:44:18 PM	44098
Surr: Dibromofluoromethane	90.7	70-130		%Rec	1	4/6/2019 8:44:18 PM	44098
Surr: Toluene-d8	94.7	70-130		%Rec	1	4/6/2019 8:44:18 PM	44098

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

Qualifiers:

E	Value above quantitation range
ND	Not Detected at the Reporting Limit
RL	Reporting Detection Limit
W	Sample container temperature is out of limit as specified at testcode
H	Holding times for preparation or analysis exceeded
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Safety & Environmental Solutions
Client Sample ID: AH-3 Surface
Project: Devon SPUD 16 State 8H
Collection Date: 4/2/2019 11:00:00 AM
Lab ID: 1904252-006 **Matrix:** SOIL
Received Date: 4/4/2019 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CJS**	
Chloride	910	60		mg/Kg	20	4/6/2019 2:44:14 PM	44174
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **RAA**	
Gasoline Range Organics (GRO)	210	4.9		mg/Kg	1	4/6/2019 5:06:18 AM	44098
Surr: BFB	120	70-130		%Rec	1	4/6/2019 5:06:18 AM	44098
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **lrm**	
Diesel Range Organics (DRO)	5600	98		mg/Kg	10	4/5/2019 5:43:13 PM	44126
Motor Oil Range Organics (MRO)	1900	490		mg/Kg	10	4/5/2019 5:43:13 PM	44126
Surr: DNOP	0	70-130	S	%Rec	10	4/5/2019 5:43:13 PM	44126
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **RAA**	
Benzene	ND	0.049		mg/Kg	2	4/6/2019 9:12:48 PM	44098
Toluene	ND	0.098		mg/Kg	2	4/6/2019 9:12:48 PM	44098
Ethylbenzene	0.54	0.098		mg/Kg	2	4/6/2019 9:12:48 PM	44098
Xylenes, Total	4.6	0.20		mg/Kg	2	4/6/2019 9:12:48 PM	44098
Surr: 1,2-Dichloroethane-d4	86.7	70-130		%Rec	2	4/6/2019 9:12:48 PM	44098
Surr: 4-Bromofluorobenzene	112	70-130		%Rec	2	4/6/2019 9:12:48 PM	44098
Surr: Dibromofluoromethane	88.2	70-130		%Rec	2	4/6/2019 9:12:48 PM	44098
Surr: Toluene-d8	90.0	70-130		%Rec	2	4/6/2019 9:12:48 PM	44098

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

Qualifiers:

E	Value above quantitation range
ND	Not Detected at the Reporting Limit
RL	Reporting Detection Limit
W	Sample container temperature is out of limit as specified at testcode
H	Holding times for preparation or analysis exceeded
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Safety & Environmental Solutions
Client Sample ID: AH-3 1'
Project: Devon SPUD 16 State 8H
Collection Date: 4/2/2019 11:15:00 AM
Lab ID: 1904252-007 **Matrix:** SOIL
Received Date: 4/4/2019 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CJS**	
Chloride	140	60		mg/Kg	20	4/6/2019 3:21:26 PM	44174
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **RAA**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	4/9/2019 2:16:59 AM	44098
Surr: BFB	106	70-130		%Rec	1	4/9/2019 2:16:59 AM	44098
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **lrm**	
Diesel Range Organics (DRO)	89	9.0		mg/Kg	1	4/5/2019 6:27:19 PM	44126
Motor Oil Range Organics (MRO)	55	45		mg/Kg	1	4/5/2019 6:27:19 PM	44126
Surr: DNOP	92.2	70-130		%Rec	1	4/5/2019 6:27:19 PM	44126
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **RAA**	
Benzene	ND	0.024		mg/Kg	1	4/6/2019 9:41:13 PM	44098
Toluene	ND	0.048		mg/Kg	1	4/6/2019 9:41:13 PM	44098
Ethylbenzene	ND	0.048		mg/Kg	1	4/6/2019 9:41:13 PM	44098
Xylenes, Total	ND	0.097		mg/Kg	1	4/6/2019 9:41:13 PM	44098
Surr: 1,2-Dichloroethane-d4	89.9	70-130		%Rec	1	4/6/2019 9:41:13 PM	44098
Surr: 4-Bromofluorobenzene	100	70-130		%Rec	1	4/6/2019 9:41:13 PM	44098
Surr: Dibromofluoromethane	93.9	70-130		%Rec	1	4/6/2019 9:41:13 PM	44098
Surr: Toluene-d8	94.5	70-130		%Rec	1	4/6/2019 9:41:13 PM	44098

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

Qualifiers:

E	Value above quantitation range
ND	Not Detected at the Reporting Limit
RL	Reporting Detection Limit
W	Sample container temperature is out of limit as specified at testcode
H	Holding times for preparation or analysis exceeded
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Safety & Environmental Solutions
Client Sample ID: AH-4 Surface
Project: Devon SPUD 16 State 8H
Collection Date: 4/2/2019 11:30:00 AM
Lab ID: 1904252-008 **Matrix:** SOIL
Received Date: 4/4/2019 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CJS**	
Chloride	2400	60		mg/Kg	20	4/6/2019 3:33:51 PM	44174
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **RAA**	
Gasoline Range Organics (GRO)	46	4.6		mg/Kg	1	4/6/2019 6:03:24 AM	44098
Surr: BFB	110	70-130		%Rec	1	4/6/2019 6:03:24 AM	44098
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **lrm**	
Diesel Range Organics (DRO)	14000	960	D	mg/Kg	100	4/5/2019 6:49:22 PM	44126
Motor Oil Range Organics (MRO)	ND	4800	D	mg/Kg	100	4/5/2019 6:49:22 PM	44126
Surr: DNOP	0	70-130	SD	%Rec	100	4/5/2019 6:49:22 PM	44126
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **RAA**	
Benzene	ND	0.12		mg/Kg	5	4/6/2019 10:09:46 PM	44098
Toluene	ND	0.23		mg/Kg	5	4/6/2019 10:09:46 PM	44098
Ethylbenzene	ND	0.23		mg/Kg	5	4/6/2019 10:09:46 PM	44098
Xylenes, Total	ND	0.46		mg/Kg	5	4/6/2019 10:09:46 PM	44098
Surr: 1,2-Dichloroethane-d4	86.3	70-130		%Rec	5	4/6/2019 10:09:46 PM	44098
Surr: 4-Bromofluorobenzene	85.1	70-130		%Rec	5	4/6/2019 10:09:46 PM	44098
Surr: Dibromofluoromethane	87.0	70-130		%Rec	5	4/6/2019 10:09:46 PM	44098
Surr: Toluene-d8	95.6	70-130		%Rec	5	4/6/2019 10:09:46 PM	44098

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

Qualifiers:

E	Value above quantitation range
ND	Not Detected at the Reporting Limit
RL	Reporting Detection Limit
W	Sample container temperature is out of limit as specified at testcode
H	Holding times for preparation or analysis exceeded
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Safety & Environmental Solutions
Client Sample ID: AH-4 1'
Project: Devon SPUD 16 State 8H
Collection Date: 4/2/2019 11:40:00 AM
Lab ID: 1904252-009 **Matrix:** SOIL
Received Date: 4/4/2019 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CJS**	
Chloride	1700	60		mg/Kg	20	4/6/2019 3:46:15 PM	44174
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **RAA**	
Gasoline Range Organics (GRO)	17	4.8		mg/Kg	1	4/6/2019 6:32:00 AM	44111
Surr: BFB	104	70-130		%Rec	1	4/6/2019 6:32:00 AM	44111
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **lrm**	
Diesel Range Organics (DRO)	770	9.7		mg/Kg	1	4/5/2019 3:53:42 AM	44126
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	4/5/2019 3:53:42 AM	44126
Surr: DNOP	95.3	70-130		%Rec	1	4/5/2019 3:53:42 AM	44126
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **RAA**	
Benzene	ND	0.048		mg/Kg	2	4/6/2019 10:38:24 PM	44111
Toluene	ND	0.097		mg/Kg	2	4/6/2019 10:38:24 PM	44111
Ethylbenzene	ND	0.097		mg/Kg	2	4/6/2019 10:38:24 PM	44111
Xylenes, Total	ND	0.19		mg/Kg	2	4/6/2019 10:38:24 PM	44111
Surr: 1,2-Dichloroethane-d4	86.8	70-130		%Rec	2	4/6/2019 10:38:24 PM	44111
Surr: 4-Bromofluorobenzene	85.7	70-130		%Rec	2	4/6/2019 10:38:24 PM	44111
Surr: Dibromofluoromethane	89.8	70-130		%Rec	2	4/6/2019 10:38:24 PM	44111
Surr: Toluene-d8	92.2	70-130		%Rec	2	4/6/2019 10:38:24 PM	44111

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

Qualifiers:

E	Value above quantitation range
ND	Not Detected at the Reporting Limit
RL	Reporting Detection Limit
W	Sample container temperature is out of limit as specified at testcode
H	Holding times for preparation or analysis exceeded
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Safety & Environmental Solutions
Client Sample ID: AH-5 Surface
Project: Devon SPUD 16 State 8H
Collection Date: 4/2/2019 11:50:00 AM
Lab ID: 1904252-010 **Matrix:** SOIL
Received Date: 4/4/2019 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CJS**	
Chloride	650	60		mg/Kg	20	4/6/2019 3:58:40 PM	44174
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **RAA**	
Gasoline Range Organics (GRO)	110	4.6		mg/Kg	1	4/6/2019 7:57:40 AM	44111
Surr: BFB	116	70-130		%Rec	1	4/6/2019 7:57:40 AM	44111
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **lrm**	
Diesel Range Organics (DRO)	15000	200		mg/Kg	20	4/5/2019 7:33:31 PM	44126
Motor Oil Range Organics (MRO)	7400	1000		mg/Kg	20	4/5/2019 7:33:31 PM	44126
Surr: DNOP	0	70-130	S	%Rec	20	4/5/2019 7:33:31 PM	44126
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **RAA**	
Benzene	ND	0.046		mg/Kg	2	4/6/2019 11:07:04 PM	44111
Toluene	ND	0.092		mg/Kg	2	4/6/2019 11:07:04 PM	44111
Ethylbenzene	0.27	0.092		mg/Kg	2	4/6/2019 11:07:04 PM	44111
Xylenes, Total	2.2	0.18		mg/Kg	2	4/6/2019 11:07:04 PM	44111
Surr: 1,2-Dichloroethane-d4	88.8	70-130		%Rec	2	4/6/2019 11:07:04 PM	44111
Surr: 4-Bromofluorobenzene	102	70-130		%Rec	2	4/6/2019 11:07:04 PM	44111
Surr: Dibromofluoromethane	88.6	70-130		%Rec	2	4/6/2019 11:07:04 PM	44111
Surr: Toluene-d8	90.5	70-130		%Rec	2	4/6/2019 11:07:04 PM	44111

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

Qualifiers:

E	Value above quantitation range
ND	Not Detected at the Reporting Limit
RL	Reporting Detection Limit
W	Sample container temperature is out of limit as specified at testcode
H	Holding times for preparation or analysis exceeded
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Safety & Environmental Solutions
Client Sample ID: AH-5 1'
Project: Devon SPUD 16 State 8H
Collection Date: 4/2/2019 12:10:00 PM
Lab ID: 1904252-011 **Matrix:** SOIL
Received Date: 4/4/2019 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CJS**	
Chloride	ND	60		mg/Kg	20	4/6/2019 4:11:05 PM	44174
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **RAA**	
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	4/8/2019 11:32:26 AM	44111
Surr: BFB	104	70-130		%Rec	1	4/8/2019 11:32:26 AM	44111
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**	
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	4/5/2019 10:55:58 AM	44127
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	4/5/2019 10:55:58 AM	44127
Surr: DNOP	113	70-130		%Rec	1	4/5/2019 10:55:58 AM	44127
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **RAA**	
Benzene	ND	0.023		mg/Kg	1	4/7/2019 12:32:55 AM	44111
Toluene	ND	0.046		mg/Kg	1	4/7/2019 12:32:55 AM	44111
Ethylbenzene	ND	0.046		mg/Kg	1	4/7/2019 12:32:55 AM	44111
Xylenes, Total	ND	0.093		mg/Kg	1	4/7/2019 12:32:55 AM	44111
Surr: 1,2-Dichloroethane-d4	86.7	70-130		%Rec	1	4/7/2019 12:32:55 AM	44111
Surr: 4-Bromofluorobenzene	102	70-130		%Rec	1	4/7/2019 12:32:55 AM	44111
Surr: Dibromofluoromethane	90.2	70-130		%Rec	1	4/7/2019 12:32:55 AM	44111
Surr: Toluene-d8	93.1	70-130		%Rec	1	4/7/2019 12:32:55 AM	44111

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

Qualifiers:

E	Value above quantitation range
ND	Not Detected at the Reporting Limit
RL	Reporting Detection Limit
W	Sample container temperature is out of limit as specified at testcode
H	Holding times for preparation or analysis exceeded
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Safety & Environmental Solutions
Client Sample ID: AH-6 Surface
Project: Devon SPUD 16 State 8H
Collection Date: 4/2/2019 12:20:00 PM
Lab ID: 1904252-012 **Matrix:** SOIL
Received Date: 4/4/2019 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **smb**	
Chloride	13000	600		mg/Kg	200	4/8/2019 6:24:24 PM	44174
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **RAA**	
Gasoline Range Organics (GRO)	23	4.7		mg/Kg	1	4/6/2019 9:52:11 AM	44111
Surr: BFB	108	70-130		%Rec	1	4/6/2019 9:52:11 AM	44111
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**	
Diesel Range Organics (DRO)	13000	490		mg/Kg	50	4/5/2019 3:14:13 PM	44127
Motor Oil Range Organics (MRO)	6400	2500		mg/Kg	50	4/5/2019 3:14:13 PM	44127
Surr: DNOP	0	70-130	S	%Rec	50	4/5/2019 3:14:13 PM	44127
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **RAA**	
Benzene	ND	0.047		mg/Kg	2	4/7/2019 1:01:39 AM	44111
Toluene	0.099	0.095		mg/Kg	2	4/7/2019 1:01:39 AM	44111
Ethylbenzene	ND	0.095		mg/Kg	2	4/7/2019 1:01:39 AM	44111
Xylenes, Total	0.62	0.19		mg/Kg	2	4/7/2019 1:01:39 AM	44111
Surr: 1,2-Dichloroethane-d4	87.8	70-130		%Rec	2	4/7/2019 1:01:39 AM	44111
Surr: 4-Bromofluorobenzene	99.5	70-130		%Rec	2	4/7/2019 1:01:39 AM	44111
Surr: Dibromofluoromethane	88.3	70-130		%Rec	2	4/7/2019 1:01:39 AM	44111
Surr: Toluene-d8	95.1	70-130		%Rec	2	4/7/2019 1:01:39 AM	44111

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

Qualifiers:

E	Value above quantitation range
ND	Not Detected at the Reporting Limit
RL	Reporting Detection Limit
W	Sample container temperature is out of limit as specified at testcode
H	Holding times for preparation or analysis exceeded
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Safety & Environmental Solutions
Client Sample ID: AH-6 1'
Project: Devon SPUD 16 State 8H
Collection Date: 4/2/2019 12:35:00 PM
Lab ID: 1904252-013 **Matrix:** SOIL
Received Date: 4/4/2019 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CJS**	
Chloride	ND	60		mg/Kg	20	4/6/2019 4:35:54 PM	44174
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **RAA**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	4/7/2019 1:30:17 AM	44111
Surr: BFB	103	70-130		%Rec	1	4/7/2019 1:30:17 AM	44111
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**	
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	4/5/2019 12:08:51 PM	44127
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	4/5/2019 12:08:51 PM	44127
Surr: DNOP	99.2	70-130		%Rec	1	4/5/2019 12:08:51 PM	44127
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **RAA**	
Benzene	ND	0.024		mg/Kg	1	4/7/2019 1:30:17 AM	44111
Toluene	ND	0.048		mg/Kg	1	4/7/2019 1:30:17 AM	44111
Ethylbenzene	ND	0.048		mg/Kg	1	4/7/2019 1:30:17 AM	44111
Xylenes, Total	ND	0.095		mg/Kg	1	4/7/2019 1:30:17 AM	44111
Surr: 1,2-Dichloroethane-d4	87.2	70-130		%Rec	1	4/7/2019 1:30:17 AM	44111
Surr: 4-Bromofluorobenzene	103	70-130		%Rec	1	4/7/2019 1:30:17 AM	44111
Surr: Dibromofluoromethane	91.2	70-130		%Rec	1	4/7/2019 1:30:17 AM	44111
Surr: Toluene-d8	95.3	70-130		%Rec	1	4/7/2019 1:30:17 AM	44111

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

Qualifiers:

E	Value above quantitation range
ND	Not Detected at the Reporting Limit
RL	Reporting Detection Limit
W	Sample container temperature is out of limit as specified at testcode
H	Holding times for preparation or analysis exceeded
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Safety & Environmental Solutions
Client Sample ID: AH-7 Surface
Project: Devon SPUD 16 State 8H
Collection Date: 4/2/2019 12:55:00 PM
Lab ID: 1904252-014 **Matrix:** SOIL
Received Date: 4/4/2019 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **smb**	
Chloride	21000	1500		mg/Kg	500	4/8/2019 6:36:48 PM	44174
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **RAA**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	4/6/2019 10:49:18 AM	44111
Surr: BFB	104	70-130		%Rec	1	4/6/2019 10:49:18 AM	44111
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**	
Diesel Range Organics (DRO)	4800	99		mg/Kg	10	4/5/2019 12:33:10 PM	44127
Motor Oil Range Organics (MRO)	2500	490		mg/Kg	10	4/5/2019 12:33:10 PM	44127
Surr: DNOP	0	70-130	S	%Rec	10	4/5/2019 12:33:10 PM	44127
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **RAA**	
Benzene	ND	0.024		mg/Kg	1	4/7/2019 1:58:53 AM	44111
Toluene	ND	0.047		mg/Kg	1	4/7/2019 1:58:53 AM	44111
Ethylbenzene	ND	0.047		mg/Kg	1	4/7/2019 1:58:53 AM	44111
Xylenes, Total	ND	0.095		mg/Kg	1	4/7/2019 1:58:53 AM	44111
Surr: 1,2-Dichloroethane-d4	84.8	70-130		%Rec	1	4/7/2019 1:58:53 AM	44111
Surr: 4-Bromofluorobenzene	104	70-130		%Rec	1	4/7/2019 1:58:53 AM	44111
Surr: Dibromofluoromethane	89.3	70-130		%Rec	1	4/7/2019 1:58:53 AM	44111
Surr: Toluene-d8	94.4	70-130		%Rec	1	4/7/2019 1:58:53 AM	44111

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

Qualifiers:

E	Value above quantitation range
ND	Not Detected at the Reporting Limit
RL	Reporting Detection Limit
W	Sample container temperature is out of limit as specified at testcode
H	Holding times for preparation or analysis exceeded
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Safety & Environmental Solutions
Client Sample ID: AH-7 1'
Project: Devon SPUD 16 State 8H
Collection Date: 4/2/2019 1:25:00 PM
Lab ID: 1904252-015 **Matrix:** SOIL **Received Date:** 4/4/2019 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CJS**	
Chloride	61	60		mg/Kg	20	4/6/2019 5:00:43 PM	44174
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **RAA**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	4/6/2019 11:17:44 AM	44111
Surr: BFB	101	70-130		%Rec	1	4/6/2019 11:17:44 AM	44111
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**	
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	4/5/2019 1:04:05 PM	44127
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	4/5/2019 1:04:05 PM	44127
Surr: DNOP	109	70-130		%Rec	1	4/5/2019 1:04:05 PM	44127
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **RAA**	
Benzene	ND	0.025		mg/Kg	1	4/7/2019 2:27:29 AM	44111
Toluene	ND	0.050		mg/Kg	1	4/7/2019 2:27:29 AM	44111
Ethylbenzene	ND	0.050		mg/Kg	1	4/7/2019 2:27:29 AM	44111
Xylenes, Total	ND	0.10		mg/Kg	1	4/7/2019 2:27:29 AM	44111
Surr: 1,2-Dichloroethane-d4	87.6	70-130		%Rec	1	4/7/2019 2:27:29 AM	44111
Surr: 4-Bromofluorobenzene	103	70-130		%Rec	1	4/7/2019 2:27:29 AM	44111
Surr: Dibromofluoromethane	90.4	70-130		%Rec	1	4/7/2019 2:27:29 AM	44111
Surr: Toluene-d8	93.3	70-130		%Rec	1	4/7/2019 2:27:29 AM	44111

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

Qualifiers:

E	Value above quantitation range
ND	Not Detected at the Reporting Limit
RL	Reporting Detection Limit
W	Sample container temperature is out of limit as specified at testcode
H	Holding times for preparation or analysis exceeded
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1904252**

10-Apr-19

Client: Safety & Environmental Solutions

Project: Devon SPUD 16 State 8H

Sample ID: **MB-44174**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **44174**	RunNo: **58963**
Prep Date: **4/6/2019**	Analysis Date: **4/6/2019**	SeqNo: **1983569** Units: **mg/Kg**

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

Sample ID: **LCS-44174**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **44174**	RunNo: **58963**
Prep Date: **4/6/2019**	Analysis Date: **4/6/2019**	SeqNo: **1983570** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	95.5	90	110			

Qualifiers:

E	Value above quantitation range
ND	Not Detected at the Reporting Limit
RL	Reporting Detection Limit
W	Sample container temperature is out of limit as specified at testcode
H	Holding times for preparation or analysis exceeded
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1904252**
10-Apr-19

Client: Safety & Environmental Solutions
Project: Devon SPUD 16 State 8H

Sample ID: **LCS-44126**	SampType: **LCS**			TestCode: **EPA Method 8015M/D: Diesel Range Organics**					
Client ID: **LCSS**	Batch ID: **44126**			RunNo: **58882**					
Prep Date: **4/4/2019**	Analysis Date: **4/4/2019**			SeqNo: **1980513**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	50	10	50.00	0	99.6	63.9	124			
Surr: DNOP	4.4		5.000		88.3	70	130			

Sample ID: **MB-44126**	SampType: **MBLK**			TestCode: **EPA Method 8015M/D: Diesel Range Organics**					
Client ID: **PBS**	Batch ID: **44126**			RunNo: **58882**					
Prep Date: **4/4/2019**	Analysis Date: **4/4/2019**			SeqNo: **1980514**		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	9.1		10.00		91.4	70	130			

Sample ID: **LCS-44142**	SampType: **LCS**			TestCode: **EPA Method 8015M/D: Diesel Range Organics**					
Client ID: **LCSS**	Batch ID: **44142**			RunNo: **58917**					
Prep Date: **4/5/2019**	Analysis Date: **4/5/2019**			SeqNo: **1981087**		Units: **%Rec**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.4		5.000		87.5	70	130			

Sample ID: **MB-44142**	SampType: **MBLK**			TestCode: **EPA Method 8015M/D: Diesel Range Organics**					
Client ID: **PBS**	Batch ID: **44142**			RunNo: **58917**					
Prep Date: **4/5/2019**	Analysis Date: **4/5/2019**			SeqNo: **1981088**		Units: **%Rec**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	10		10.00		101	70	130			

Sample ID: **MB-44127**	SampType: **MBLK**			TestCode: **EPA Method 8015M/D: Diesel Range Organics**					
Client ID: **PBS**	Batch ID: **44127**			RunNo: **58929**					
Prep Date: **4/4/2019**	Analysis Date: **4/5/2019**			SeqNo: **1981904**		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	10		10.00		101	70	130			

Sample ID: **LCS-44127**	SampType: **LCS**			TestCode: **EPA Method 8015M/D: Diesel Range Organics**					
Client ID: **LCSS**	Batch ID: **44127**			RunNo: **58929**					
Prep Date: **4/4/2019**	Analysis Date: **4/5/2019**			SeqNo: **1981905**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- 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 at testcode

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1904252**
10-Apr-19

Client: Safety & Environmental Solutions
Project: Devon SPUD 16 State 8H

Sample ID: **LCS-44127** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **44127** RunNo: **58929**
Prep Date: **4/4/2019** Analysis Date: **4/5/2019** SeqNo: **1981905** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	47	10	50.00	0	93.6	63.9	124			
Surr: DNOP	4.8		5.000		95.3	70	130			

Sample ID: **LCS-44128** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **44128** RunNo: **58917**
Prep Date: **4/4/2019** Analysis Date: **4/5/2019** SeqNo: **1982023** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.3		5.000		86.1	70	130			

Sample ID: **MB-44128** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **44128** RunNo: **58917**
Prep Date: **4/4/2019** Analysis Date: **4/5/2019** SeqNo: **1982024** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	9.8		10.00		98.1	70	130			

Sample ID: **MB-44133** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **44133** RunNo: **58929**
Prep Date: **4/4/2019** Analysis Date: **4/5/2019** SeqNo: **1983932** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	13		10.00		130	70	130			S

Sample ID: **LCS-44133** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **44133** RunNo: **58929**
Prep Date: **4/4/2019** Analysis Date: **4/5/2019** SeqNo: **1983933** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.7		5.000		94.6	70	130			

Sample ID: **LCS-44145** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **44145** RunNo: **58966**
Prep Date: **4/5/2019** Analysis Date: **4/8/2019** SeqNo: **1984035** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.5		5.000		90.4	70	130			

Qualifiers:

E	Value above quantitation range
ND	Not Detected at the Reporting Limit
RL	Reporting Detection Limit
W	Sample container temperature is out of limit as specified at testcode
H	Holding times for preparation or analysis exceeded
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1904252**
10-Apr-19

Client: Safety & Environmental Solutions
Project: Devon SPUD 16 State 8H

Sample ID: **MB-44145**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **44145**	RunNo: **58966**
Prep Date: **4/5/2019**	Analysis Date: **4/8/2019**	SeqNo: **1984036** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	9.7		10.00		97.0	70	130			

Qualifiers:

E	Value above quantitation range
ND	Not Detected at the Reporting Limit
RL	Reporting Detection Limit
W	Sample container temperature is out of limit as specified at testcode
H	Holding times for preparation or analysis exceeded
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1904252**
10-Apr-19

Client: Safety & Environmental Solutions
Project: Devon SPUD 16 State 8H

Sample ID: **lcs-44098** SampType: **LCS** TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **LCSS** Batch ID: **44098** RunNo: **58934**
Prep Date: **4/4/2019** Analysis Date: **4/5/2019** SeqNo: **1982755** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.75	0.025	1.000	0	75.1	70	130			
Toluene	0.95	0.050	1.000	0	94.6	70	130			
Ethylbenzene	0.95	0.050	1.000	0	95.5	70	130			
Xylenes, Total	2.9	0.10	3.000	0	95.4	70	130			
Surr: 1,2-Dichloroethane-d4	0.44		0.5000		88.2	70	130			
Surr: 4-Bromofluorobenzene	0.51		0.5000		102	70	130			
Surr: Dibromofluoromethane	0.44		0.5000		88.1	70	130			
Surr: Toluene-d8	0.47		0.5000		95.0	70	130			

Sample ID: **mb-44098** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **PBS** Batch ID: **44098** RunNo: **58934**
Prep Date: **4/4/2019** Analysis Date: **4/5/2019** SeqNo: **1982756** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 1,2-Dichloroethane-d4	0.45		0.5000		90.5	70	130			
Surr: 4-Bromofluorobenzene	0.52		0.5000		103	70	130			
Surr: Dibromofluoromethane	0.45		0.5000		89.8	70	130			
Surr: Toluene-d8	0.46		0.5000		93.0	70	130			

Sample ID: **1904252-010ams** SampType: **MS** TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **AH-5 Surface** Batch ID: **44111** RunNo: **58962**
Prep Date: **4/4/2019** Analysis Date: **4/6/2019** SeqNo: **1983539** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.71	0.047	0.9488	0	74.4	68.9	131			
Toluene	0.91	0.095	0.9488	0.03910	92.0	64.3	137			
Ethylbenzene	1.2	0.095	0.9488	0.2733	96.3	70	130			
Xylenes, Total	5.0	0.19	2.846	2.199	97.6	70	130			
Surr: 1,2-Dichloroethane-d4	0.84		0.9488		88.7	70	130			
Surr: 4-Bromofluorobenzene	1.0		0.9488		108	70	130			
Surr: Dibromofluoromethane	0.83		0.9488		87.9	70	130			
Surr: Toluene-d8	0.87		0.9488		91.8	70	130			

Qualifiers:

E Value above quantitation range
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified at testcode
H Holding times for preparation or analysis exceeded
PQL Practical Quanitative Limit
S % Recovery outside of range due to dilution or matrix

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1904252**

10-Apr-19

Client: Safety & Environmental Solutions

Project: Devon SPUD 16 State 8H

Sample ID: **1904252-010amsd** SampType: **MSD** TestCode: **EPA Method 8260B: Volatiles Short List**

Client ID: **AH-5 Surface** Batch ID: **44111** RunNo: **58962**

Prep Date: **4/4/2019** Analysis Date: **4/7/2019** SeqNo: **1983540** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.71	0.050	0.9970	0	70.7	68.9	131	0.143	20	
Toluene	0.92	0.10	0.9970	0.03910	88.0	64.3	137	0.492	20	
Ethylbenzene	1.1	0.10	0.9970	0.2733	87.2	70	130	3.78	0	
Xylenes, Total	4.7	0.20	2.991	2.199	84.2	70	130	5.36	0	
Surr: 1,2-Dichloroethane-d4	0.88		0.9970		88.7	70	130	0	0	
Surr: 4-Bromofluorobenzene	1.1		0.9970		110	70	130	0	0	
Surr: Dibromofluoromethane	0.89		0.9970		89.1	70	130	0	0	
Surr: Toluene-d8	0.91		0.9970		91.4	70	130	0	0	

Sample ID: **lcs-44111** SampType: **LCS** TestCode: **EPA Method 8260B: Volatiles Short List**

Client ID: **LCSS** Batch ID: **44111** RunNo: **58962**

Prep Date: **4/4/2019** Analysis Date: **4/6/2019** SeqNo: **1983547** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.73	0.025	1.000	0	73.1	70	130			
Toluene	0.91	0.050	1.000	0	91.4	70	130			
Ethylbenzene	0.92	0.050	1.000	0	91.8	70	130			
Xylenes, Total	2.8	0.10	3.000	0	94.1	70	130			
Surr: 1,2-Dichloroethane-d4	0.43		0.5000		86.5	70	130			
Surr: 4-Bromofluorobenzene	0.52		0.5000		103	70	130			
Surr: Dibromofluoromethane	0.44		0.5000		89.0	70	130			
Surr: Toluene-d8	0.47		0.5000		94.0	70	130			

Sample ID: **mb-44111** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles Short List**

Client ID: **PBS** Batch ID: **44111** RunNo: **58962**

Prep Date: **4/4/2019** Analysis Date: **4/6/2019** SeqNo: **1983548** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 1,2-Dichloroethane-d4	0.43		0.5000		85.3	70	130			
Surr: 4-Bromofluorobenzene	0.52		0.5000		104	70	130			
Surr: Dibromofluoromethane	0.43		0.5000		86.9	70	130			
Surr: Toluene-d8	0.47		0.5000		93.3	70	130			

Qualifiers:

- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- 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 at testcode

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1904252**
10-Apr-19

Client: Safety & Environmental Solutions
Project: Devon SPUD 16 State 8H

Sample ID: **1904252-009ams**	SampType: **MS**			TestCode: **EPA Method 8015D Mod: Gasoline Range**					
Client ID: **AH-4 1'**	Batch ID: **44111**			RunNo: **58934**					
Prep Date: **4/4/2019**	Analysis Date: **4/6/2019**			SeqNo: **1982780**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	33	4.8	24.11	17.11	66.9	68.2	135			S
Surr: BFB	520		482.2		109	70	130			

Sample ID: **1904252-009amsd**	SampType: **MSD**			TestCode: **EPA Method 8015D Mod: Gasoline Range**					
Client ID: **AH-4 1'**	Batch ID: **44111**			RunNo: **58934**					
Prep Date: **4/4/2019**	Analysis Date: **4/6/2019**			SeqNo: **1982781**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	34	4.9	24.65	17.11	67.1	68.2	135	1.31	20	S
Surr: BFB	500		493.1		102	70	130	0	0	

Sample ID: **lcs-44098**	SampType: **LCS**			TestCode: **EPA Method 8015D Mod: Gasoline Range**					
Client ID: **LCSS**	Batch ID: **44098**			RunNo: **58934**					
Prep Date: **4/4/2019**	Analysis Date: **4/5/2019**			SeqNo: **1982789**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	21	5.0	25.00	0	85.5	70	130			
Surr: BFB	500		500.0		100	70	130			

Sample ID: **lcs-44111**	SampType: **LCS**			TestCode: **EPA Method 8015D Mod: Gasoline Range**					
Client ID: **LCSS**	Batch ID: **44111**			RunNo: **58934**					
Prep Date: **4/4/2019**	Analysis Date: **4/6/2019**			SeqNo: **1982790**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	21	5.0	25.00	0	82.8	70	130			
Surr: BFB	510		500.0		103	70	130			

Sample ID: **mb-44111**	SampType: **MBLK**			TestCode: **EPA Method 8015D Mod: Gasoline Range**					
Client ID: **PBS**	Batch ID: **44111**			RunNo: **58934**					
Prep Date: **4/4/2019**	Analysis Date: **4/6/2019**			SeqNo: **1982791**		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	520		500.0		105	70	130			

Sample ID: **mb-44098**	SampType: **MBLK**			TestCode: **EPA Method 8015D Mod: Gasoline Range**					
Client ID: **PBS**	Batch ID: **44098**			RunNo: **58934**					
Prep Date: **4/4/2019**	Analysis Date: **4/5/2019**			SeqNo: **1982792**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- 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 at testcode

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1904252**
10-Apr-19

Client: Safety & Environmental Solutions
Project: Devon SPUD 16 State 8H

Sample ID: **mb-44098**	SampType: **MBLK**	TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **PBS**	Batch ID: **44098**	RunNo: **58934**
Prep Date: **4/4/2019**	Analysis Date: **4/5/2019**	SeqNo: **1982792** 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	500		500.0		99.8	70	130			

Qualifiers:

E	Value above quantitation range
ND	Not Detected at the Reporting Limit
RL	Reporting Detection Limit
W	Sample container temperature is out of limit as specified at testcode
H	Holding times for preparation or analysis exceeded
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix

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: **Safety Env Solutions** Work Order Number: **1904252** RcptNo: **1**

Received By: **Yazmine Garduno** **4/4/2019 8:55:00 AM** Yazmine Garduno

Completed By: **Anne Thorne** **4/4/2019 9:24:57 AM** Anne Thorne

Reviewed By: NB 4/4/19

Labeled by: JJC 4-4-19

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: NB 4/4/19

Special Handling (if applicable)

AT 04/04/19

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

Person Notified:	JS
By Whom:	AT
Regarding:	collection time for AH-7 1'
Client Instructions:	

Date: _____ Via: ☐ eMail ☒ Phone ☐ Fax ☐ In Person

16. Additional remarks: per JS AH-7 1' collection time is 1325

~~AT~~ 04/04/19

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.7	Good	Yes			
2	4.4	Good	Yes			

Chain-of-Custody Record

Client: Safety & Environmental Solutions

Mailing Address: 703 E. Clinton Hobbs NM 88240

Phone #: 575-397-0570

email or Fax#:

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

Accreditation
☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:
5 Day Rush
☐ Standard ☐ Rush _____

Project Name: Devon SPUD 16 State 8H

Project #: DEV-19-002

Project Manager: Allen, Bob

Sampler: Jon Jeary

On Ice: ☑ Yes ☐ No

Sample Temperature: 4.4, 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. (AT 04/04/19) 1904262	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)	BTEX (8021)	Chlorides			Air Bubbles (Y or N)
04/02	0945	S	AH-1 Surface	1	Ice	001			X									X	X			
	1015	S	AH-1 1ft	1		002																
	1025	S	AH-1 2ft	1		003																
	1040	S	AH-2 Surface	1		004																
	1055	S	AH-2 1ft	1		005																
	1100	S	AH-3 Surface	1		006																
	1115	S	AH-3 1ft	1		007																
	1130	S	AH-4 Surface	1		008																
	1140	S	AH-4 1ft	1		009																
	1150	S	AH-5 Surface	1		010																
	1210	S	AH-5 1ft	1		011			X									X	X			

Date:	Time:	Relinquished by:	Received by:	Date	Time	Remarks:
04/05/19	0800	Jon Jeary		4/3/19	0802	
4/3/19	1910		Fed Ex courier	4/4/19	8:55	

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.

Chain-of-Custody Record

Client: Safety & Environmental Solutions

Mailing Address: 703 E. Clinton Hobbs NM 88240

Phone #: 575-397-0510

email or Fax#:

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

Accreditation
☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:
5 Day Rush
☐ Standard ☐ Rush _____

Project Name: Devon SPUD 16 State 8H

Project #: DEV-19-002

Project Manager: Allen, Bob

Sampler: Josh Young

On Ice: ☒ Yes ☐ No

Sample Temperature: 4.4, 1.7

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.
	pm				Ice	1904252
04/02	1220	S	AH-6 Surface	1	NOAT	212
	1235	S	AH-6 1ft	1		213
	1255	S	AH-7 Surface	1		214
	0125	S	AH-7 1ft	1		215
	1325					
	AT 04/04/19					

Analysis Request

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)	BTEX (8021)	Chlorides			Air Bubbles (Y or N)
		X									X	X			
		X									X	X			

Date	Time	Relinquished by:	Received by:	Date	Time
04/05/19	0800	Josh Young		4/3/19	0800
4/3/19	1900		courier	4/4/19	8:55

Remarks:

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

Appendix D
Site Photos

Devon Energy
Spud 16 State 8H
30-015-40038

Spill Source

Impact to pad area

Spill area post Vac Truck activity

Arial view of geographic location

Marked electrical lines on pad area