

# **Holly Energy Partners**

**Henshaw Station  
Closure Report**

**Section 23, Township 17S, Range 30E  
Eddy County, New Mexico  
2RP-3958**

**January 18, 2017**



**Prepared for:**

**Holly Energy Partners  
1602 W. Main  
Artesia, NM 88210**

**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
Melanie Isenberg	Holly Energy Partners	214-605-8303	Melanie.isenberg@hollyenergy.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 Holly Energy Partners to assess a spill area on the Henshaw Station, concerning a five (5) bbl. release comprised of oil and produced water. This site is situated in Eddy County, Section 23, Township 17S, and Range 30E.

According to the C-141: approximately five (5) barrels of water and oil was released from the tank bottom, due to an internal corrosion of the of the factory tank penetration collar. A majority of the spill was water from the tank bottom, and only about one (1) barrel was oil. All liquids were vacuumed up and contained within the tank berm area. According to SESI personnel, no liner was previously installed. Soil sampling will be conducted and a remediation plan determined upon receipt of sampling results.

## III. Surface and Ground Water

There is no record of 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 80 bgs. Thereby, posing no eminent threat or danger to life forms in the area.

## IV. Characterization

The target cleanup levels are determined using the *Guidelines for Remediation of Leaks, Spills and Releases* published by the NMOCD (August 13, 1993). Based on the ranking criteria presented below, 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 5,000 ppm Total Petroleum Hydrocarbons (TPH). Characterization of vertical extent of chloride concentration to a level of 250 mg/kg (PPM) is also required.

Depth to Ground Water:			
(Vertical distance from contaminants to seasonal high water elevation of groundwater)	Less than 50 feet	20 points	
	50 feet to 99 feet	10 points	X
	>100 feet	0 points	
Wellhead Protection Area:			
(Less than 200 feet from a private domestic water source; or less than 1000 feet from all other water sources)	Yes	20 points	
	No	0 points	X
Distance to Surface Water:			
(Horizontal distance to perennial lakes, ponds, rivers, streams, creeks, irrigation canals and ditches)	Less than 200 feet	20 points	
	200 feet to 1000 feet	10 points	
	>1000 feet	0 points	X
RANKING SCORE (TOTAL POINTS)			10

## **V. Work Performed**

On October 11, 2016 Safety and Environmental Solutions, Inc. (SESI) personnel, at the request of Holly Energy Partners, was on site to assess a crude oil spill incident at the Holly Henshaw Battery, Eddy County, New Mexico location. Jerry (SESI) installed two auger holes to determine vertical extent of contamination. Photos were taken of the location and spill area that was located inside the berm of the battery. The spill was assessed to determine where to install the auger hole where the most pooling occurred. Auger holes were installed one to the depth of three feet and soil samples were grabbed at the surface and one foot depths and field tested for TPH. The two foot soil sample was saturated and field test was not performed. The three foot soil sample was under the 100 ppm for TPH. Samples were properly preserved. Another auger hole was installed to the depth of two feet and field tested for TPH at the surface and one foot depths. The two foot soil sample results was under the 100 ppm for TPH. The spill area and sample points were mapped using the Juno 3D. The samples were properly packaged, preserved and transported to Cardinal Laboratories of Hobbs, NM by chain of custody, and analyzed for TPH(total petroleum hydrocarbons)(Method 8015M), and Chlorides (Method SM4500Cl-B). The results are recapped in the following table:

<b>Soil Sample Results: Cardinal Laboratories 10-11-16</b>								
SAMPLE ID	Benzene	Toluene	Ethylbenzene	Total Xylenes	Total BTEX	Chlorides	TPH GRO	TPH DRO
	<0.050	0.060	0.135	<0.150	<0.300	10000	<10.0	170
AH-1 1'	<0.050	0.212	1.65	5.37	7.24	80.0	94.7	883
AH-1 2'	<0.050	<0.050	0.452	0.425	0.877	432	<50.0	349
AH-1 3'	<0.050	<0.050	<0.050	<0.150	<0.300	48.0	<10.0	<10.0
AH-2 Surface	<0.050	<0.050	0.063	<0.150	<0.300	3440	<50.0	233
AH-2 1'	<0.050	<0.050	<0.050	<0.150	<0.300	64.0	<10.0	<10.0
AH-2 2'	<0.050	<0.050	<0.050	<0.150	<0.300	32.0	<10.0	<10.0

On November 22, 2016, Jerry SESI was onsite at the Holly Henshaw Battery with an operator from Gandy Corp. Backhoe and a crew of three from Liberty Maintenance to begin remediation of the release area inside the bermed area. There were several signs posted on all sides of the berm stating "No digging on right of way without Holly personal onsite" with a phone number on the sign to Lucas of Holly. Lucas was contacted by phone and asked about the signs and he explained that is was company policy to have the signs posted and it was OK for us to dig. Equipment was setup and the Liberty crew began digging the release area with the use of shovels. Confirmations soil samples and field testing the soil for TPH and Chlorides was performed while the excavating was being done. The crew was advised to dig the area to one foot in depth and we tested the soil to see if further digging was needed. The sample point one field testing was still over the target range for TPH so the crew was advised to dig down to two feet in that area. The field test at two feet results were under the target range. The release area was excavated to one foot in depth with the exception of sample points one and three where the areas were excavated to two feet. All soil sample points bottom and side walls field testing results were under the target range. Excavation of the release area was completed. A six point composite sample of the spoils pile was obtained and properly preserved it. The excavation and sample points were mapped using the Juno 3B and site photos of the location and excavation were taken. All samples were properly packaged, preserved and transported to Cardinal Laboratories of Hobbs, NM by chain of custody, and analyzed for TPH(total petroleum hydrocarbons)(Method 8015M), and Chlorides (Method SM4500Cl-B). The results are recapped in the following table:

<b>Soil Sample Results: Cardinal Laboratories 11-23-16</b>								
SAMPLE ID	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Total BTEX	Chlorides	TPH GRO	TPH DRO
SP-1 Bottom 2'	<0.050	<0.050	<0.050	<0.150	<0.300	48.0	<10.0	<10.0
SP-2 Bottom 1'	<0.050	<0.050	<0.050	<0.150	<0.300	80.0	<10.0	<10.0
SP-3 Bottom 2'	<0.050	<0.050	<0.050	<0.150	<0.300	64.0	<10.0	<10.0
SP-4 Bottom 1'	<0.050	<0.050	<0.050	<0.150	<0.300	64.0	<10.0	<10.0
SP-5 East Wall	<0.050	<0.050	<0.050	<0.150	<0.300	64.0	<10.0	<10.0
SP-6 North Wall	<0.050	<0.050	<0.050	<0.150	<0.300	64.0	<10.0	55.6
SP-7 North Wall	<0.050	<0.050	<0.050	<0.150	<0.300	112	<10.0	<10.0
SP-8 South Wall	<0.050	<0.050	<0.050	<0.150	<0.300	80.0	<10.0	46.3
SP-9 West Wall	<0.050	<0.050	<0.050	<0.150	<0.300	112	<10.0	<10.0
C-1 Spoils	<0.050	<0.050	<0.050	0.512	0.512			

## **VI. Request for Closure**

The results of the confirmation sampling indicate that all soils impacted above 5000 ppm TPH and 1000 ppm Chlorides were removed and transported to an approved NMOCD facility for disposal. The area was backfilled with clean soil and returned to grade. Holly Energy Partners respectfully submits this closure report for your consideration, and requests that no further action be required.

## **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**





Survey

Google Earth

© 2016 Google

1997

Imagery Date: 2/13/2014 32°48'57.57" N 103°56'18.25" W elev 3688 ft eye alt 6008 ft



**Figure 2**  
**Site Plan**





Sample Point 2

Sample Point 3

Sample Point 2

Henshaw Station

Survey

© 2016 Google

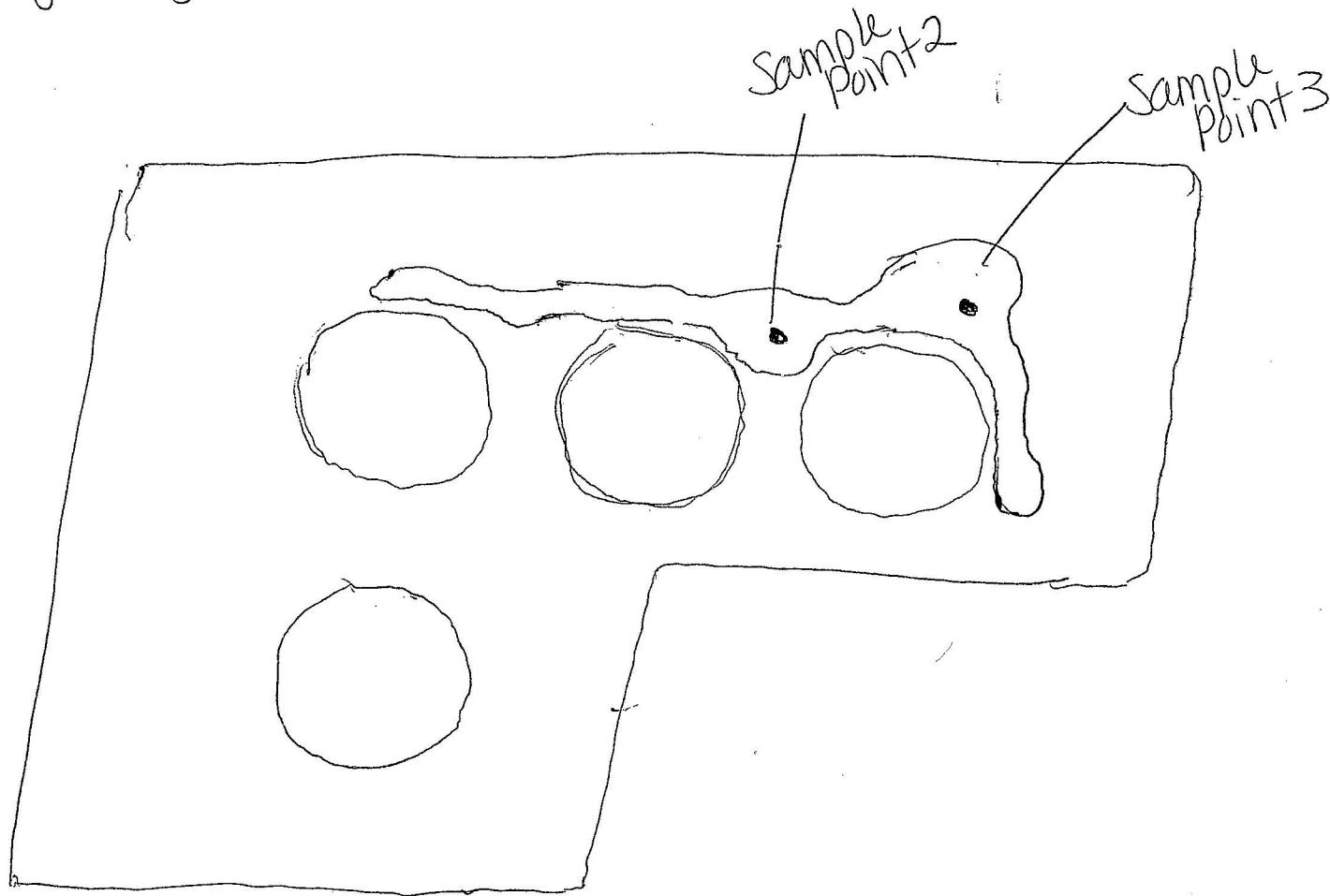
Google Earth

1996

Imagery Date: 2/13/2014 32°48'57.45" N 103°56'18.06" W elev 3688 ft eye alt 3845 ft



Hand Sketched Map  
Henshaw Station  
by: Jerry Sosa (SESI)





# **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

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

Form C-141  
Revised August 8, 2011

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

### Release Notification and Corrective Action

#### OPERATOR

☒ Initial Report ☐ Final Report

Name of Company HOLLY ENERGY PARTNERS	Contact MELANIE ISENBERG
Address 1602 W. MAIN, ARTESIA NM 88210	Telephone No. 214-605-8303
Facility Name HENSHAW STATION	Facility Type PUMPING STATION

Surface Owner BLM	Mineral Owner	API No.
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#### LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
	23	17S	30E					EDDY

Latitude 32.816022 Longitude -102.938378  
SQUARE LAKE RD OFF OF LOVINGTON HWY

#### NATURE OF RELEASE

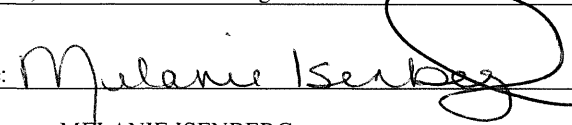
Type of Release CRUDE OIL AND TANK BOTTOM WATER	Volume of Release 1 BARREL/OIL	Volume Recovered 5 BARRELS OF WATER AND OIL
Source of Release FACTORY TANK PENETRATION COLLAR	Date and Hour of Occurrence 10/10/16 1800	Date and Hour of Discovery 10/10/16 1847
Was Immediate Notice Given? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Required	If YES, To Whom? COURTESY CALL TO DISTRICT II OFFICES. LEFT PHONE MSGS WITH MIKE BRATCHER & HEATHER PATERSON ON 10/11/16.	
By Whom?	Date and Hour	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.\*

Describe Cause of Problem and Remedial Action Taken.\* INTERNAL CORROSION OF THE FACTORY TANK PENETRATION COLLAR. APPROXIMATELY 5 BARRELS OF WATER AND OIL WAS RELEASED FROM THE TANK BOTTOM. MAJORITY OF SPILL WAS WATER FROM TANK BOTTOM, ONLY ABOUT 1 BARREL WAS OIL. ALL LIQUID WAS VACUUMED UP. ALL SPILLED LIQUIDS WERE CONTAINED WITHIN THE TANK BERM AREA. SOIL SAMPLING WILL BE CONDUCTED AND REMEDIATION PLAN DETERMINED UPON RECEIPT OF SAMPLING RESULTS.

Describe Area Affected and Cleanup Action Taken.\* AREA AFFECTED WAS CONTAINED WITHIN THE TANK BERM AREA WITHIN HEP PROPERTY. NO SPILT LIQUIDS LEFT HEP PROPERTY. STANDING LIQUID WAS IMMEDIATELY VACUUMED UP. SOIL SAMPLING HAS BEEN DONE, PENDING RESULTS SAFETY ENVIRONMENTAL SOLUTIONS INC (SESI) WILL DELINEATE LOCATION AND SUBMIT CREATE/SUBMIT A WORKPLAN TO CLEAN-UP SPILL LOCATION.

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: 	<u>OIL CONSERVATION DIVISION</u>		
Printed Name: MELANIE ISENBERG	Approved by Environmental Specialist:		
Title: ENVIRONMENTAL ASSOCIATE	Approval Date:	Expiration Date:	
E-mail Address: MELANIE.ISENBERG@HOLLYENERGY.COM	Conditions of Approval:		Attached <input type="checkbox"/>
Date: 10/21/16 Phone: 575-748-8972			

\* Attach Additional Sheets If Necessary



# **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	POD Sub-Code	basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
<a href="#">RA 11914 POD1</a>			ED	2	4	2	20	17S	30E	594801	3632002	85	80	5

Average Depth to Water: **80 feet**

Minimum Depth: **80 feet**

Maximum Depth: **80 feet**

Record Count: 1

PLSS Search:

Township: 17S

Range: 30E



# **Appendix C**

## **Analytical Results**

October 18, 2016

Bob Allen

Safety & Environmental Solutions

703 East Clinton

Hobbs, NM 88240

RE: HEP-16-017

Enclosed are the results of analyses for samples received by the laboratory on 10/11/16 14:30.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-16-8. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Celey D. Keene

Lab Director/Quality Manager

**Analytical Results For:**

Safety & Environmental Solutions  
Bob Allen  
703 East Clinton  
Hobbs NM, 88240  
Fax To: (575) 393-4388

Received: 10/11/2016  
Reported: 10/18/2016  
Project Name: HEP-16-017  
Project Number: HEP-16-017  
Project Location: NONE GIVEN

Sampling Date: 10/11/2016  
Sampling Type: Soil  
Sampling Condition: \*\* (See Notes)  
Sample Received By: Celey D. Keene

**Sample ID: AH-1 SURFACE (H602295-01)**

BTEX 8021B		mg/kg	Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/13/2016	ND	2.29	114	2.00	0.988	
<b>Toluene*</b>	<b>0.060</b>	0.050	10/13/2016	ND	2.39	119	2.00	1.16	
<b>Ethylbenzene*</b>	<b>0.135</b>	0.050	10/13/2016	ND	2.31	116	2.00	1.50	
Total Xylenes*	<0.150	0.150	10/13/2016	ND	6.99	116	6.00	1.41	
Total BTEX	<0.300	0.300	10/13/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 107 % 73.6-140

Chloride, SM4500Cl-B		mg/kg	Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>10000</b>	16.0	10/12/2016	ND	400	100	400	0.00	

TPH 8015M		mg/kg	Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/13/2016	ND	183	91.7	200	0.933	
<b>DRO &gt;C10-C28</b>	<b>170</b>	10.0	10/13/2016	ND	193	96.7	200	0.574	

Surrogate: 1-Chlorooctane 93.8 % 35-147

Surrogate: 1-Chlorooctadecane 103 % 28-171

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



**Analytical Results For:**

Safety & Environmental Solutions  
Bob Allen  
703 East Clinton  
Hobbs NM, 88240  
Fax To: (575) 393-4388

Received: 10/11/2016  
Reported: 10/18/2016  
Project Name: HEP-16-017  
Project Number: HEP-16-017  
Project Location: NONE GIVEN

Sampling Date: 10/11/2016  
Sampling Type: Soil  
Sampling Condition: \*\* (See Notes)  
Sample Received By: Celey D. Keene

**Sample ID: AH-1 1' (H602295-02)**

BTX 8021B		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/13/2016	ND	2.29	114	2.00	0.988	
Toluene*	0.212	0.050	10/13/2016	ND	2.39	119	2.00	1.16	
Ethylbenzene*	1.65	0.050	10/13/2016	ND	2.31	116	2.00	1.50	
Total Xylenes*	5.37	0.150	10/13/2016	ND	6.99	116	6.00	1.41	
Total BTX	7.24	0.300	10/13/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 126 % 73.6-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	80.0	16.0	10/12/2016	ND	400	100	400	0.00	

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	94.7	50.0	10/13/2016	ND	183	91.7	200	0.933	
DRO >C10-C28	883	50.0	10/13/2016	ND	193	96.7	200	0.574	

Surrogate: 1-Chlorooctane 109 % 35-147

Surrogate: 1-Chlorooctadecane 116 % 28-171

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

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Safety & Environmental Solutions  
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703 East Clinton  
Hobbs NM, 88240  
Fax To: (575) 393-4388

Received: 10/11/2016  
Reported: 10/18/2016  
Project Name: HEP-16-017  
Project Number: HEP-16-017  
Project Location: NONE GIVEN

Sampling Date: 10/11/2016  
Sampling Type: Soil  
Sampling Condition: \*\* (See Notes)  
Sample Received By: Celey D. Keene

**Sample ID: AH-1 2' (H602295-03)**

BTEx 8021B		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/13/2016	ND	2.29	114	2.00	0.988	
Toluene*	<0.050	0.050	10/13/2016	ND	2.39	119	2.00	1.16	
Ethylbenzene*	0.452	0.050	10/13/2016	ND	2.31	116	2.00	1.50	
Total Xylenes*	0.425	0.150	10/13/2016	ND	6.99	116	6.00	1.41	
Total BTEX	0.877	0.300	10/13/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 124 % 73.6-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	432	16.0	10/12/2016	ND	400	100	400	0.00	

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<50.0	50.0	10/13/2016	ND	183	91.7	200	0.933	
DRO >C10-C28	349	50.0	10/13/2016	ND	193	96.7	200	0.574	

Surrogate: 1-Chlorooctane 98.1 % 35-147

Surrogate: 1-Chlorooctadecane 106 % 28-171

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

Safety & Environmental Solutions  
Bob Allen  
703 East Clinton  
Hobbs NM, 88240  
Fax To: (575) 393-4388

Received: 10/11/2016  
Reported: 10/18/2016  
Project Name: HEP-16-017  
Project Number: HEP-16-017  
Project Location: NONE GIVEN

Sampling Date: 10/11/2016  
Sampling Type: Soil  
Sampling Condition: \*\* (See Notes)  
Sample Received By: Celey D. Keene

**Sample ID: AH-1 3' (H602295-04)**

BTX 8021B		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/13/2016	ND	2.29	114	2.00	0.988	
Toluene*	<0.050	0.050	10/13/2016	ND	2.39	119	2.00	1.16	
Ethylbenzene*	<0.050	0.050	10/13/2016	ND	2.31	116	2.00	1.50	
Total Xylenes*	<0.150	0.150	10/13/2016	ND	6.99	116	6.00	1.41	
Total BTX	<0.300	0.300	10/13/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 98.6 % 73.6-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	48.0	16.0	10/12/2016	ND	400	100	400	0.00	

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/13/2016	ND	183	91.7	200	0.933	
DRO >C10-C28	<10.0	10.0	10/13/2016	ND	193	96.7	200	0.574	

Surrogate: 1-Chlorooctane 106 % 35-147

Surrogate: 1-Chlorooctadecane 113 % 28-171

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



**Analytical Results For:**

Safety & Environmental Solutions  
Bob Allen  
703 East Clinton  
Hobbs NM, 88240  
Fax To: (575) 393-4388

Received: 10/11/2016  
Reported: 10/18/2016  
Project Name: HEP-16-017  
Project Number: HEP-16-017  
Project Location: NONE GIVEN

Sampling Date: 10/11/2016  
Sampling Type: Soil  
Sampling Condition: \*\* (See Notes)  
Sample Received By: Celey D. Keene

**Sample ID: AH-2 SURFACE (H602295-05)**

BTEX 8021B		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/13/2016	ND	2.29	114	2.00	0.988	
Toluene*	<0.050	0.050	10/13/2016	ND	2.39	119	2.00	1.16	
Ethylbenzene*	0.063	0.050	10/13/2016	ND	2.31	116	2.00	1.50	
Total Xylenes*	<0.150	0.150	10/13/2016	ND	6.99	116	6.00	1.41	
Total BTEX	<0.300	0.300	10/13/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 105 % 73.6-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	3440	16.0	10/13/2016	ND	400	100	400	3.92	QM-07

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<50.0	50.0	10/13/2016	ND	183	91.7	200	0.933	
<b>DRO &gt;C10-C28</b>	<b>233</b>	50.0	10/13/2016	ND	193	96.7	200	0.574	

Surrogate: 1-Chlorooctane 95.3 % 35-147

Surrogate: 1-Chlorooctadecane 119 % 28-171

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

Safety & Environmental Solutions  
Bob Allen  
703 East Clinton  
Hobbs NM, 88240  
Fax To: (575) 393-4388

Received: 10/11/2016  
Reported: 10/18/2016  
Project Name: HEP-16-017  
Project Number: HEP-16-017  
Project Location: NONE GIVEN

Sampling Date: 10/11/2016  
Sampling Type: Soil  
Sampling Condition: \*\* (See Notes)  
Sample Received By: Celey D. Keene

**Sample ID: AH-2 1' (H602295-06)**

BTX 8021B		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/13/2016	ND	2.29	114	2.00	0.988	
Toluene*	<0.050	0.050	10/13/2016	ND	2.39	119	2.00	1.16	
Ethylbenzene*	<0.050	0.050	10/13/2016	ND	2.31	116	2.00	1.50	
Total Xylenes*	<0.150	0.150	10/13/2016	ND	6.99	116	6.00	1.41	
Total BTX	<0.300	0.300	10/13/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 99.9 % 73.6-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	64.0	16.0	10/13/2016	ND	400	100	400	3.92	

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/13/2016	ND	183	91.7	200	0.933	
DRO >C10-C28	<10.0	10.0	10/13/2016	ND	193	96.7	200	0.574	

Surrogate: 1-Chlorooctane 90.2 % 35-147

Surrogate: 1-Chlorooctadecane 89.7 % 28-171

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

Safety & Environmental Solutions  
 Bob Allen  
 703 East Clinton  
 Hobbs NM, 88240  
 Fax To: (575) 393-4388

Received: 10/11/2016  
 Reported: 10/18/2016  
 Project Name: HEP-16-017  
 Project Number: HEP-16-017  
 Project Location: NONE GIVEN

Sampling Date: 10/11/2016  
 Sampling Type: Soil  
 Sampling Condition: \*\* (See Notes)  
 Sample Received By: Celey D. Keene

**Sample ID: AH-2 2' (H602295-07)**

BTX 8021B		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/13/2016	ND	2.29	114	2.00	0.988	
Toluene*	<0.050	0.050	10/13/2016	ND	2.39	119	2.00	1.16	
Ethylbenzene*	<0.050	0.050	10/13/2016	ND	2.31	116	2.00	1.50	
Total Xylenes*	<0.150	0.150	10/13/2016	ND	6.99	116	6.00	1.41	
Total BTX	<0.300	0.300	10/13/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 100 % 73.6-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	10/13/2016	ND	400	100	400	3.92	

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/13/2016	ND	183	91.7	200	0.933	
DRO >C10-C28	<10.0	10.0	10/13/2016	ND	193	96.7	200	0.574	

Surrogate: 1-Chlorooctane 83.2 % 35-147

Surrogate: 1-Chlorooctadecane 81.9 % 28-171

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



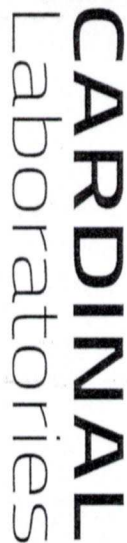
### Notes and Definitions

S-06	The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interference's.
QR-03	The RPD value for the sample duplicate or MS/MSD was outside if QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report



---

Celey D. Keene, Lab Director/Quality Manager



## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240  
(575) 393-2326 FAX (575) 393-2476

Company Name: Safety and Environmental Solutions		P.O. #:		BILL TO		ANALYSIS REQUEST	
Project Manager: Bob Allen		Company: Same					
Address: 703 East Clinton, PO Box 1613		Attn:					
City: Hobbs		Address:					
Phone #: 575 397-0510		City:					
Fax #: 575 393-4388		State:					
Project #: HEP-16-017		Zip:					
Project Owner:		Phone #:					
Project Location:		Fax #:					
Sampler Name:		MATRIX		PRESERV		SAMPLING	
FOR LAB USE ONLY		GROUNDWATER					
		WASTEWATER					
		SOIL					
		OIL					
		SLUDGE					
		OTHER :					
		ACID/BASE:					
		ICE / COOL					
		OTHER :					
Lab I.D.		(G)RAB OR (C)OMP.		DATE		TIME	
Sample I.D.		# CONTAINERS					
H602295		1		10/11		0920	
1 AH-1 Surface		X		10/11		0930	
2 AH-1 1st		X		10/11		1000	
3 AH-1 2nd		X		10/11		1030	
4 AH-1 3rd		X		10/11			
5 AH-2 Surface		X		10/11		1100	
6 AH-2 1st		X		10/11		1115	
7 AH-2 2nd		X		10/11		1200	
Relinquished By: [Signature]		Received By: [Signature]		Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No		Add'l Phone #:	
Date: 10/11/12		Date: 10/11/12		Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No		Add'l Fax #:	
Time: 1430		Time: 1430		REMARKS:			
Delivered By: (Circle One)		Sample Condition		CHECKED BY: [Initials]			
Sampler - UPS - Bus - Other:		Cool <input type="checkbox"/> Intact <input checked="" type="checkbox"/>		6-10c			
		Yes <input type="checkbox"/> No <input type="checkbox"/>		Vol # 75			

November 30, 2016

Bob Allen

Safety & Environmental Solutions

703 East Clinton

Hobbs, NM 88240

RE: HEP-16-017

Enclosed are the results of analyses for samples received by the laboratory on 11/23/16 8:00.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-16-8. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Celey D. Keene

Lab Director/Quality Manager

**Analytical Results For:**

Safety & Environmental Solutions  
Bob Allen  
703 East Clinton  
Hobbs NM, 88240  
Fax To: (575) 393-4388

Received: 11/23/2016  
Reported: 11/30/2016  
Project Name: HEP-16-017  
Project Number: HEP-16-017  
Project Location: NONE GIVEN

Sampling Date: 11/22/2016  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: SP-1 BOTTOM 2' (H602629-01)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	11/28/2016	ND	2.27	114	2.00	0.470	
Toluene*	<0.050	0.050	11/28/2016	ND	2.33	117	2.00	0.364	
Ethylbenzene*	<0.050	0.050	11/28/2016	ND	2.24	112	2.00	0.482	
Total Xylenes*	<0.150	0.150	11/28/2016	ND	6.78	113	6.00	0.216	
Total BTEX	<0.300	0.300	11/28/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 115 % 73.6-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	48.0	16.0	11/29/2016	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	11/23/2016	ND	179	89.4	200	5.12	
DRO >C10-C28	<10.0	10.0	11/23/2016	ND	181	90.5	200	6.50	

Surrogate: 1-Chlorooctane 78.1 % 35-147

Surrogate: 1-Chlorooctadecane 85.9 % 28-171

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



**Analytical Results For:**

Safety & Environmental Solutions  
Bob Allen  
703 East Clinton  
Hobbs NM, 88240  
Fax To: (575) 393-4388

Received: 11/23/2016  
Reported: 11/30/2016  
Project Name: HEP-16-017  
Project Number: HEP-16-017  
Project Location: NONE GIVEN

Sampling Date: 11/22/2016  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: SP-2 BOTTOM 1' (H602629-02)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	11/29/2016	ND	2.27	114	2.00	0.470	
Toluene*	<0.050	0.050	11/29/2016	ND	2.33	117	2.00	0.364	
Ethylbenzene*	<0.050	0.050	11/29/2016	ND	2.24	112	2.00	0.482	
Total Xylenes*	<0.150	0.150	11/29/2016	ND	6.78	113	6.00	0.216	
Total BTEX	<0.300	0.300	11/29/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 114 % 73.6-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	80.0	16.0	11/29/2016	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	11/23/2016	ND	179	89.4	200	5.12	
DRO >C10-C28	<10.0	10.0	11/23/2016	ND	181	90.5	200	6.50	

Surrogate: 1-Chlorooctane 73.9 % 35-147

Surrogate: 1-Chlorooctadecane 85.6 % 28-171

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

Safety & Environmental Solutions  
Bob Allen  
703 East Clinton  
Hobbs NM, 88240  
Fax To: (575) 393-4388

Received: 11/23/2016  
Reported: 11/30/2016  
Project Name: HEP-16-017  
Project Number: HEP-16-017  
Project Location: NONE GIVEN

Sampling Date: 11/22/2016  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: SP-3 BOTTOM 2' (H602629-03)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	11/29/2016	ND	2.27	114	2.00	0.470	
Toluene*	<0.050	0.050	11/29/2016	ND	2.33	117	2.00	0.364	
Ethylbenzene*	<0.050	0.050	11/29/2016	ND	2.24	112	2.00	0.482	
Total Xylenes*	<0.150	0.150	11/29/2016	ND	6.78	113	6.00	0.216	
Total BTEX	<0.300	0.300	11/29/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 113 % 73.6-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	64.0	16.0	11/29/2016	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	11/28/2016	ND	183	91.6	200	0.569	
DRO >C10-C28	<10.0	10.0	11/28/2016	ND	196	98.0	200	2.87	QM-07, QR-03

Surrogate: 1-Chlorooctane 89.8 % 35-147

Surrogate: 1-Chlorooctadecane 99.9 % 28-171

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

Safety & Environmental Solutions  
 Bob Allen  
 703 East Clinton  
 Hobbs NM, 88240  
 Fax To: (575) 393-4388

Received: 11/23/2016  
 Reported: 11/30/2016  
 Project Name: HEP-16-017  
 Project Number: HEP-16-017  
 Project Location: NONE GIVEN

Sampling Date: 11/22/2016  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: SP-4 BOTTOM 1' (H602629-04)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	11/29/2016	ND	2.27	114	2.00	0.470	
Toluene*	<0.050	0.050	11/29/2016	ND	2.33	117	2.00	0.364	
Ethylbenzene*	<0.050	0.050	11/29/2016	ND	2.24	112	2.00	0.482	
Total Xylenes*	<0.150	0.150	11/29/2016	ND	6.78	113	6.00	0.216	
Total BTEX	<0.300	0.300	11/29/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 115 % 73.6-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	64.0	16.0	11/29/2016	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	11/28/2016	ND	183	91.6	200	0.569	
DRO >C10-C28	<10.0	10.0	11/28/2016	ND	196	98.0	200	2.87	

Surrogate: 1-Chlorooctane 89.4 % 35-147

Surrogate: 1-Chlorooctadecane 90.1 % 28-171

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

Safety & Environmental Solutions  
Bob Allen  
703 East Clinton  
Hobbs NM, 88240  
Fax To: (575) 393-4388

Received: 11/23/2016  
Reported: 11/30/2016  
Project Name: HEP-16-017  
Project Number: HEP-16-017  
Project Location: NONE GIVEN

Sampling Date: 11/22/2016  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: SP-5 EAST WALL (H602629-05)**

BTX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	11/29/2016	ND	2.21	110	2.00	0.189	
Toluene*	<0.050	0.050	11/29/2016	ND	2.27	113	2.00	0.00251	
Ethylbenzene*	<0.050	0.050	11/29/2016	ND	2.19	109	2.00	0.134	
Total Xylenes*	<0.150	0.150	11/29/2016	ND	6.61	110	6.00	0.178	
Total BTX	<0.300	0.300	11/29/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 113 % 73.6-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	64.0	16.0	11/29/2016	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	11/28/2016	ND	183	91.6	200	0.569	
DRO >C10-C28	<10.0	10.0	11/28/2016	ND	196	98.0	200	2.87	

Surrogate: 1-Chlorooctane 75.7 % 35-147

Surrogate: 1-Chlorooctadecane 76.9 % 28-171

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



**Analytical Results For:**

Safety & Environmental Solutions  
Bob Allen  
703 East Clinton  
Hobbs NM, 88240  
Fax To: (575) 393-4388

Received: 11/23/2016  
Reported: 11/30/2016  
Project Name: HEP-16-017  
Project Number: HEP-16-017  
Project Location: NONE GIVEN

Sampling Date: 11/22/2016  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: SP-6 NORTH WALL (H602629-06)**

BTX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	11/29/2016	ND	2.21	110	2.00	0.189	
Toluene*	<0.050	0.050	11/29/2016	ND	2.27	113	2.00	0.00251	
Ethylbenzene*	<0.050	0.050	11/29/2016	ND	2.19	109	2.00	0.134	
Total Xylenes*	<0.150	0.150	11/29/2016	ND	6.61	110	6.00	0.178	
Total BTEX	<0.300	0.300	11/29/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 114 % 73.6-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	64.0	16.0	11/29/2016	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	11/28/2016	ND	183	91.6	200	0.569	
DRO >C10-C28	55.6	10.0	11/28/2016	ND	196	98.0	200	2.87	

Surrogate: 1-Chlorooctane 79.8 % 35-147

Surrogate: 1-Chlorooctadecane 82.8 % 28-171

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

Safety & Environmental Solutions  
Bob Allen  
703 East Clinton  
Hobbs NM, 88240  
Fax To: (575) 393-4388

Received: 11/23/2016  
Reported: 11/30/2016  
Project Name: HEP-16-017  
Project Number: HEP-16-017  
Project Location: NONE GIVEN

Sampling Date: 11/22/2016  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: SP-7 NORTH WALL (H602629-07)**

BTX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	11/29/2016	ND	2.21	110	2.00	0.189	
Toluene*	<0.050	0.050	11/29/2016	ND	2.27	113	2.00	0.00251	
Ethylbenzene*	<0.050	0.050	11/29/2016	ND	2.19	109	2.00	0.134	
Total Xylenes*	<0.150	0.150	11/29/2016	ND	6.61	110	6.00	0.178	
Total BTEX	<0.300	0.300	11/29/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 115 % 73.6-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	112	16.0	11/29/2016	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	11/28/2016	ND	183	91.6	200	0.569	
DRO >C10-C28	<10.0	10.0	11/28/2016	ND	196	98.0	200	2.87	

Surrogate: 1-Chlorooctane 80.2 % 35-147

Surrogate: 1-Chlorooctadecane 84.8 % 28-171

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Safety & Environmental Solutions  
 Bob Allen  
 703 East Clinton  
 Hobbs NM, 88240  
 Fax To: (575) 393-4388

 Received: 11/23/2016  
 Reported: 11/30/2016  
 Project Name: HEP-16-017  
 Project Number: HEP-16-017  
 Project Location: NONE GIVEN

 Sampling Date: 11/22/2016  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: SP-8 SOUTH WALL (H602629-08)**

BTEx 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	11/29/2016	ND	2.21	110	2.00	0.189	
Toluene*	<0.050	0.050	11/29/2016	ND	2.27	113	2.00	0.00251	
Ethylbenzene*	<0.050	0.050	11/29/2016	ND	2.19	109	2.00	0.134	
Total Xylenes*	<0.150	0.150	11/29/2016	ND	6.61	110	6.00	0.178	
Total BTEx	<0.300	0.300	11/29/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 115 % 73.6-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	80.0	16.0	11/29/2016	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	11/28/2016	ND	183	91.6	200	0.569	
DRO >C10-C28	46.3	10.0	11/28/2016	ND	196	98.0	200	2.87	

Surrogate: 1-Chlorooctane 72.5 % 35-147

Surrogate: 1-Chlorooctadecane 80.7 % 28-171

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

Safety & Environmental Solutions  
Bob Allen  
703 East Clinton  
Hobbs NM, 88240  
Fax To: (575) 393-4388

Received: 11/23/2016  
Reported: 11/30/2016  
Project Name: HEP-16-017  
Project Number: HEP-16-017  
Project Location: NONE GIVEN

Sampling Date: 11/22/2016  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: SP-9 WEST WALL (H602629-09)**

BTX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	11/29/2016	ND	2.21	110	2.00	0.189	
Toluene*	<0.050	0.050	11/29/2016	ND	2.27	113	2.00	0.00251	
Ethylbenzene*	<0.050	0.050	11/29/2016	ND	2.19	109	2.00	0.134	
Total Xylenes*	<0.150	0.150	11/29/2016	ND	6.61	110	6.00	0.178	
Total BTEX	<0.300	0.300	11/29/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 114 % 73.6-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	112	16.0	11/29/2016	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	11/28/2016	ND	183	91.6	200	0.569	
DRO >C10-C28	<10.0	10.0	11/28/2016	ND	196	98.0	200	2.87	

Surrogate: 1-Chlorooctane 88.2 % 35-147

Surrogate: 1-Chlorooctadecane 87.3 % 28-171

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Celey D. Keene, Lab Director/Quality Manager



**Analytical Results For:**

Safety & Environmental Solutions  
Bob Allen  
703 East Clinton  
Hobbs NM, 88240  
Fax To: (575) 393-4388

Received: 11/23/2016  
Reported: 11/30/2016  
Project Name: HEP-16-017  
Project Number: HEP-16-017  
Project Location: NONE GIVEN

Sampling Date: 11/22/2016  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: C-1 SPOILS (H602629-10)**

BTEX 8021B		mg/kg	Analyzed By: MS					S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	11/29/2016	ND	2.21	110	2.00	0.189	
Toluene*	<0.050	0.050	11/29/2016	ND	2.27	113	2.00	0.00251	
Ethylbenzene*	<0.050	0.050	11/29/2016	ND	2.19	109	2.00	0.134	
<b>Total Xylenes*</b>	<b>0.512</b>	0.150	11/29/2016	ND	6.61	110	6.00	0.178	
<b>Total BTEX</b>	<b>0.512</b>	0.300	11/29/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 150 % 73.6-140

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Celey D. Keene, Lab Director/Quality Manager

### Notes and Definitions

S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
QR-03	The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

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Celey D. Keene, Lab Director/Quality Manager



# CARDINAL Laboratories

## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240  
(575) 393-2326 FAX (575) 393-2476

Company Name: Safety and Environmental Solutions

Project Manager: Bob Allen

Address: 703 East Clinton, PO Box 1613

City: Hobbs State: NM Zip: 88240

Phone #: 575 397-0510 Fax #: 575 393-4388

Project #: HEP-16-017 Project Owner:

Project Name:

Project Location:

Sampler Name:

FOR LAB USE ONLY

Lab I.D.

Sample I.D.

H10026029																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
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Reinquirished By:

Date: 11/23/16

Received By:

Phone Result:

Yes ☐ No ☐

Add'l Phone #:

Add'l Fax #:

Reinquirished By:

Date: 0800

Received By:

Phone Result:

Yes ☐ No ☐

Add'l Phone #:

Add'l Fax #:

Delivered By: (Circle One)

Sampler - UPS - Bus - Other:

#75

40c

Sample Condition  
Cool ☒ Intact ☒  
Yes ☒ No ☐

CHECKED BY: (Initials)

11/23/16

REMARKS:

Phone Result:

Add'l Phone #:

Add'l Fax #:





# CARDINAL Laboratories

101 East Marland, Hobbs, NM 88240  
(575) 393-2326 FAX (575) 393-2476

## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

2-2

Company Name: Safety and Environmental Solutions

Project Manager: Bob Allen

Address: 703 East Clinton, PO Box 1613

City: Hobbs State: NM Zip: 88240

Phone #: 575 397-0510 Fax #: 575 393-4388

Project #: HEP-16-017 Project Owner:

Project Name:

Project Location:

Sample Name:

FOR LAB USE ONLY

Lab I.D. Sample I.D.

Hobbs  
ID C-1 Spods

(G)RAB OR (C)OMP.

# CONTAINERS

GROUNDWATER

WASTEWATER

SOIL

OIL

SLUDGE

OTHER :

ACID/BASE:

ICE / COOL

OTHER :

DATE

TIME

11/24/16 1530

BTEX

### BILL TO

### ANALYSIS REQUEST

P.O. #:

Company: Same

Attn:

Address:

City:

State:

Zip:

Phone #:

Fax #:

MATRIX

PRESERV

SAMPLING

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Relinquished By:

Don Jerry

Date: 11/23/16

Time: 0800

Received By:

Mark Henderson

Date:

Time:

Delivered By: (Circle One)

Sampler - UPS - Bus - Other: #75

402

402

Sample Condition  
Cool ☒ Intact ☒  
Yes ☒ No ☐

CHECKED BY:

(Initials)

Phone Result: ☐ Yes ☐ No Add'l Phone #:  
Fax Result: ☐ Yes ☐ No Add'l Fax #:

REMARKS:

Hold for possible TCEP



December 17, 2016

Bob Allen

Safety & Environmental Solutions

703 East Clinton

Hobbs, NM 88240

RE: HEP-16-017

Enclosed are the results of analyses for samples received by the laboratory on 11/23/16 8:00.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-16-8. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/ga/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/ga/lab_accred_certif.html).

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Total Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Cardinal Laboratories is accredited through the State of New Mexico Environment Department for:

Method SM 9223-B	Total Coliform and E. coli (Colilert MMO-MUG)
Method EPA 524.2	Regulated VOCs and Total Trihalomethanes (TTHM)
Method EPA 552.2	Total Haloacetic Acids (HAA-5)

Accreditation applies to public drinking water matrices for State of Colorado and New Mexico.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Celey D. Keene

Lab Director/Quality Manager

**Analytical Results For:**

Safety & Environmental Solutions  
703 East Clinton  
Hobbs NM, 88240

Project: HEP-16-017  
Project Number: HEP-16-017  
Project Manager: Bob Allen  
Fax To: (575) 393-4388

Reported:  
17-Dec-16 13:46

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SP-1 BOTTOM 2'	H602629-01	Soil	22-Nov-16 09:20	23-Nov-16 08:00
SP-2 BOTTOM 1'	H602629-02	Soil	22-Nov-16 10:15	23-Nov-16 08:00
SP-3 BOTTOM 2'	H602629-03	Soil	22-Nov-16 11:00	23-Nov-16 08:00
SP-4 BOTTOM 1'	H602629-04	Soil	22-Nov-16 14:50	23-Nov-16 08:00
SP-5 EAST WALL	H602629-05	Soil	22-Nov-16 11:15	23-Nov-16 08:00
SP-6 NORTH WALL	H602629-06	Soil	22-Nov-16 12:10	23-Nov-16 08:00
SP-7 NORTH WALL	H602629-07	Soil	22-Nov-16 12:10	23-Nov-16 08:00
SP-8 SOUTH WALL	H602629-08	Soil	22-Nov-16 13:50	23-Nov-16 08:00
SP-9 WEST WALL	H602629-09	Soil	22-Nov-16 15:10	23-Nov-16 08:00
C-1 SPOILS	H602629-10	Soil	22-Nov-16 15:30	23-Nov-16 08:00

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

### Analytical Results For:

Safety & Environmental Solutions  
703 East Clinton  
Hobbs NM, 88240

Project: HEP-16-017  
Project Number: HEP-16-017  
Project Manager: Bob Allen  
Fax To: (575) 393-4388

Reported:  
17-Dec-16 13:46

### SP-1 BOTTOM 2' H602629-01 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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### Cardinal Laboratories

#### Inorganic Compounds

Chloride	48.0		16.0	mg/kg	4	6112901	AC	29-Nov-16	4500-Cl-B	
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#### Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	6112801	MS	28-Nov-16	8021B	
Toluene*	<0.050		0.050	mg/kg	50	6112801	MS	28-Nov-16	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	6112801	MS	28-Nov-16	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	6112801	MS	28-Nov-16	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	6112801	MS	28-Nov-16	8021B	

Surrogate: 4-Bromofluorobenzene (PID)			115 %	73.6-140		6112801	MS	28-Nov-16	8021B	
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#### Petroleum Hydrocarbons by GC FID

GRO C6-C10	<10.0		10.0	mg/kg	1	6112301	MS	23-Nov-16	8015B	
DRO >C10-C28	<10.0		10.0	mg/kg	1	6112301	MS	23-Nov-16	8015B	

Surrogate: 1-Chlorooctane			78.1 %	35-147		6112301	MS	23-Nov-16	8015B	
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Surrogate: 1-Chlorooctadecane			85.9 %	28-171		6112301	MS	23-Nov-16	8015B	
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Celey D. Keene, Lab Director/Quality Manager

### Analytical Results For:

Safety & Environmental Solutions  
703 East Clinton  
Hobbs NM, 88240

Project: HEP-16-017  
Project Number: HEP-16-017  
Project Manager: Bob Allen  
Fax To: (575) 393-4388

Reported:  
17-Dec-16 13:46

### SP-2 BOTTOM 1' H602629-02 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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#### Cardinal Laboratories

#### Inorganic Compounds

Chloride	80.0		16.0	mg/kg	4	6112901	AC	29-Nov-16	4500-Cl-B	
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#### Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	6112801	MS	29-Nov-16	8021B	
Toluene*	<0.050		0.050	mg/kg	50	6112801	MS	29-Nov-16	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	6112801	MS	29-Nov-16	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	6112801	MS	29-Nov-16	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	6112801	MS	29-Nov-16	8021B	
Surrogate: 4-Bromofluorobenzene (PID)			114 %		73.6-140	6112801	MS	29-Nov-16	8021B	

#### Petroleum Hydrocarbons by GC FID

GRO C6-C10	<10.0		10.0	mg/kg	1	6112301	MS	23-Nov-16	8015B	
DRO >C10-C28	<10.0		10.0	mg/kg	1	6112301	MS	23-Nov-16	8015B	
Surrogate: 1-Chlorooctane			73.9 %		35-147	6112301	MS	23-Nov-16	8015B	
Surrogate: 1-Chlorooctadecane			85.6 %		28-171	6112301	MS	23-Nov-16	8015B	

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Celey D. Keene, Lab Director/Quality Manager



### Analytical Results For:

Safety & Environmental Solutions  
703 East Clinton  
Hobbs NM, 88240

Project: HEP-16-017  
Project Number: HEP-16-017  
Project Manager: Bob Allen  
Fax To: (575) 393-4388

Reported:  
17-Dec-16 13:46

### SP-3 BOTTOM 2'

### H602629-03 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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### Cardinal Laboratories

#### Inorganic Compounds

Chloride	64.0		16.0	mg/kg	4	6112901	AC	29-Nov-16	4500-Cl-B	
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#### Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	6112801	MS	29-Nov-16	8021B	
Toluene*	<0.050		0.050	mg/kg	50	6112801	MS	29-Nov-16	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	6112801	MS	29-Nov-16	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	6112801	MS	29-Nov-16	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	6112801	MS	29-Nov-16	8021B	

Surrogate: 4-Bromofluorobenzene (PID)			113 %	73.6-140		6112801	MS	29-Nov-16	8021B	
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#### Petroleum Hydrocarbons by GC FID

GRO C6-C10	<10.0		10.0	mg/kg	1	6112804	MS	28-Nov-16	8015B	
DRO >C10-C28	<10.0		10.0	mg/kg	1	6112804	MS	28-Nov-16	8015B	QM-07, QR-03

Surrogate: 1-Chlorooctane			89.8 %	35-147		6112804	MS	28-Nov-16	8015B	
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Surrogate: 1-Chlorooctadecane			99.9 %	28-171		6112804	MS	28-Nov-16	8015B	
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Celey D. Keene, Lab Director/Quality Manager

### Analytical Results For:

Safety & Environmental Solutions  
703 East Clinton  
Hobbs NM, 88240

Project: HEP-16-017  
Project Number: HEP-16-017  
Project Manager: Bob Allen  
Fax To: (575) 393-4388

Reported:  
17-Dec-16 13:46

### SP-4 BOTTOM 1' H602629-04 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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### Cardinal Laboratories

#### Inorganic Compounds

Chloride	64.0		16.0	mg/kg	4	6112902	AC	29-Nov-16	4500-Cl-B	
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#### Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	6112801	MS	29-Nov-16	8021B	
Toluene*	<0.050		0.050	mg/kg	50	6112801	MS	29-Nov-16	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	6112801	MS	29-Nov-16	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	6112801	MS	29-Nov-16	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	6112801	MS	29-Nov-16	8021B	

Surrogate: 4-Bromofluorobenzene (PID)			115 %		73.6-140	6112801	MS	29-Nov-16	8021B	
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#### Petroleum Hydrocarbons by GC FID

GRO C6-C10	<10.0		10.0	mg/kg	1	6112804	MS	28-Nov-16	8015B	
DRO >C10-C28	<10.0		10.0	mg/kg	1	6112804	MS	28-Nov-16	8015B	
Surrogate: 1-Chlorooctane			89.4 %		35-147	6112804	MS	28-Nov-16	8015B	
Surrogate: 1-Chlorooctadecane			90.1 %		28-171	6112804	MS	28-Nov-16	8015B	

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Celey D. Keene, Lab Director/Quality Manager

### Analytical Results For:

Safety & Environmental Solutions  
703 East Clinton  
Hobbs NM, 88240

Project: HEP-16-017  
Project Number: HEP-16-017  
Project Manager: Bob Allen  
Fax To: (575) 393-4388

Reported:  
17-Dec-16 13:46

### SP-5 EAST WALL

#### H602629-05 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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### Cardinal Laboratories

#### Inorganic Compounds

Chloride	64.0		16.0	mg/kg	4	6112902	AC	29-Nov-16	4500-Cl-B	
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#### Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	6112904	MS	29-Nov-16	8021B	
Toluene*	<0.050		0.050	mg/kg	50	6112904	MS	29-Nov-16	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	6112904	MS	29-Nov-16	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	6112904	MS	29-Nov-16	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	6112904	MS	29-Nov-16	8021B	
Surrogate: 4-Bromofluorobenzene (PID)			113 %	73.6-140		6112904	MS	29-Nov-16	8021B	

#### Petroleum Hydrocarbons by GC FID

GRO C6-C10	<10.0		10.0	mg/kg	1	6112804	MS	28-Nov-16	8015B	
DRO >C10-C28	<10.0		10.0	mg/kg	1	6112804	MS	28-Nov-16	8015B	
Surrogate: 1-Chlorooctane			75.7 %	35-147		6112804	MS	28-Nov-16	8015B	
Surrogate: 1-Chlorooctadecane			76.9 %	28-171		6112804	MS	28-Nov-16	8015B	

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Celey D. Keene, Lab Director/Quality Manager

### Analytical Results For:

Safety & Environmental Solutions  
703 East Clinton  
Hobbs NM, 88240

Project: HEP-16-017  
Project Number: HEP-16-017  
Project Manager: Bob Allen  
Fax To: (575) 393-4388

Reported:  
17-Dec-16 13:46

### SP-6 NORTH WALL

#### H602629-06 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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### Cardinal Laboratories

#### Inorganic Compounds

Chloride	64.0		16.0	mg/kg	4	6112902	AC	29-Nov-16	4500-Cl-B	
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#### Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	6112904	MS	29-Nov-16	8021B	
Toluene*	<0.050		0.050	mg/kg	50	6112904	MS	29-Nov-16	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	6112904	MS	29-Nov-16	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	6112904	MS	29-Nov-16	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	6112904	MS	29-Nov-16	8021B	

Surrogate: 4-Bromofluorobenzene (PID) 114 % 73.6-140 6112904 MS 29-Nov-16 8021B

#### Petroleum Hydrocarbons by GC FID

GRO C6-C10	<10.0		10.0	mg/kg	1	6112804	MS	28-Nov-16	8015B	
DRO >C10-C28	55.6		10.0	mg/kg	1	6112804	MS	28-Nov-16	8015B	

Surrogate: 1-Chlorooctane 79.8 % 35-147 6112804 MS 28-Nov-16 8015B

Surrogate: 1-Chlorooctadecane 82.8 % 28-171 6112804 MS 28-Nov-16 8015B

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Celey D. Keene, Lab Director/Quality Manager

### Analytical Results For:

Safety & Environmental Solutions  
703 East Clinton  
Hobbs NM, 88240

Project: HEP-16-017  
Project Number: HEP-16-017  
Project Manager: Bob Allen  
Fax To: (575) 393-4388

Reported:  
17-Dec-16 13:46

### SP-7 NORTH WALL

#### H602629-07 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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### Cardinal Laboratories

#### Inorganic Compounds

Chloride	112		16.0	mg/kg	4	6112902	AC	29-Nov-16	4500-Cl-B	
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#### Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	6112904	MS	29-Nov-16	8021B	
Toluene*	<0.050		0.050	mg/kg	50	6112904	MS	29-Nov-16	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	6112904	MS	29-Nov-16	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	6112904	MS	29-Nov-16	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	6112904	MS	29-Nov-16	8021B	
Surrogate: 4-Bromofluorobenzene (PID)			115 %		73.6-140	6112904	MS	29-Nov-16	8021B	

#### Petroleum Hydrocarbons by GC FID

GRO C6-C10	<10.0		10.0	mg/kg	1	6112804	MS	28-Nov-16	8015B	
DRO >C10-C28	<10.0		10.0	mg/kg	1	6112804	MS	28-Nov-16	8015B	
Surrogate: 1-Chlorooctane			80.2 %		35-147	6112804	MS	28-Nov-16	8015B	
Surrogate: 1-Chlorooctadecane			84.8 %		28-171	6112804	MS	28-Nov-16	8015B	

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Celey D. Keene, Lab Director/Quality Manager



### Analytical Results For:

Safety & Environmental Solutions  
703 East Clinton  
Hobbs NM, 88240

Project: HEP-16-017  
Project Number: HEP-16-017  
Project Manager: Bob Allen  
Fax To: (575) 393-4388

Reported:  
17-Dec-16 13:46

### SP-8 SOUTH WALL

#### H602629-08 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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### Cardinal Laboratories

#### Inorganic Compounds

Chloride	80.0		16.0	mg/kg	4	6112902	AC	29-Nov-16	4500-Cl-B	
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#### Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	6112904	MS	29-Nov-16	8021B	
Toluene*	<0.050		0.050	mg/kg	50	6112904	MS	29-Nov-16	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	6112904	MS	29-Nov-16	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	6112904	MS	29-Nov-16	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	6112904	MS	29-Nov-16	8021B	
Surrogate: 4-Bromofluorobenzene (PID)			115 %	73.6-140		6112904	MS	29-Nov-16	8021B	

#### Petroleum Hydrocarbons by GC FID

GRO C6-C10	<10.0		10.0	mg/kg	1	6112804	MS	28-Nov-16	8015B	
DRO >C10-C28	46.3		10.0	mg/kg	1	6112804	MS	28-Nov-16	8015B	
Surrogate: 1-Chlorooctane			72.5 %	35-147		6112804	MS	28-Nov-16	8015B	
Surrogate: 1-Chlorooctadecane			80.7 %	28-171		6112804	MS	28-Nov-16	8015B	

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Celey D. Keene, Lab Director/Quality Manager

### Analytical Results For:

Safety & Environmental Solutions  
703 East Clinton  
Hobbs NM, 88240

Project: HEP-16-017  
Project Number: HEP-16-017  
Project Manager: Bob Allen  
Fax To: (575) 393-4388

Reported:  
17-Dec-16 13:46

### SP-9 WEST WALL H602629-09 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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#### Cardinal Laboratories

#### Inorganic Compounds

Chloride	112		16.0	mg/kg	4	6112902	AC	29-Nov-16	4500-Cl-B	
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#### Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	6112904	MS	29-Nov-16	8021B	
Toluene*	<0.050		0.050	mg/kg	50	6112904	MS	29-Nov-16	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	6112904	MS	29-Nov-16	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	6112904	MS	29-Nov-16	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	6112904	MS	29-Nov-16	8021B	
Surrogate: 4-Bromofluorobenzene (PID)			114 %		73.6-140	6112904	MS	29-Nov-16	8021B	

#### Petroleum Hydrocarbons by GC FID

GRO C6-C10	<10.0		10.0	mg/kg	1	6112804	MS	28-Nov-16	8015B	
DRO >C10-C28	<10.0		10.0	mg/kg	1	6112804	MS	28-Nov-16	8015B	
Surrogate: 1-Chlorooctane			88.2 %		35-147	6112804	MS	28-Nov-16	8015B	
Surrogate: 1-Chlorooctadecane			87.3 %		28-171	6112804	MS	28-Nov-16	8015B	

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Safety & Environmental Solutions  
703 East Clinton  
Hobbs NM, 88240

Project: HEP-16-017  
Project Number: HEP-16-017  
Project Manager: Bob Allen  
Fax To: (575) 393-4388

Reported:  
17-Dec-16 13:46

### C-1 SPOILS H602629-10 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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#### Cardinal Laboratories

#### Inorganic Compounds

Ignitability	>140			°F	1	6110201	AC	08-Dec-16	ASTM D 93-80	
pH*	7.40		0.100	pH Units	1	6120614	AC	06-Dec-16	9045	
Reactive Cyanide	<0.100		0.100	mg/kg	1	6120902	AC	09-Dec-16	9010	
Reactive Sulfide	<0.0100		0.0100	mg/kg	1	6120902	AC	09-Dec-16	9030	

#### TCLP Semivolatile Organic Compounds by GCMS

Pyridine	<0.005		0.005	mg/L	5	6112111	MS	12-Dec-16	1311/8270C	
1,4-Dichlorobenzene	<0.005		0.005	mg/L	5	6112111	MS	12-Dec-16	1311/8270C	
2-Methylphenol	<0.005		0.005	mg/L	5	6112111	MS	12-Dec-16	1311/8270C	
4-Methylphenol	<0.010		0.010	mg/L	5	6112111	MS	12-Dec-16	1311/8270C	
Hexachloroethane	<0.005		0.005	mg/L	5	6112111	MS	12-Dec-16	1311/8270C	
Nitrobenzene	<0.005		0.005	mg/L	5	6112111	MS	12-Dec-16	1311/8270C	
Hexachlorobutadiene	<0.005		0.005	mg/L	5	6112111	MS	12-Dec-16	1311/8270C	
2,4,6-Trichlorophenol	<0.005		0.005	mg/L	5	6112111	MS	12-Dec-16	1311/8270C	
2,4,5-Trichlorophenol	<0.005		0.005	mg/L	5	6112111	MS	12-Dec-16	1311/8270C	
2,4-Dinitrotoluene	<0.005		0.005	mg/L	5	6112111	MS	12-Dec-16	1311/8270C	
Hexachlorobenzene	<0.005		0.005	mg/L	5	6112111	MS	12-Dec-16	1311/8270C	
Pentachlorophenol	<0.005		0.005	mg/L	5	6112111	MS	12-Dec-16	1311/8270C	
Surrogate: 2-Fluorophenol			54.4 %	7.74-110		6112111	MS	12-Dec-16	1311/8270C	
Surrogate: Phenol-d5			33.8 %	14.8-131		6112111	MS	12-Dec-16	1311/8270C	
Surrogate: Nitrobenzene-d5			80.7 %	10.7-133		6112111	MS	12-Dec-16	1311/8270C	
Surrogate: 2-Fluorobiphenyl			76.6 %	12.5-111		6112111	MS	12-Dec-16	1311/8270C	
Surrogate: 2,4,6-Tribromophenol			90.5 %	17.3-143		6112111	MS	12-Dec-16	1311/8270C	
Surrogate: Terphenyl-d14			93.1 %	15.8-160		6112111	MS	12-Dec-16	1311/8270C	

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Hobbs NM, 88240

Project: HEP-16-017  
Project Number: HEP-16-017  
Project Manager: Bob Allen  
Fax To: (575) 393-4388

Reported:  
17-Dec-16 13:46

### C-1 SPOILS H602629-10 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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#### Cardinal Laboratories

#### Volatile Organic Compounds by EPA Method 8021

**S-04**

Benzene*	<0.050		0.050	mg/kg	50	6112904	MS	29-Nov-16	8021B	
Toluene*	<0.050		0.050	mg/kg	50	6112904	MS	29-Nov-16	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	6112904	MS	29-Nov-16	8021B	
<b>Total Xylenes*</b>	<b>0.512</b>		0.150	mg/kg	50	6112904	MS	29-Nov-16	8021B	
<b>Total BTEX</b>	<b>0.512</b>		0.300	mg/kg	50	6112904	MS	29-Nov-16	8021B	

Surrogate: 4-Bromofluorobenzene (PID) 150 % 73.6-140 6112904 MS 29-Nov-16 8021B

#### TCLP Volatile Organic Compounds by EPA Method 1311/8260B

Vinyl chloride	<0.050		0.050	mg/L	100	6120803	MS	09-Dec-16	1311/8260B	
2-Butanone	<0.500		0.500	mg/L	100	6120803	MS	09-Dec-16	1311/8260B	
1,1-Dichloroethene	<0.050		0.050	mg/L	100	6120803	MS	09-Dec-16	1311/8260B	
Chloroform	<0.050		0.050	mg/L	100	6120803	MS	09-Dec-16	1311/8260B	
Carbon tetrachloride	<0.050		0.050	mg/L	100	6120803	MS	09-Dec-16	1311/8260B	
Benzene	<0.050		0.050	mg/L	100	6120803	MS	09-Dec-16	1311/8260B	
1,2-Dichloroethane	<0.050		0.050	mg/L	100	6120803	MS	09-Dec-16	1311/8260B	
Trichloroethene	<0.050		0.050	mg/L	100	6120803	MS	09-Dec-16	1311/8260B	
Tetrachloroethene	<0.050		0.050	mg/L	100	6120803	MS	09-Dec-16	1311/8260B	
Chlorobenzene	<0.050		0.050	mg/L	100	6120803	MS	09-Dec-16	1311/8260B	
1,4 Dichlorobenzene	<0.050		0.050	mg/L	100	6120803	MS	09-Dec-16	1311/8260B	

Surrogate: Dibromofluoromethane 98.8 % 92.9-119 6120803 MS 09-Dec-16 1311/8260B

Surrogate: Toluene-d8 94.9 % 86-108 6120803 MS 09-Dec-16 1311/8260B

Surrogate: 4-Bromofluorobenzene 106 % 81.7-121 6120803 MS 09-Dec-16 1311/8260B

#### Green Analytical Laboratories

#### TCLP Metals by ICP (1311)

Arsenic	<0.500		0.500	mg/L	5	B612117	LLG	15-Dec-16	EPA200.7/13	
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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

Safety & Environmental Solutions  
703 East Clinton  
Hobbs NM, 88240

Project: HEP-16-017  
Project Number: HEP-16-017  
Project Manager: Bob Allen  
Fax To: (575) 393-4388

Reported:  
17-Dec-16 13:46

**C-1 SPOILS**  
**H602629-10 (Soil)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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**Green Analytical Laboratories**
**TCLP Metals by ICP (1311)**

Barium	1.57		0.050	mg/L	5	B612117	LLG	15-Dec-16	EPA200.7/13 11	
Cadmium	<0.250		0.250	mg/L	5	B612117	LLG	15-Dec-16	EPA200.7/13 11	
Chromium	<0.250		0.250	mg/L	5	B612117	LLG	15-Dec-16	EPA200.7/13 11	
Lead	<0.500		0.500	mg/L	5	B612117	LLG	15-Dec-16	EPA200.7/13 11	
Selenium	<1.00		1.00	mg/L	5	B612117	LLG	15-Dec-16	EPA200.7/13 11	
Silver	<0.250		0.250	mg/L	5	B612117	LLG	15-Dec-16	EPA200.7/13 11	

**TCLP Mercury by CVAA**

Mercury	<0.0002		0.0002	mg/L	1	B612113	LLG	16-Dec-16	EPA245.1	
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Celey D. Keene, Lab Director/Quality Manager



### Analytical Results For:

Safety & Environmental Solutions  
703 East Clinton  
Hobbs NM, 88240

Project: HEP-16-017  
Project Number: HEP-16-017  
Project Manager: Bob Allen  
Fax To: (575) 393-4388

Reported:  
17-Dec-16 13:46

### Inorganic Compounds - Quality Control

#### Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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#### Batch 6110201 - General Prep - Wet Chem

##### LCS (6110201-BS1)

Prepared: 02-Nov-16 Analyzed: 03-Nov-16

Ignitability	79.0		°F	80.0	98.8	97.5-105				
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##### Duplicate (6110201-DUP1)

Source: H602408-01

Prepared: 02-Nov-16 Analyzed: 03-Nov-16

Ignitability	>140		°F	0.00				20		
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#### Batch 6112901 - 1:4 DI Water

##### Blank (6112901-BLK1)

Prepared & Analyzed: 29-Nov-16

Chloride	ND	16.0	mg/kg							
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##### LCS (6112901-BS1)

Prepared & Analyzed: 29-Nov-16

Chloride	416	16.0	mg/kg	400	104	80-120				
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##### LCS Dup (6112901-BSD1)

Prepared & Analyzed: 29-Nov-16

Chloride	416	16.0	mg/kg	400	104	80-120	0.00	20		
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#### Batch 6112902 - 1:4 DI Water

##### Blank (6112902-BLK1)

Prepared & Analyzed: 29-Nov-16

Chloride	ND	16.0	mg/kg							
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##### LCS (6112902-BS1)

Prepared & Analyzed: 29-Nov-16

Chloride	416	16.0	mg/kg	400	104	80-120				
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##### LCS Dup (6112902-BSD1)

Prepared & Analyzed: 29-Nov-16

Chloride	416	16.0	mg/kg	400	104	80-120	0.00	20		
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Celey D. Keene, Lab Director/Quality Manager

### Analytical Results For:

Safety & Environmental Solutions  
703 East Clinton  
Hobbs NM, 88240

Project: HEP-16-017  
Project Number: HEP-16-017  
Project Manager: Bob Allen  
Fax To: (575) 393-4388

Reported:  
17-Dec-16 13:46

### Inorganic Compounds - Quality Control

#### Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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#### Batch 6120614 - 1:1 DI

##### LCS (6120614-BS1)

Prepared & Analyzed: 06-Dec-16

pH	7.12		pH Units	7.00		102	90-110			
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##### Duplicate (6120614-DUP1)

Source: H602629-10

Prepared & Analyzed: 06-Dec-16

pH	7.50	0.100	pH Units	7.40				1.34	20	
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#### Batch 6120902 - General Prep - Wet Chem

##### Blank (6120902-BLK1)

Prepared & Analyzed: 09-Dec-16

Reactive Cyanide	ND	0.100	mg/kg							
Reactive Sulfide	ND	0.0100	mg/kg							

##### Duplicate (6120902-DUP1)

Source: H602629-10

Prepared & Analyzed: 09-Dec-16

Reactive Cyanide	ND	0.100	mg/kg	0.00					20	
Reactive Sulfide	ND	0.0100	mg/kg	0.00					20	

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Celey D. Keene, Lab Director/Quality Manager

### Analytical Results For:

Safety & Environmental Solutions  
703 East Clinton  
Hobbs NM, 88240

Project: HEP-16-017  
Project Number: HEP-16-017  
Project Manager: Bob Allen  
Fax To: (575) 393-4388

Reported:  
17-Dec-16 13:46

### TCLP Semivolatile Organic Compounds by GCMS - Quality Control

#### Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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#### Batch 6112111 - SW846-3510

##### Blank (6112111-BLK1)

Prepared: 21-Nov-16 Analyzed: 22-Nov-16

Pyridine	ND	0.001	mg/L							
1,4-Dichlorobenzene	ND	0.001	mg/L							
2-Methylphenol	ND	0.001	mg/L							
4-Methylphenol	ND	0.002	mg/L							
Hexachloroethane	ND	0.001	mg/L							
Nitrobenzene	ND	0.001	mg/L							
Hexachlorobutadiene	ND	0.001	mg/L							
2,4,6-Trichlorophenol	ND	0.001	mg/L							
2,4,5-Trichlorophenol	ND	0.001	mg/L							
2,4-Dinitrotoluene	ND	0.001	mg/L							
Hexachlorobenzene	ND	0.001	mg/L							
Pentachlorophenol	ND	0.001	mg/L							
Surrogate: 2-Fluorophenol	0.0375		mg/L	0.0500		75.0	7.74-110			
Surrogate: Phenol-d5	0.0214		mg/L	0.0500		42.9	14.8-131			
Surrogate: Nitrobenzene-d5	0.0526		mg/L	0.0500		105	10.7-133			
Surrogate: 2-Fluorobiphenyl	0.0469		mg/L	0.0500		93.8	12.5-111			
Surrogate: 2,4,6-Tribromophenol	0.0477		mg/L	0.0500		95.4	17.3-143			
Surrogate: Terphenyl-d14	0.0586		mg/L	0.0500		117	15.8-160			

##### LCS (6112111-BS1)

Prepared: 21-Nov-16 Analyzed: 22-Nov-16

Pyridine	0.006	0.001	mg/L	0.0100		57.7	22.6-53.3			BS1
1,4-Dichlorobenzene	0.010	0.001	mg/L	0.0100		101	0-184			
2-Methylphenol	0.009	0.001	mg/L	0.0100		94.2	41-79.4			BS1
4-Methylphenol	0.009	0.002	mg/L	0.0100		94.0	32.2-77.3			BS1
Hexachloroethane	0.010	0.001	mg/L	0.0100		98.5	20.5-61.6			BS1
Nitrobenzene	0.011	0.001	mg/L	0.0100		113	38-87.2			BS1
Hexachlorobutadiene	0.010	0.001	mg/L	0.0100		103	18-63.4			BS1
2,4,6-Trichlorophenol	0.011	0.001	mg/L	0.0100		106	28.6-102			BS1
2,4,5-Trichlorophenol	0.010	0.001	mg/L	0.0100		103	30-104			
2,4-Dinitrotoluene	0.010	0.001	mg/L	0.0100		105	31.1-108			
Hexachlorobenzene	0.010	0.001	mg/L	0.0100		102	31.2-100			BS1
Pentachlorophenol	0.016	0.001	mg/L	0.0100		160	27.4-103			BS1

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Celey D. Keene, Lab Director/Quality Manager

### Analytical Results For:

Safety & Environmental Solutions  
703 East Clinton  
Hobbs NM, 88240

Project: HEP-16-017  
Project Number: HEP-16-017  
Project Manager: Bob Allen  
Fax To: (575) 393-4388

Reported:  
17-Dec-16 13:46

### TCLP Semivolatile Organic Compounds by GCMS - Quality Control

#### Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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#### Batch 6112111 - SW846-3510

#### LCS (6112111-BS1)

Prepared: 21-Nov-16 Analyzed: 22-Nov-16

Surrogate: 2-Fluorophenol	0.0421		mg/L	0.0500		84.3	7.74-110			
Surrogate: Phenol-d5	0.0257		mg/L	0.0500		51.3	14.8-131			
Surrogate: Nitrobenzene-d5	0.0594		mg/L	0.0500		119	10.7-133			
Surrogate: 2-Fluorobiphenyl	0.0505		mg/L	0.0500		101	12.5-111			
Surrogate: 2,4,6-Tribromophenol	0.0520		mg/L	0.0500		104	17.3-143			
Surrogate: Terphenyl-d14	0.0611		mg/L	0.0500		122	15.8-160			

#### LCS Dup (6112111-BSD1)

Prepared: 21-Nov-16 Analyzed: 22-Nov-16

Pyridine	0.006	0.001	mg/L	0.0100		57.8	22.6-53.3	0.173	30.6	BS1
1,4-Dichlorobenzene	0.010	0.001	mg/L	0.0100		101	0-184	0.395	5.84	
2-Methylphenol	0.009	0.001	mg/L	0.0100		94.2	41-79.4	0.00	17.1	BS1
4-Methylphenol	0.010	0.002	mg/L	0.0100		95.8	32.2-77.3	1.90	14.7	BS1
Hexachloroethane	0.010	0.001	mg/L	0.0100		98.0	20.5-61.6	0.509	4.67	BS1
Nitrobenzene	0.011	0.001	mg/L	0.0100		112	38-87.2	0.533	12.2	BS1
Hexachlorobutadiene	0.010	0.001	mg/L	0.0100		102	18-63.4	0.389	5.33	BS1
2,4,6-Trichlorophenol	0.010	0.001	mg/L	0.0100		104	28.6-102	1.05	14.1	BS1
2,4,5-Trichlorophenol	0.011	0.001	mg/L	0.0100		107	30-104	3.52	8.91	BS1
2,4-Dinitrotoluene	0.010	0.001	mg/L	0.0100		104	31.1-108	0.382	17	
Hexachlorobenzene	0.010	0.001	mg/L	0.0100		102	31.2-100	0.197	69.6	BS1
Pentachlorophenol	0.016	0.001	mg/L	0.0100		165	27.4-103	2.83	49.5	BS1
Surrogate: 2-Fluorophenol	0.0424		mg/L	0.0500		84.8	7.74-110			
Surrogate: Phenol-d5	0.0257		mg/L	0.0500		51.3	14.8-131			
Surrogate: Nitrobenzene-d5	0.0596		mg/L	0.0500		119	10.7-133			
Surrogate: 2-Fluorobiphenyl	0.0514		mg/L	0.0500		103	12.5-111			
Surrogate: 2,4,6-Tribromophenol	0.0523		mg/L	0.0500		105	17.3-143			
Surrogate: Terphenyl-d14	0.0614		mg/L	0.0500		123	15.8-160			

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Celey D. Keene, Lab Director/Quality Manager

### Analytical Results For:

Safety & Environmental Solutions  
703 East Clinton  
Hobbs NM, 88240

Project: HEP-16-017  
Project Number: HEP-16-017  
Project Manager: Bob Allen  
Fax To: (575) 393-4388

Reported:  
17-Dec-16 13:46

### Volatile Organic Compounds by EPA Method 8021 - Quality Control

#### Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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#### Batch 6112801 - Volatiles

##### Blank (6112801-BLK1)

Prepared & Analyzed: 28-Nov-16

Benzene	ND	0.050	mg/kg							
Toluene	ND	0.050	mg/kg							
Ethylbenzene	ND	0.050	mg/kg							
Total Xylenes	ND	0.150	mg/kg							
Total BTEX	ND	0.300	mg/kg							
Surrogate: 4-Bromofluorobenzene (PID)	0.0570		mg/kg	0.0500		114	73.6-140			

##### LCS (6112801-BS1)

Prepared & Analyzed: 28-Nov-16

Benzene	2.27	0.050	mg/kg	2.00		114	82.6-122			
Toluene	2.33	0.050	mg/kg	2.00		117	72.9-122			
Ethylbenzene	2.24	0.050	mg/kg	2.00		112	65.4-131			
Total Xylenes	6.78	0.150	mg/kg	6.00		113	73.8-125			
Surrogate: 4-Bromofluorobenzene (PID)	0.0567		mg/kg	0.0500		113	73.6-140			

##### LCS Dup (6112801-BSD1)

Prepared & Analyzed: 28-Nov-16

Benzene	2.26	0.050	mg/kg	2.00		113	82.6-122	0.470	8.23	
Toluene	2.34	0.050	mg/kg	2.00		117	72.9-122	0.364	8.71	
Ethylbenzene	2.25	0.050	mg/kg	2.00		113	65.4-131	0.482	9.46	
Total Xylenes	6.80	0.150	mg/kg	6.00		113	73.8-125	0.216	8.66	
Surrogate: 4-Bromofluorobenzene (PID)	0.0574		mg/kg	0.0500		115	73.6-140			

#### Batch 6112904 - Volatiles

##### Blank (6112904-BLK1)

Prepared & Analyzed: 29-Nov-16

Benzene	ND	0.050	mg/kg							
Toluene	ND	0.050	mg/kg							
Ethylbenzene	ND	0.050	mg/kg							
Total Xylenes	ND	0.150	mg/kg							
Total BTEX	ND	0.300	mg/kg							
Surrogate: 4-Bromofluorobenzene (PID)	0.0562		mg/kg	0.0500		112	73.6-140			

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Celey D. Keene, Lab Director/Quality Manager



### Analytical Results For:

Safety & Environmental Solutions  
703 East Clinton  
Hobbs NM, 88240

Project: HEP-16-017  
Project Number: HEP-16-017  
Project Manager: Bob Allen  
Fax To: (575) 393-4388

Reported:  
17-Dec-16 13:46

### Volatile Organic Compounds by EPA Method 8021 - Quality Control

#### Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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#### Batch 6112904 - Volatiles

##### LCS (6112904-BS1)

Prepared & Analyzed: 29-Nov-16

Benzene	2.21	0.050	mg/kg	2.00		110	82.6-122			
Toluene	2.27	0.050	mg/kg	2.00		113	72.9-122			
Ethylbenzene	2.19	0.050	mg/kg	2.00		109	65.4-131			
Total Xylenes	6.61	0.150	mg/kg	6.00		110	73.8-125			
Surrogate: 4-Bromofluorobenzene (PID)	0.0566		mg/kg	0.0500		113	73.6-140			

##### LCS Dup (6112904-BS1)

Prepared & Analyzed: 29-Nov-16

Benzene	2.21	0.050	mg/kg	2.00		110	82.6-122	0.189	8.23	
Toluene	2.27	0.050	mg/kg	2.00		113	72.9-122	0.00251	8.71	
Ethylbenzene	2.19	0.050	mg/kg	2.00		110	65.4-131	0.134	9.46	
Total Xylenes	6.62	0.150	mg/kg	6.00		110	73.8-125	0.178	8.66	
Surrogate: 4-Bromofluorobenzene (PID)	0.0573		mg/kg	0.0500		115	73.6-140			

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Celey D. Keene, Lab Director/Quality Manager

### Analytical Results For:

Safety & Environmental Solutions  
703 East Clinton  
Hobbs NM, 88240

Project: HEP-16-017  
Project Number: HEP-16-017  
Project Manager: Bob Allen  
Fax To: (575) 393-4388

Reported:  
17-Dec-16 13:46

### Petroleum Hydrocarbons by GC FID - Quality Control

#### Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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#### Batch 6112301 - General Prep - Organics

##### Blank (6112301-BLK1)

Prepared & Analyzed: 23-Nov-16

GRO C6-C10	ND	10.0	mg/kg							
DRO >C10-C28	ND	10.0	mg/kg							
EXT DRO >C28-C35	ND	10.0	mg/kg							
Total TPH C6-C28	ND	10.0	mg/kg							
Surrogate: 1-Chlorooctane	46.6		mg/kg	50.0		93.2	35-147			
Surrogate: 1-Chlorooctadecane	52.5		mg/kg	50.0		105	28-171			

##### LCS (6112301-BS1)

Prepared & Analyzed: 23-Nov-16

GRO C6-C10	179	10.0	mg/kg	200		89.4	76.7-115			
DRO >C10-C28	181	10.0	mg/kg	200		90.5	78.3-122			
Total TPH C6-C28	360	10.0	mg/kg	400		90.0	79.8-117			
Surrogate: 1-Chlorooctane	50.2		mg/kg	50.0		100	35-147			
Surrogate: 1-Chlorooctadecane	52.6		mg/kg	50.0		105	28-171			

##### LCS Dup (6112301-BSD1)

Prepared & Analyzed: 23-Nov-16

GRO C6-C10	188	10.0	mg/kg	200		94.1	76.7-115	5.12	9.42	
DRO >C10-C28	193	10.0	mg/kg	200		96.6	78.3-122	6.50	13.2	
Total TPH C6-C28	381	10.0	mg/kg	400		95.3	79.8-117	5.82	10.7	
Surrogate: 1-Chlorooctane	55.7		mg/kg	50.0		111	35-147			
Surrogate: 1-Chlorooctadecane	56.8		mg/kg	50.0		114	28-171			

#### Batch 6112804 - General Prep - Organics

##### Blank (6112804-BLK1)

Prepared & Analyzed: 28-Nov-16

GRO C6-C10	ND	10.0	mg/kg							
DRO >C10-C28	ND	10.0	mg/kg							
EXT DRO >C28-C35	ND	10.0	mg/kg							
Total TPH C6-C28	ND	10.0	mg/kg							
Surrogate: 1-Chlorooctane	42.4		mg/kg	50.0		84.7	35-147			
Surrogate: 1-Chlorooctadecane	44.7		mg/kg	50.0		89.4	28-171			

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

### Analytical Results For:

Safety & Environmental Solutions  
703 East Clinton  
Hobbs NM, 88240

Project: HEP-16-017  
Project Number: HEP-16-017  
Project Manager: Bob Allen  
Fax To: (575) 393-4388

Reported:  
17-Dec-16 13:46

### Petroleum Hydrocarbons by GC FID - Quality Control

#### Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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#### Batch 6112804 - General Prep - Organics

##### LCS (6112804-BS1)

Prepared & Analyzed: 28-Nov-16

GRO C6-C10	183	10.0	mg/kg	200		91.6	76.7-115			
DRO >C10-C28	196	10.0	mg/kg	200		98.0	78.3-122			
Total TPH C6-C28	379	10.0	mg/kg	400		94.8	79.8-117			
Surrogate: 1-Chlorooctane	49.3		mg/kg	50.0		98.7	35-147			
Surrogate: 1-Chlorooctadecane	50.8		mg/kg	50.0		102	28-171			

##### LCS Dup (6112804-BS1)

Prepared & Analyzed: 28-Nov-16

GRO C6-C10	182	10.0	mg/kg	200		91.0	76.7-115	0.569	9.42	
DRO >C10-C28	202	10.0	mg/kg	200		101	78.3-122	2.87	13.2	
Total TPH C6-C28	384	10.0	mg/kg	400		95.9	79.8-117	1.22	10.7	
Surrogate: 1-Chlorooctane	48.8		mg/kg	50.0		97.5	35-147			
Surrogate: 1-Chlorooctadecane	51.7		mg/kg	50.0		103	28-171			

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Celey D. Keene, Lab Director/Quality Manager

### Analytical Results For:

Safety & Environmental Solutions  
703 East Clinton  
Hobbs NM, 88240

Project: HEP-16-017  
Project Number: HEP-16-017  
Project Manager: Bob Allen  
Fax To: (575) 393-4388

Reported:  
17-Dec-16 13:46

### TCLP Volatile Organic Compounds by EPA Method 1311/8260B - Quality Control

#### Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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#### Batch 6120803 - Volatiles

##### Blank (6120803-BLK1)

Prepared: 08-Dec-16 Analyzed: 09-Dec-16

Vinyl chloride	ND	0.0005	mg/L							
2-Butanone	ND	0.005	mg/L							
1,1-Dichloroethene	ND	0.0005	mg/L							
Chloroform	ND	0.0005	mg/L							
Carbon tetrachloride	ND	0.0005	mg/L							
Benzene	ND	0.0005	mg/L							
1,2-Dichloroethane	ND	0.0005	mg/L							
Trichloroethene	ND	0.0005	mg/L							
Tetrachloroethene	ND	0.0005	mg/L							
Chlorobenzene	ND	0.0005	mg/L							
1,4 Dichlorobenzene	ND	0.0005	mg/L							
Surrogate: Dibromofluoromethane	0.0106		mg/L	0.0100		106	92.9-119			
Surrogate: Toluene-d8	0.00986		mg/L	0.0100		98.6	86-108			
Surrogate: 4-Bromofluorobenzene	0.0105		mg/L	0.0100		105	81.7-121			

##### LCS (6120803-BS1)

Prepared: 08-Dec-16 Analyzed: 09-Dec-16

Vinyl chloride	0.009	0.0005	mg/L	0.0100		93.4	67.7-125			
2-Butanone	0.025	0.005	mg/L	0.0200		124	50.6-160			
1,1-Dichloroethene	0.009	0.0005	mg/L	0.0100		94.4	64.4-129			
Chloroform	0.010	0.0005	mg/L	0.0100		104	82.2-128			
Carbon tetrachloride	0.010	0.0005	mg/L	0.0100		105	75.6-141			
Benzene	0.010	0.0005	mg/L	0.0100		96.7	80.5-129			
1,2-Dichloroethane	0.011	0.0005	mg/L	0.0100		110	79.9-133			
Trichloroethene	0.010	0.0005	mg/L	0.0100		95.9	77.8-129			
Tetrachloroethene	0.009	0.0005	mg/L	0.0100		93.2	69.6-138			
Chlorobenzene	0.010	0.0005	mg/L	0.0100		98.7	77.6-129			
1,4 Dichlorobenzene	0.009	0.0005	mg/L	0.0100		92.1	74.8-123			
Surrogate: Dibromofluoromethane	0.00976		mg/L	0.0100		97.6	92.9-119			
Surrogate: Toluene-d8	0.00969		mg/L	0.0100		96.9	86-108			
Surrogate: 4-Bromofluorobenzene	0.0102		mg/L	0.0100		102	81.7-121			

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Celey D. Keene, Lab Director/Quality Manager

### Analytical Results For:

Safety & Environmental Solutions  
703 East Clinton  
Hobbs NM, 88240

Project: HEP-16-017  
Project Number: HEP-16-017  
Project Manager: Bob Allen  
Fax To: (575) 393-4388

Reported:  
17-Dec-16 13:46

### TCLP Volatile Organic Compounds by EPA Method 1311/8260B - Quality Control

#### Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 6120803 - Volatiles</b>										
<b>LCS Dup (6120803-BSD1)</b>										
Prepared: 08-Dec-16 Analyzed: 09-Dec-16										
Vinyl chloride	0.010	0.0005	mg/L	0.0100		96.3	67.7-125	3.06	27.1	
2-Butanone	0.026	0.005	mg/L	0.0200		132	50.6-160	6.42	53.3	
1,1-Dichloroethene	0.010	0.0005	mg/L	0.0100		97.1	64.4-129	2.82	19.5	
Chloroform	0.011	0.0005	mg/L	0.0100		109	82.2-128	4.62	7.58	
Carbon tetrachloride	0.011	0.0005	mg/L	0.0100		108	75.6-141	2.83	10	
Benzene	0.010	0.0005	mg/L	0.0100		102	80.5-129	5.33	6.66	
1,2-Dichloroethane	0.011	0.0005	mg/L	0.0100		113	79.9-133	2.97	8.03	
Trichloroethene	0.011	0.0005	mg/L	0.0100		108	77.8-129	12.3	8.91	QR-02
Tetrachloroethene	0.010	0.0005	mg/L	0.0100		96.7	69.6-138	3.69	9.15	
Chlorobenzene	0.010	0.0005	mg/L	0.0100		102	77.6-129	3.78	7.46	
1,4 Dichlorobenzene	0.010	0.0005	mg/L	0.0100		98.9	74.8-123	7.12	7.31	
Surrogate: Dibromofluoromethane	0.0101		mg/L	0.0100		101	92.9-119			
Surrogate: Toluene-d8	0.0100		mg/L	0.0100		100	86-108			
Surrogate: 4-Bromofluorobenzene	0.0105		mg/L	0.0100		105	81.7-121			

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Celey D. Keene, Lab Director/Quality Manager



### Analytical Results For:

Safety & Environmental Solutions  
703 East Clinton  
Hobbs NM, 88240

Project: HEP-16-017  
Project Number: HEP-16-017  
Project Manager: Bob Allen  
Fax To: (575) 393-4388

Reported:  
17-Dec-16 13:46

### TCLP Metals by ICP (1311) - Quality Control

#### Green Analytical Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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#### Batch B612117 - EPA 1311

##### Blank (B612117-BLK1)

Prepared & Analyzed: 15-Dec-16

Lead	ND	0.500	mg/L							
Arsenic	ND	0.500	mg/L							
Silver	ND	0.250	mg/L							
Cadmium	ND	0.250	mg/L							
Selenium	ND	1.00	mg/L							
Chromium	ND	0.250	mg/L							
Barium	ND	0.050	mg/L							

##### LCS (B612117-BS1)

Prepared & Analyzed: 15-Dec-16

Barium	10.2	0.050	mg/L	10.0		102	85-115			
Silver	0.496	0.250	mg/L	0.500		99.2	85-115			
Arsenic	20.1	0.500	mg/L	20.0		100	85-115			
Cadmium	9.88	0.250	mg/L	10.0		98.8	85-115			
Chromium	9.97	0.250	mg/L	10.0		99.7	85-115			
Selenium	39.7	1.00	mg/L	40.0		99.3	85-115			
Lead	9.90	0.500	mg/L	10.0		99.0	85-115			

##### LCS Dup (B612117-BSD1)

Prepared & Analyzed: 15-Dec-16

Cadmium	9.77	0.250	mg/L	10.0		97.7	85-115	1.14	20	
Arsenic	20.3	0.500	mg/L	20.0		101	85-115	0.942	20	
Selenium	39.4	1.00	mg/L	40.0		98.4	85-115	0.860	20	
Lead	9.81	0.500	mg/L	10.0		98.1	85-115	0.964	20	
Silver	0.498	0.250	mg/L	0.500		99.6	85-115	0.396	20	
Barium	10.0	0.050	mg/L	10.0		100	85-115	1.72	20	
Chromium	9.81	0.250	mg/L	10.0		98.1	85-115	1.60	20	

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**Safety & Environmental Solutions  
703 East Clinton  
Hobbs NM, 88240Project: HEP-16-017  
Project Number: HEP-16-017  
Project Manager: Bob Allen  
Fax To: (575) 393-4388Reported:  
17-Dec-16 13:46**TCLP Mercury by CVAA - Quality Control**  
**Green Analytical Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B612113 - EPA 245.1/7470****Blank (B612113-BLK1)**

Prepared: 15-Dec-16 Analyzed: 16-Dec-16

Mercury ND 0.0002 mg/L

**LCS (B612113-BS1)**

Prepared: 15-Dec-16 Analyzed: 16-Dec-16

Mercury 0.0021 0.0002 mg/L 0.00200 103 85-115

**LCS Dup (B612113-BSD1)**

Prepared: 15-Dec-16 Analyzed: 16-Dec-16

Mercury 0.0021 0.0002 mg/L 0.00200 103 85-115 0.388 20

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Celey D. Keene, Lab Director/Quality Manager

**Notes and Definitions**

Z-01	>140
S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
QR-03	The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
QR-02	The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
BS1	Blank spike recovery above laboratory acceptance criteria. Results for analyte potentially biased high.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

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Celey D. Keene, Lab Director/Quality Manager







CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240  
(575) 393-2326 FAX (575) 393-2476

Company Name: Safety and Environmental Solutions		<b>BILL TO</b>		ANALYSIS REQUEST											
Project Manager: Bob Allen		P.O. #:													
Address: 703 East Clinton, PO Box 1613		Company: Same													
City: Hobbs		Attn:													
Phone #: 575 397-0510		Address:													
Fax #: 575 393-4388		City:													
Project #: HEP-16-017		State:													
Project Owner:		Zip:													
Project Name:		Phone #:													
Project Location:		Fax #:													
Sample Name:		FOR LAB USE ONLY													
Lab I.D.		Sample I.D.													
Hobbs 10		C-1 Spots													
		(G)RAB OR (C)OMP.													
		# CONTAINERS													
		GROUNDWATER													
		WASTEWATER													
		SOIL													
		OIL													
		SLUDGE													
		OTHER :													
		ACID/BASE:													
		ICE / COOL													
		OTHER :													
		DATE													
		TIME													
		11/22/16 1530													
		X													
		BTEX													
		TCLP complete													

Relinquished By: <i>Sam Perry</i>		Date: 11/23/16		Received By: <i>Mark Henderson</i>		Sample Condition		CHECKED BY: <i>[Signature]</i>		REMARKS:	
Relinquished By:		Time: 8:00		Received By:		Cool <input checked="" type="checkbox"/> Intact <input checked="" type="checkbox"/>				HOLD For possible TCLP	
Delivered By: (Circle One)		Date:		Time:		Yes <input type="checkbox"/> No <input type="checkbox"/>				#10. <i>[Signature]</i>	
Sampler - UPS - Bus - Other: #75		4:00				Yes <input type="checkbox"/> No <input type="checkbox"/>					



## **Appendix D**

### **Site Photos**

**Holly Energy Partners  
Henshaw Station Eddy County**

Spill Area





**Holly Energy Partners  
Henshaw Station Eddy County**

Auger Hole 1



Auger Hole 2

