PRELIMINARY RESULTS

Holly Energy Partners

8 Inch Crouch Line

Work Plan

Section 36, Township 16S, Range 36E
Lea County, New Mexico
1RP-4885

January 12, 2018

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

TABLE OF CONTENTS

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 at the 8 Inch Crouch Line, concerning a forty five (45) bbl. oil release. This site is situated in Lea County, Section 36, Township 16S, and Range 36E.

According to the C-141: a contractor conducting maintenance activity on the crouch pipeline, struck the line causing a release of approximately forty five (45) bbls of crude oil. Due to the maintenance activity being conducted where there was a 10x35x3 trench that had been dug, the released crude oil collected in the trench. A vacuum truck was able to collect thirty five (35) bbls of crude with an estimated ten (10) bbls remaining in the soil. The release was contained and flow stopped. Soil sampling will be conducted and a remediation plan determined upon receipt of sampling results.

The Crouch 8" line carries over 40,000 barrels of crude oil per day into the refinery for use and distribution to other pipelines.

III. Surface and Ground Water

Research of the New Mexico Office of the State Engineer records indicates the average depth to groundwater for the area to be 81 bgs. However, according to the *"2016 Annual Facility-Wide Groundwater Monitoring Report*" for the HollyFrontier Navajo Refining LLC, all of the wells immediately adjacent to this location are over 100 bgs.

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	
	>100 feet	0 points	**x**
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)			**0**

V. Work Performed

On December 14, 2017, SESI personnel was on site to assess a crude oil spill incident at the Holly Crouch 8" Line to begin installing trenches to determine horizontal and vertical extent of contamination. Soil samples were obtained and field tested for TPH. The sample points were mapped using the Juno 3B. The samples were properly packaged, preserved and transported to Hall Environmental Laboratories of Albuquerque, NM by chain of custody, and analyzed for TPH(total petroleum hydrocarbons)(Method 8015M), BTEX, and Chlorides(Method 300). The results are presented in the table below:

Soil Sample Results: Hall Environmental Laboratories 1-4-18								
SAMPLE ID	Benzene	Toluene	Ethyl benzene	Total Xylenes	Total BTEX	TPH GRO	TPH DRO	Chlorides
TT-1 NW Wall	ND	ND	ND	ND	ND	ND	ND	ND
TT-2 SE Wall	ND	ND	ND	ND	ND	ND	ND	ND
TT-3 SE Wall	ND	ND	ND	ND	ND	ND	ND	ND
TT-4 SE Wall	ND	ND	ND	ND	ND	ND	ND	ND
TT-5 Bottom 7ft	ND	ND	ND	ND	ND	ND	ND	ND

VI. Action Plan

Due to the criticality of the Crouch line, it is not feasible to shut down the line to allow excavation under the existing pipeline. However Holly Energy Partners will remove all contaminated soil within a three (3) foot radius of the pipeline to a depth of seven (7) feet or where the TPH concentration is less than 1000 ppm. All excavated soil will be transported to an approved NMOCD facility for disposal. The excavated area is to be backfilled with similar material and returned to grade and reseeded in the spring of 2018. Upon completion of all approved remediation activity, all necessary closure documentation related to this incident will be submitted to Holly Energy Partners and the appropriate regulatory agencies.

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

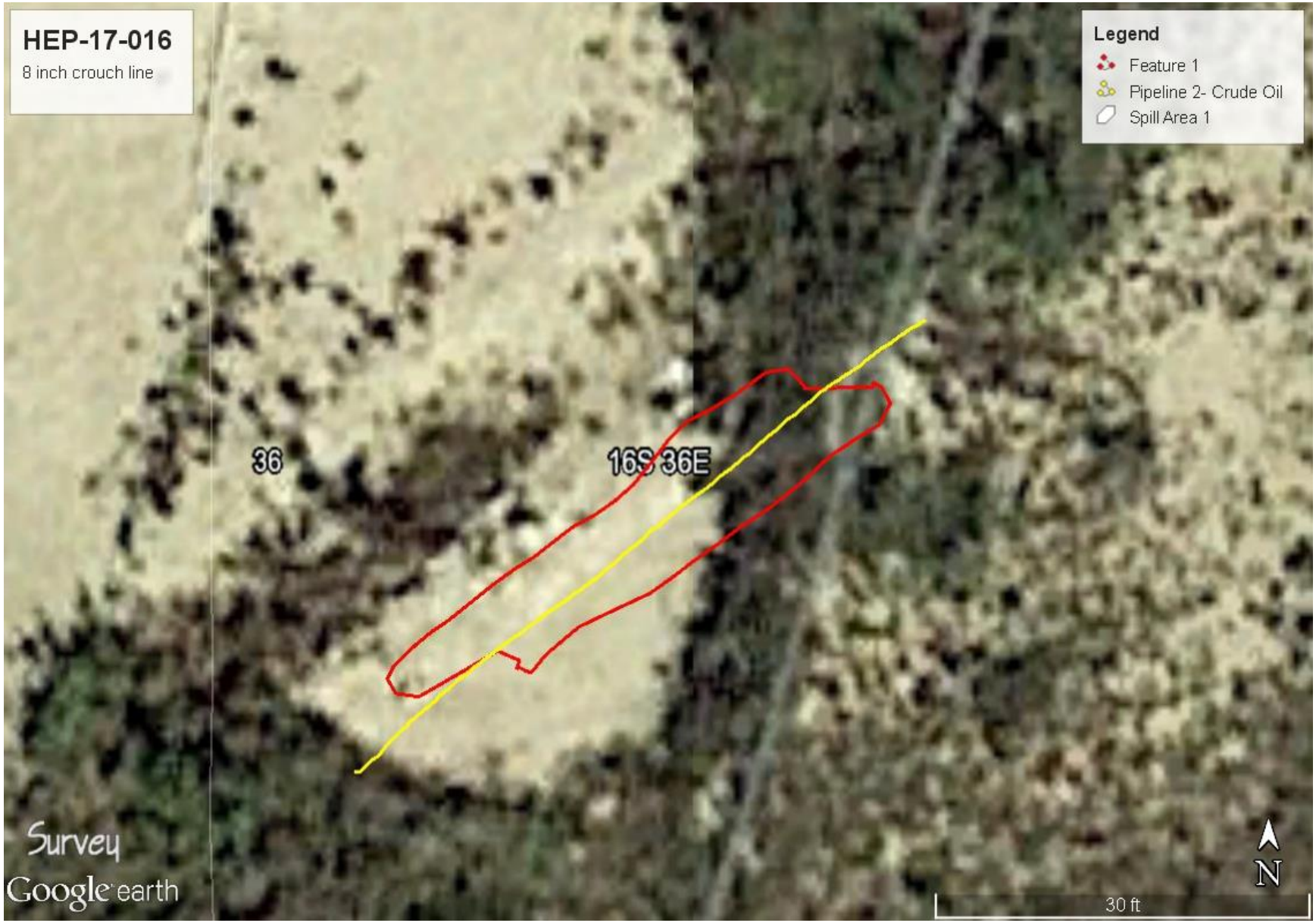
HEP-17-016
8 inch crouch line
Legend
Feature 1
Pipeline 2- Crude Oil
Spill Area 1
36
16S 36E
Survey
Google earth
N
30 ft

Figure 2
Site Plan


8 inch crouch line
Test Trench - 12/14/17
Legend
1
Feature 1
Pipeline
TT
TT 1 NW Wall
36
16S 36E
TT 2 SE Wall
TT 4 NW Wall
TT 5 Bottom 7ft
TT 3 SE Wall
Survey
Google earth
N
30 ft

Appendix A
C-141

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

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised April 3, 2017

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

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company Holly Energy Partners (HEP)	Contact Melanie Nolan
Address 2828 N Harwood, Suite 1300	Telephone No. 214-605-8303
Facility Name Crouch Pipeline	Facility Type Pipeline

Surface Owner City of Lovington	Mineral Owner State	API No.

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
G	36	16S	36E					

Latitude 32.8799 **Longitude** -103.3055 NAD83

NATURE OF RELEASE

Type of Release Crude	Volume of Release 45BBLS	Volume Recovered 35 BBLS
Source of Release Pipeline Strike	Date and Hour of Occurrence 11/28/17 0900	Date and Hour of Discovery 11/28/17 0900
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Olivia Yu	
By Whom? Melanie Nolan	Date and Hour 11/28/17 1025	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

RECEIVED
By Olivia Yu at 12:40 pm, Nov 29, 2017

Describe Cause of Problem and Remedial Action Taken.*
While conducting a maintenance activity on the Crouch pipeline a contractor working for HEP struck the line causing a release of approximately 45 barrels of crude oil. Due to the maintenance activity being conducted there was a 10X35X3 trench that had been dug that the released crude collected in. A vacuum truck was able to collect 35 barrels of crude with an estimated 10 barrels remaining in soil. The release was contained and flow stopped. The area impacted will be remediated in accordance with NMOCD guidelines.

Describe Area Affected and Cleanup Action Taken.*
Safety & Environmental Solutions, Inc. will be performing clean-up for HEP.

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: Melanie Nolan

Printed Name: Melanie Nolan

Title: Environmental Specialist

E-mail Address: Melanie.Nolan@hollyenergy.com

Date: Phone: 214-605-8303

OIL CONSERVATION DIVISION

Approved by Environmental Specialist: gry

Approval Date: 11/29/2017 Expiration Date:

Conditions of Approval: see attached directive

Attached ☑

* Attach Additional Sheets If Necessary

fOY1733347463 1RP-4885 nOY1733347591 pOY1733347572

Operator/Responsible Party,

The OCD has received the form C-141 you provided on _11/28/2017_ regarding an unauthorized release. The information contained on that form has been entered into our incident database and remediation case number _1RP-4885__ has been assigned. **Please refer to this case number in all future correspondence.**

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

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

Release characterization is the first phase of corrective action unless the release is ongoing or is of limited volume and all impacts can be immediately addressed. Proper and cost-effective remediation typically cannot occur without adequate characterization of the impacts of any release. Furthermore, the Division has the ability to impose reasonable conditions upon the efforts it oversees. **As such, the Division is requiring a workplan for the characterization of impacts associated with this release be submitted to the OCD District _1_ office in __Hobbs____ on or before _12/29/2017_. If and when the release characterization workplan is approved, there will be an associated deadline for submittal of the resultant investigation report. Modest extensions of time to these deadlines may be granted, but only with acceptable justification.**

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

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

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

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

● Composite sampling is not generally allowed.

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

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

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

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

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

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

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

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-basin Code	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
L 01350	L	LE		2	4	36	16S	36E	658901	3638899*	110	55	55
L 01371	L	LE	4	3	4	36	16S	36E	658603	3638389*	115	45	70
L 01438	L	LE		3	4	36	16S	36E	658504	3638490*	110	45	65
L 01557 POD1	L	LE	4	3	3	36	16S	36E	657796	3638374*	110	40	70
L 04058 POD2	L	LE	2	2	4	36	16S	36E	659000	3638998*	248	62	186
L 04058 S15	L	LE	3	2	2	36	16S	36E	658786	3639603*	260	50	210
L 04058 S16	L	LE	2	2	4	36	16S	36E	659000	3638998*	235	62	173
L 04058 S18	L	LE	4	3	1	36	16S	36E	657783	3639180*	265	50	215
L 04058 S19	L	LE	4	3	3	36	16S	36E	657796	3638374*	245	50	195
L 04058 S21	L	LE	4	1	1	36	16S	36E	657777	3639583*	251	65	186
L 04058 S22	L	LE		1	3	36	16S	36E	657691	3638878*	239	68	171
L 04058 S23	L	LE		4	2	36	16S	36E	658894	3639301*	119	90	29
L 04058 S24	L	LE	2	1	1	36	16S	36E	657777	3639783*	257	88	169
L 04058 S25	L	LE	2	3	1	36	16S	36E	657783	3639380*	256	88	168
L 04058 S26	L	LE	4	4	2	36	16S	36E	658993	3639200*	237		
L 12562 POD1	L	LE	2	2	4	36	16S	36E	658908	3639001	120	105	15
L 12562 POD10	L	LE	2	2	4	36	16S	36E	659032	3638913	113	98	15
L 12562 POD13	L	LE	2	4	2	36	16S	36E	658956	3639405	120	105	15
L 12562 POD14	L	LE		2	2	36	16S	36E	658677	3639136	116	101	15
L 12562 POD15	L	LE	4	1	2	36	16S	36E	658634	3639529	122	107	15
L 12562 POD2	L	LE	2	2	3	36	16S	36E	659065	3638963	112	97	15
L 12562 POD4	L	LE	4	4	2	36	16S	36E	658584	3638296	121	106	15
L 12562 POD6	L	LE	4	4	2	36	16S	36E	659001	3639212	124	109	15
L 12562 POD7	L	LE	4	4	2	36	16S	36E	658912	3639266	122	107	15
L 12562 POD8	L	LE	2	2	4	36	16S	36E	658992	3639097	122	107	15
L 13332 POD2	L	LE	4	3	2	36	16S	36E	658677	3639129	120	104	16

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

(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-basin Code	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
L 13332 POD3	L	LE	2	3	2	36	16S	36E	658660	3639363	128	123	5
L 14228 POD1	L	LE	3	4	2	36	16S	36E	658821	3639303	130		

Average Depth to Water: **81 feet**

Minimum Depth: **40 feet**

Maximum Depth: **123 feet**

Record Count: 28

PLSS Search:

Section(s): 36 **Township:** 16S **Range:** 36E

Appendix C
Analytical Results

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

January 04, 2018

Bob Allen

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

RE: Holly Crouch 8" Line OrderNo.: 1712A07

Dear Bob Allen:

Hall Environmental Analysis Laboratory received 5 sample(s) on 12/16/2017 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1712A07**
Date Reported: **1/4/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Safety & Environmental Solutions
Client Sample ID: TI-1 NW Wall
Project: Holly Crouch 8" Line
Collection Date: 12/14/2017 10:20:00 AM
Lab ID: 1712A07-001 **Matrix:** SOIL **Received Date:** 12/16/2017 9:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	1/3/2018 5:54:38 PM	35813
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	42	9.7		mg/Kg	1	12/20/2017 6:11:31 PM	35589
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	12/20/2017 6:11:31 PM	35589
Surr: DNOP	98.4	70-130		%Rec	1	12/20/2017 6:11:31 PM	35589
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	12/20/2017 5:46:22 PM	35592
Surr: BFB	115	15-316		%Rec	1	12/20/2017 5:46:22 PM	35592
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.094		mg/Kg	1	12/20/2017 5:46:22 PM	35592
Benzene	ND	0.023		mg/Kg	1	12/20/2017 5:46:22 PM	35592
Toluene	ND	0.047		mg/Kg	1	12/20/2017 5:46:22 PM	35592
Ethylbenzene	ND	0.047		mg/Kg	1	12/20/2017 5:46:22 PM	35592
Xylenes, Total	ND	0.094		mg/Kg	1	12/20/2017 5:46:22 PM	35592
Surr: 4-Bromofluorobenzene	100	80-120		%Rec	1	12/20/2017 5:46:22 PM	35592

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Safety & Environmental Solutions
Client Sample ID: TI-2 SE Wall
Project: Holly Crouch 8" Line
Collection Date: 12/14/2017 11:10:00 AM
Lab ID: 1712A07-002 **Matrix:** SOIL **Received Date:** 12/16/2017 9:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	1/3/2018 6:07:03 PM	35813
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	12/21/2017 12:39:40 PM	35589
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	12/21/2017 12:39:40 PM	35589
Surr: DNOP	93.9	70-130		%Rec	1	12/21/2017 12:39:40 PM	35589
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	12/20/2017 6:10:01 PM	35592
Surr: BFB	108	15-316		%Rec	1	12/20/2017 6:10:01 PM	35592
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.10		mg/Kg	1	12/20/2017 6:10:01 PM	35592
Benzene	ND	0.025		mg/Kg	1	12/20/2017 6:10:01 PM	35592
Toluene	ND	0.050		mg/Kg	1	12/20/2017 6:10:01 PM	35592
Ethylbenzene	ND	0.050		mg/Kg	1	12/20/2017 6:10:01 PM	35592
Xylenes, Total	ND	0.10		mg/Kg	1	12/20/2017 6:10:01 PM	35592
Surr: 4-Bromofluorobenzene	98.4	80-120		%Rec	1	12/20/2017 6:10:01 PM	35592

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Safety & Environmental Solutions
Client Sample ID: TI-3 SE Wall
Project: Holly Crouch 8" Line
Collection Date: 12/14/2017 1:15:00 PM
Lab ID: 1712A07-003 **Matrix:** SOIL **Received Date:** 12/16/2017 9:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	1/3/2018 6:19:27 PM	35813
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	12/20/2017 6:55:25 PM	35589
Motor Oil Range Organics (MRO)	ND	51		mg/Kg	1	12/20/2017 6:55:25 PM	35589
Surr: DNOP	85.1	70-130		%Rec	1	12/20/2017 6:55:25 PM	35589
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	12/20/2017 6:33:57 PM	35592
Surr: BFB	110	15-316		%Rec	1	12/20/2017 6:33:57 PM	35592
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.095		mg/Kg	1	12/20/2017 6:33:57 PM	35592
Benzene	ND	0.024		mg/Kg	1	12/20/2017 6:33:57 PM	35592
Toluene	ND	0.047		mg/Kg	1	12/20/2017 6:33:57 PM	35592
Ethylbenzene	ND	0.047		mg/Kg	1	12/20/2017 6:33:57 PM	35592
Xylenes, Total	ND	0.095		mg/Kg	1	12/20/2017 6:33:57 PM	35592
Surr: 4-Bromofluorobenzene	99.8	80-120		%Rec	1	12/20/2017 6:33:57 PM	35592

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Safety & Environmental Solutions
Client Sample ID: TI-4 NW Wall
Project: Holly Crouch 8" Line
Collection Date: 12/14/2017 1:30:00 PM
Lab ID: 1712A07-004 **Matrix:** SOIL **Received Date:** 12/16/2017 9:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	1/3/2018 6:56:41 PM	35813
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	12/20/2017 7:17:21 PM	35589
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/20/2017 7:17:21 PM	35589
Surr: DNOP	83.6	70-130		%Rec	1	12/20/2017 7:17:21 PM	35589
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/20/2017 6:57:45 PM	35592
Surr: BFB	105	15-316		%Rec	1	12/20/2017 6:57:45 PM	35592
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.098		mg/Kg	1	12/20/2017 6:57:45 PM	35592
Benzene	ND	0.025		mg/Kg	1	12/20/2017 6:57:45 PM	35592
Toluene	ND	0.049		mg/Kg	1	12/20/2017 6:57:45 PM	35592
Ethylbenzene	ND	0.049		mg/Kg	1	12/20/2017 6:57:45 PM	35592
Xylenes, Total	ND	0.098		mg/Kg	1	12/20/2017 6:57:45 PM	35592
Surr: 4-Bromofluorobenzene	95.1	80-120		%Rec	1	12/20/2017 6:57:45 PM	35592

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Safety & Environmental Solutions
Client Sample ID: TI-5 Bottom 7 Ft
Project: Holly Crouch 8" Line
Collection Date: 12/14/2017 2:15:00 PM
Lab ID: 1712A07-005 **Matrix:** SOIL **Received Date:** 12/16/2017 9:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	30		mg/Kg	20	1/3/2018 7:09:06 PM	35813
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	12/21/2017 1:01:48 PM	35589
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	12/21/2017 1:01:48 PM	35589
Surr: DNOP	94.0	70-130		%Rec	1	12/21/2017 1:01:48 PM	35589
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/20/2017 7:21:35 PM	35592
Surr: BFB	109	15-316		%Rec	1	12/20/2017 7:21:35 PM	35592
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Methyl tert-butyl ether (MTBE)	ND	0.097		mg/Kg	1	12/20/2017 7:21:35 PM	35592
Benzene	ND	0.024		mg/Kg	1	12/20/2017 7:21:35 PM	35592
Toluene	ND	0.048		mg/Kg	1	12/20/2017 7:21:35 PM	35592
Ethylbenzene	ND	0.048		mg/Kg	1	12/20/2017 7:21:35 PM	35592
Xylenes, Total	ND	0.097		mg/Kg	1	12/20/2017 7:21:35 PM	35592
Surr: 4-Bromofluorobenzene	100	80-120		%Rec	1	12/20/2017 7:21:35 PM	35592

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1712A07**

04-Jan-18

Client: Safety & Environmental Solutions

Project: Holly Crouch 8" Line

Sample ID	**MB-35813**	SampType:	**mblk**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID:	**35813**	RunNo:	**48160**					
Prep Date:	**1/3/2018**	Analysis Date:	**1/3/2018**	SeqNo:	**1546427**	Units:	**mg/Kg**			

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

Sample ID	**LCS-35813**	SampType:	**lcs**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID:	**35813**	RunNo:	**48160**					
Prep Date:	**1/3/2018**	Analysis Date:	**1/3/2018**	SeqNo:	**1546428**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	92.0	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1712A07**

04-Jan-18

Client: Safety & Environmental Solutions

Project: Holly Crouch 8" Line

Sample ID	**LCS-35589**	SampType:	**LCS**		TestCode:	**EPA Method 8015M/D: Diesel Range Organics**					
Client ID:	**LCSS**	Batch ID:	**35589**		RunNo:	**47873**					
Prep Date:	**12/19/2017**	Analysis Date:	**12/20/2017**		SeqNo:	**1535639**	Units:	**mg/Kg**			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)		46	10	50.00	0	91.5	73.2	114			
Surr: DNOP		4.9		5.000		97.8	70	130			

Sample ID	**MB-35589**	SampType:	**MBLK**		TestCode:	**EPA Method 8015M/D: Diesel Range Organics**					
Client ID:	**PBS**	Batch ID:	**35589**		RunNo:	**47873**					
Prep Date:	**12/19/2017**	Analysis Date:	**12/20/2017**		SeqNo:	**1535640**	Units:	**mg/Kg**			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)		ND	10								
Motor Oil Range Organics (MRO)		ND	50								
Surr: DNOP		10		10.00		102	70	130			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1712A07**

04-Jan-18

Client: Safety & Environmental Solutions

Project: Holly Crouch 8" Line

Sample ID	**MB-35592**	SampType:	**MBLK**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**PBS**	Batch ID:	**35592**	RunNo:	**47915**					
Prep Date:	**12/19/2017**	Analysis Date:	**12/20/2017**	SeqNo:	**1535301**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	1100		1000		108	15	316			

Sample ID	**LCS-35592**	SampType:	**LCS**	TestCode:	**EPA Method 8015D: Gasoline Range**					
Client ID:	**LCSS**	Batch ID:	**35592**	RunNo:	**47915**					
Prep Date:	**12/19/2017**	Analysis Date:	**12/20/2017**	SeqNo:	**1535302**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	31	5.0	25.00	0	123	75.9	131			
Surr: BFB	1200		1000		121	15	316			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1712A07**

04-Jan-18

Client: Safety & Environmental Solutions

Project: Holly Crouch 8" Line

Sample ID **MB-35592**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **35592**	RunNo: **47915**
Prep Date: **12/19/2017**	Analysis Date: **12/20/2017**	SeqNo: **1535333** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	0.10								
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.98		1.000		97.8	80	120			

Sample ID **LCS-35592**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **35592**	RunNo: **47915**
Prep Date: **12/19/2017**	Analysis Date: **12/20/2017**	SeqNo: **1535334** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	0.86	0.10	1.000	0	86.5	70.1	121			
Benzene	0.91	0.025	1.000	0	91.0	77.3	128			
Toluene	0.94	0.050	1.000	0	93.8	79.2	125			
Ethylbenzene	0.94	0.050	1.000	0	94.0	80.7	127			
Xylenes, Total	2.8	0.10	3.000	0	93.3	81.6	129			
Surr: 4-Bromofluorobenzene	1.0		1.000		103	80	120			

Qualifiers:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: **Safety Env Solutions** Work Order Number: **1712A07** RcptNo: **1**

Received By: **Isaiah Ortiz** 12/16/2017 9:00:00 AM IO

Completed By: **Michelle Garcia** 12/18/2017 10:58:54 AM Michelle Garcia

Reviewed By: DDS 12/18/17

Chain of Custody

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

Log In

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

Special Handling (if applicable)

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

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

17. Additional remarks:

18. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.9	Good	Yes			

Chain-of-Custody Record

Client: Safety + Environmental Solution

Mailing Address: 703 E. Clinton Hobbs NM 88240

Phone #: 575-397-0510

email or Fax#:

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

Accreditation
☐ NELAP ☐ Other

☐ EDD (Type)

Turn-Around Time:
☒ Standard ☐ Rush

Project Name: Holly Crouch 8" Line

Project #: HEP-18-016

Project Manager: Allen Bob

Sampler: Son Jerry

On Ice: ☑ Yes ☐ No

Sample Temperature: 0.9

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Chlorides (300)				Air Bubbles (Y or N)
					Ice	1712A07																
12/14	1020		FT-1 NW WALL	1	West	001	X		X									X				
12/14	1110		FT-2 SE WALL	1		002	X		X									X				
12/14	1315		FT-3 SE WALL	1		003	X		X									X				
12/14	1330		FT-4 NW WALL	1		004	X		X									X				
12/14	1415		FT-5 BOTTOM 7 FT	1		005	X		X									X				

Date:	Time:	Relinquished by:	Received by:	Date	Time
12/15/17	1700	Son Jerry			
Date:	Time:	Relinquished by:	Received by:	12/16/17	09:00

Remarks:

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

January 09, 2018

Bob Allen

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

RE: Holly Crouch 8" Line OrderNo.: 1712A50

Dear Bob Allen:

Hall Environmental Analysis Laboratory received 1 sample(s) on 12/16/2017 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Safety & Environmental Solutions
Client Sample ID: C-1 Spoils
Project: Holly Crouch 8" Line
Collection Date: 12/15/2017 9:15:00 AM
Lab ID: 1712A50-001
Matrix: SOIL
Received Date: 12/16/2017 9:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
MERCURY, TCLP						Analyst: **pmf**	
Mercury	ND	0.020		mg/L	1	12/27/2017 11:45:29 AM	35707
EPA METHOD 6010B: TCLP METALS						Analyst: **MED**	
Arsenic	ND	5.0		mg/L	1	12/28/2017 10:22:04 AM	35704
Barium	ND	100		mg/L	5	1/4/2018 11:40:43 AM	35704
Cadmium	ND	1.0		mg/L	1	12/28/2017 10:22:04 AM	35704
Chromium	ND	5.0		mg/L	1	12/28/2017 10:22:04 AM	35704
Lead	ND	5.0		mg/L	1	12/29/2017 9:48:52 AM	35704
Selenium	ND	1.0		mg/L	1	1/4/2018 11:39:02 AM	35704
Silver	ND	5.0		mg/L	1	12/28/2017 10:22:04 AM	35704
EPA METHOD 8270C TCLP						Analyst: **JDC**	
2-Methylphenol	ND	200		mg/L	1	12/21/2017 2:42:56 PM	35654
3+4-Methylphenol	ND	200		mg/L	1	12/21/2017 2:42:56 PM	35654
Phenol	ND	200		mg/L	1	12/21/2017 2:42:56 PM	35654
2,4-Dinitrotoluene	ND	0.13		mg/L	1	12/21/2017 2:42:56 PM	35654
Hexachlorobenzene	ND	0.13		mg/L	1	12/21/2017 2:42:56 PM	35654
Hexachlorobutadiene	ND	0.50		mg/L	1	12/21/2017 2:42:56 PM	35654
Hexachloroethane	ND	3.0		mg/L	1	12/21/2017 2:42:56 PM	35654
Nitrobenzene	ND	2.0		mg/L	1	12/21/2017 2:42:56 PM	35654
Pentachlorophenol	ND	100		mg/L	1	12/21/2017 2:42:56 PM	35654
Pyridine	ND	5.0		mg/L	1	12/21/2017 2:42:56 PM	35654
2,4,5-Trichlorophenol	ND	400		mg/L	1	12/21/2017 2:42:56 PM	35654
2,4,6-Trichlorophenol	ND	2.0		mg/L	1	12/21/2017 2:42:56 PM	35654
Cresols, Total	ND	200		mg/L	1	12/21/2017 2:42:56 PM	35654
Surr: 2-Fluorophenol	62.0	18-75.1		%Rec	1	12/21/2017 2:42:56 PM	35654
Surr: Phenol-d5	49.4	15-67.2		%Rec	1	12/21/2017 2:42:56 PM	35654
Surr: 2,4,6-Tribromophenol	93.1	34.4-99.1		%Rec	1	12/21/2017 2:42:56 PM	35654
Surr: Nitrobenzene-d5	105	31.3-114		%Rec	1	12/21/2017 2:42:56 PM	35654
Surr: 2-Fluorobiphenyl	101	23.6-105		%Rec	1	12/21/2017 2:42:56 PM	35654
Surr: 4-Terphenyl-d14	69.0	38.2-81.5		%Rec	1	12/21/2017 2:42:56 PM	35654
VOLATILES BY 8260B/1311						Analyst: **DJF**	
Benzene	3.6	2.5		mg/L	5	12/26/2017 9:16:44 PM	35633
2-Butanone	ND	200		mg/L	1	12/22/2017 12:50:21 AM	35633
Carbon Tetrachloride	ND	0.50		mg/L	1	12/22/2017 12:50:21 AM	35633
Chlorobenzene	ND	100		mg/L	1	12/22/2017 12:50:21 AM	35633
Chloroform	ND	6.0		mg/L	1	12/22/2017 12:50:21 AM	35633
1,4-Dichlorobenzene	ND	7.5		mg/L	1	12/22/2017 12:50:21 AM	35633
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	1	12/22/2017 12:50:21 AM	35633
1,1-Dichloroethene	ND	0.70		mg/L	1	12/22/2017 12:50:21 AM	35633

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Safety & Environmental Solutions
Client Sample ID: C-1 Spoils
Project: Holly Crouch 8" Line
Collection Date: 12/15/2017 9:15:00 AM
Lab ID: 1712A50-001 **Matrix:** SOIL **Received Date:** 12/16/2017 9:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
VOLATILES BY 8260B/1311						Analyst: **DJF**	
Hexachlorobutadiene	ND	0.50		mg/L	1	12/22/2017 12:50:21 AM	35633
Tetrachloroethene (PCE)	ND	0.70		mg/L	1	12/22/2017 12:50:21 AM	35633
Trichloroethene (TCE)	ND	0.50		mg/L	1	12/22/2017 12:50:21 AM	35633
Vinyl chloride	ND	0.20		mg/L	1	12/22/2017 12:50:21 AM	35633
Surr: 1,2-Dichloroethane-d4	94.4	70-130		%Rec	1	12/22/2017 12:50:21 AM	35633
Surr: 4-Bromofluorobenzene	102	70-130		%Rec	1	12/22/2017 12:50:21 AM	35633
Surr: Dibromofluoromethane	97.5	70-130		%Rec	1	12/22/2017 12:50:21 AM	35633
Surr: Toluene-d8	94.2	70-130		%Rec	1	12/22/2017 12:50:21 AM	35633

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

Qualifiers:

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

Wet Chemistry by Method 9012 B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Reactive Cyanide	ND		0.250	1	12/28/2017 15:26	WG1057031

Wet Chemistry by Method 9034-9030B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Reactive Sulfide	48.3		25.0	1	12/27/2017 16:38	WG1057112

Wet Chemistry by Method 9045D

Analyte	Result su	Qualifier	Dilution	Analysis date / time	Batch
Corrosivity by pH	8.42	T8	1	12/22/2017 09:04	WG1056424

Sample Narrative:

L958788-01 WG1056424: 8.42 at 19.5C

Wet Chemistry by Method D93/1010A

Analyte	Result Deg. F	Qualifier	Dilution	Analysis date / time	Batch
Ignitability	DNI at 170		1	12/26/2017 13:31	WG1056053

Method Blank (MB)

(MB) R3276357-1 12/28/17 15:21

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/kg		mg/kg	mg/kg
Reactive Cyanide	U		0.039	0.250

L958788-01 Original Sample (OS) • Duplicate (DUP)

(OS) L958788-01 12/28/17 15:26 • (DUP) R3276357-4 12/28/17 15:27

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/kg	mg/kg		%		%
Reactive Cyanide	ND	0.000	1	0		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3276357-2 12/28/17 15:22 • (LCSD) R3276357-3 12/28/17 15:23

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	%	%	%			%	%
Reactive Cyanide	2.50	2.13	2.32	85.3	92.7	50-150			8.24	20

Method Blank (MB)

(MB) R3276081-1 12/27/17 16:38

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/kg		mg/kg	mg/kg
Reactive Sulfide	U		7.63	25.0

L958788-01 Original Sample (OS) • Duplicate (DUP)

(OS) L958788-01 12/27/17 16:38 • (DUP) R3276081-4 12/27/17 16:38

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg	mg/kg		%		%
Reactive Sulfide	48.3	48.3	1	0.000		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3276081-2 12/27/17 16:38 • (LCSD) R3276081-3 12/27/17 16:38

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	%	%	%			%	%
Reactive Sulfide	100	84.4	90.5	84.4	90.5	70.0-130			6.90	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3275196-1 12/22/17 09:04 • (LCSD) R3275196-2 12/22/17 09:04

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	su	su	su	%	%	%			%	%
Corrosivity by pH	6.38	6.36	6.38	99.7	100	98.4-102			0.314	1

Sample Narrative:

LCS: 6.36 at 20.1C

LCSD: 6.38 at 20.2C

L958738-01 Original Sample (OS) • Duplicate (DUP)

(OS) L958788-01 12/26/17 13:31 • (DUP) R3275676-3 12/26/17 13:31

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	Deg. F	Deg. F		%		%
Ignitability	DNI at 170	DNI at 170	1	0.000		10

L959828-01 Original Sample (OS) • Duplicate (DUP)

(OS) L959828-01 12/26/17 13:31 • (DUP) R3275676-4 12/26/17 13:31

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	Deg. F	Deg. F		%		%
Ignitability	DNI at 170	DNI at 170	1	0.000		10

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3275676-1 12/26/17 13:31 • (LCSD) R3275676-2 12/26/17 13:31

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	Deg. F	Deg. F	Deg. F	%	%	%			%	%
Ignitability	82.0	83.2	83.2	101	101	96.0-104			0.000	10

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
T8	Sample(s) received past/too close to holding time expiration.

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1712A50**

09-Jan-18

Client: Safety & Environmental Solutions

Project: Holly Crouch 8" Line

Sample ID **mb-35633**	SampType: **MBLK**	TestCode: **Volatiles by 8260B/1311**
Client ID: **PBS**	Batch ID: **35633**	RunNo: **48003**
Prep Date: **12/20/2017**	Analysis Date: **12/22/2017**	SeqNo: **1537976** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.50								
2-Butanone	ND	200								
Carbon Tetrachloride	ND	0.50								
Chlorobenzene	ND	100								
Chloroform	ND	6.0								
1,4-Dichlorobenzene	ND	7.5								
1,2-Dichloroethane (EDC)	ND	0.50								
1,1-Dichloroethene	ND	0.70								
Hexachlorobutadiene	ND	0.50								
Tetrachloroethene (PCE)	ND	0.70								
Trichloroethene (TCE)	ND	0.50								
Vinyl chloride	ND	0.20								
Surr: 1,2-Dichloroethane-d4	0.18		0.2000		91.9	70	130			
Surr: 4-Bromofluorobenzene	0.21		0.2000		105	70	130			
Surr: Dibromofluoromethane	0.20		0.2000		98.1	70	130			
Surr: Toluene-d8	0.19		0.2000		96.1	70	130			

Sample ID **lcs-35633**	SampType: **LCS**	TestCode: **Volatiles by 8260B/1311**
Client ID: **LCSS**	Batch ID: **35633**	RunNo: **48003**
Prep Date: **12/20/2017**	Analysis Date: **12/22/2017**	SeqNo: **1537977** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.50	0.4000	0	100	70	130			
Chlorobenzene	ND	100	0.4000	0	96.5	70	130			
1,1-Dichloroethene	ND	0.70	0.4000	0	105	67.2	131			
Trichloroethene (TCE)	ND	0.50	0.4000	0	96.9	70	130			
Surr: 1,2-Dichloroethane-d4	0.18		0.2000		91.4	70	130			
Surr: 4-Bromofluorobenzene	0.20		0.2000		100	70	130			
Surr: Dibromofluoromethane	0.19		0.2000		97.5	70	130			
Surr: Toluene-d8	0.19		0.2000		94.7	70	130			

Sample ID **1712a50-001ams**	SampType: **MS**	TestCode: **Volatiles by 8260B/1311**
Client ID: **C-1 Spoils**	Batch ID: **35633**	RunNo: **48003**
Prep Date: **12/20/2017**	Analysis Date: **12/22/2017**	SeqNo: **1537979** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	3.9	0.50	0.3994	3.456	99.4	70	130			E
Chlorobenzene	ND	100	0.3994	0	98.5	70	130			
1,1-Dichloroethene	ND	0.70	0.3994	0	103	70	130			
Trichloroethene (TCE)	ND	0.50	0.3994	0	96.7	70	130			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1712A50**

09-Jan-18

Client: Safety & Environmental Solutions

Project: Holly Crouch 8" Line

Sample ID **1712a50-001ams**	SampType: **MS**	TestCode: **Volatiles by 8260B/1311**
Client ID: **C-1 Spoils**	Batch ID: **35633**	RunNo: **48003**
Prep Date: **12/20/2017**	Analysis Date: **12/22/2017**	SeqNo: **1537979** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	0.18		0.1997		92.4	70	130			
Surr: 4-Bromofluorobenzene	0.20		0.1997		103	70	130			
Surr: Dibromofluoromethane	0.19		0.1997		96.8	70	130			
Surr: Toluene-d8	0.19		0.1997		95.1	70	130			

Sample ID **1712a50-001amsd**	SampType: **MSD**	TestCode: **Volatiles by 8260B/1311**
Client ID: **C-1 Spoils**	Batch ID: **35633**	RunNo: **48003**
Prep Date: **12/20/2017**	Analysis Date: **12/22/2017**	SeqNo: **1537980** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	3.7	0.50	0.3994	3.456	71.1	70	130	2.97	20	E
Chlorobenzene	ND	100	0.3994	0	94.4	70	130	0	20	
1,1-Dichloroethene	ND	0.70	0.3994	0	98.6	70	130	0	20	
Trichloroethene (TCE)	ND	0.50	0.3994	0	93.9	70	130	0	20	
Surr: 1,2-Dichloroethane-d4	0.19		0.1997		94.2	70	130	0	0	
Surr: 4-Bromofluorobenzene	0.20		0.1997		102	70	130	0	0	
Surr: Dibromofluoromethane	0.19		0.1997		96.3	70	130	0	0	
Surr: Toluene-d8	0.19		0.1997		95.6	70	130	0	0	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1712A50**

09-Jan-18

Client: Safety & Environmental Solutions

Project: Holly Crouch 8" Line

Sample ID **MB-35654**	SampType: **MBLK**	TestCode: **EPA Method 8270C TCLP**
Client ID: **PBS**	Batch ID: **35654**	RunNo: **47959**
Prep Date: **12/21/2017**	Analysis Date: **12/21/2017**	SeqNo: **1536537** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	ND	200								
3+4-Methylphenol	ND	200								
Phenol	ND	200								
2,4-Dinitrotoluene	ND	0.13								
Hexachlorobenzene	ND	0.13								
Hexachlorobutadiene	ND	0.50								
Hexachloroethane	ND	3.0								
Nitrobenzene	ND	2.0								
Pentachlorophenol	ND	100								
Pyridine	ND	5.0								
2,4,5-Trichlorophenol	ND	400								
2,4,6-Trichlorophenol	ND	2.0								
Cresols, Total	ND	200								
Surr: 2-Fluorophenol	0.12		0.2000		57.9	18	75.1			
Surr: Phenol-d5	0.091		0.2000		45.6	15	67.2			
Surr: 2,4,6-Tribromophenol	0.17		0.2000		85.0	34.4	99.1			
Surr: Nitrobenzene-d5	0.093		0.1000		93.1	31.3	114			
Surr: 2-Fluorobiphenyl	0.088		0.1000		87.6	23.6	105			
Surr: 4-Terphenyl-d14	0.060		0.1000		60.3	38.2	81.5			

Sample ID **lcs-35654**	SampType: **LCS**	TestCode: **EPA Method 8270C TCLP**
Client ID: **LCSS**	Batch ID: **35654**	RunNo: **47959**
Prep Date: **12/21/2017**	Analysis Date: **12/21/2017**	SeqNo: **1536538** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.092	0.010	0.1000	0	91.6	47.8	99.2			
3+4-Methylphenol	0.19	0.010	0.2000	0	97.5	41.5	118			
2,4-Dinitrotoluene	0.075	0.010	0.1000	0	75.3	44.4	81			
Hexachlorobenzene	0.097	0.010	0.1000	0	97.1	49.5	91.6			S
Hexachlorobutadiene	0.083	0.010	0.1000	0	82.6	38.6	93			
Hexachloroethane	0.074	0.010	0.1000	0	73.8	39.4	79.9			
Nitrobenzene	0.099	0.010	0.1000	0	99.3	47.4	96.2			S
Pentachlorophenol	0.075	0.010	0.1000	0	75.3	39.4	79.9			
Pyridine	0.054	0.010	0.1000	0	54.1	15	79.9			
2,4,5-Trichlorophenol	0.097	0.010	0.1000	0	96.8	47.4	118			
2,4,6-Trichlorophenol	0.096	0.010	0.1000	0	96.0	47.4	101			
Cresols, Total	0.29	0.010	0.3000	0	95.5	44.1	111			
Surr: 2-Fluorophenol	0.15		0.2000		75.2	18	75.1			S
Surr: Phenol-d5	0.12		0.2000		58.7	15	67.2			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1712A50**

09-Jan-18

Client: Safety & Environmental Solutions

Project: Holly Crouch 8" Line

Sample ID	**lcs-35654**	SampType:	**LCS**	TestCode:	**EPA Method 8270C TCLP**					
Client ID:	**LCSS**	Batch ID:	**35654**	RunNo:	**47959**					
Prep Date:	**12/21/2017**	Analysis Date:	**12/21/2017**	SeqNo:	**1536538**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 2,4,6-Tribromophenol	0.21		0.2000		107	34.4	99.1			S
Surr: Nitrobenzene-d5	0.10		0.1000		103	31.3	114			
Surr: 2-Fluorobiphenyl	0.092		0.1000		92.4	23.6	105			
Surr: 4-Terphenyl-d14	0.067		0.1000		66.7	38.2	81.5			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1712A50**

09-Jan-18

Client: Safety & Environmental Solutions

Project: Holly Crouch 8" Line

Sample ID	**MB-35707**	SampType:	**MBLK**	TestCode:	**MERCURY, TCLP**					
Client ID:	**PBW**	Batch ID:	**35707**	RunNo:	**48076**					
Prep Date:	**12/26/2017**	Analysis Date:	**12/27/2017**	SeqNo:	**1541029**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID	**LCS-35707**	SampType:	**LCS**	TestCode:	**MERCURY, TCLP**					
Client ID:	**LCSW**	Batch ID:	**35707**	RunNo:	**48076**					
Prep Date:	**12/26/2017**	Analysis Date:	**12/27/2017**	SeqNo:	**1541030**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	102	80	120			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1712A50**

09-Jan-18

Client: Safety & Environmental Solutions

Project: Holly Crouch 8" Line

Sample ID	**MB-35704**	SampType:	**MBLK**	TestCode:	**EPA Method 6010B: TCLP Metals**					
Client ID:	**PBW**	Batch ID:	**35704**	RunNo:	**48057**					
Prep Date:	**12/26/2017**	Analysis Date:	**12/28/2017**	SeqNo:	**1540344**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								
Cadmium	ND	1.0								
Chromium	ND	5.0								
Silver	ND	5.0								

Sample ID	**LCS-35704**	SampType:	**LCS**	TestCode:	**EPA Method 6010B: TCLP Metals**					
Client ID:	**LCSW**	Batch ID:	**35704**	RunNo:	**48057**					
Prep Date:	**12/26/2017**	Analysis Date:	**12/28/2017**	SeqNo:	**1540345**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	89.3	80	120			
Cadmium	ND	1.0	0.5000	0	116	80	120			
Silver	ND	5.0	0.1000	0	119	80	120			

Sample ID	**LCS-35704**	SampType:	**LCS**	TestCode:	**EPA Method 6010B: TCLP Metals**					
Client ID:	**LCSW**	Batch ID:	**35704**	RunNo:	**48057**					
Prep Date:	**12/26/2017**	Analysis Date:	**12/28/2017**	SeqNo:	**1540360**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	ND	5.0	0.5000	0	93.5	80	120			

Sample ID	**MB-35704**	SampType:	**MBLK**	TestCode:	**EPA Method 6010B: TCLP Metals**					
Client ID:	**PBW**	Batch ID:	**35704**	RunNo:	**48093**					
Prep Date:	**12/26/2017**	Analysis Date:	**12/29/2017**	SeqNo:	**1542137**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	100								
Lead	ND	5.0								
Selenium	ND	1.0								

Sample ID	**LCS-35704**	SampType:	**LCS**	TestCode:	**EPA Method 6010B: TCLP Metals**					
Client ID:	**LCSW**	Batch ID:	**35704**	RunNo:	**48093**					
Prep Date:	**12/26/2017**	Analysis Date:	**12/29/2017**	SeqNo:	**1542138**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	100	0.5000	0	103	80	120			
Lead	ND	5.0	0.5000	0	86.8	80	120			
Selenium	ND	1.0	0.5000	0	147	80	120			S

Qualifiers:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: Safety Env Solutions | Work Order Number: 1712A50 | RcptNo: 1

Received By: **Isaiah Ortiz** 12/16/2017 9:00:00 AM

Completed By: **Michelle Garcia** 12/18/2017 3:20:16 PM

Reviewed By: 12/18/17

Chain of Custody

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

Log In

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

Special Handling (if applicable)

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

Person Notified:		Date	
By Whom:		Via:	☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:			
Client Instructions:			

17. Additional remarks:

18. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.9	Good	Yes			

Chain-of-Custody Record

Client: Safety & Environmental Solution

Mailing Address: 703 E. Clinton Hobbs NM 88240

Phone #: 575-397-0510

email or Fax#:

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

Accreditation
☐ NELAP ☐ Other

☐ EDD (Type)

Turn-Around Time:
☑ Standard ☐ Rush

Project Name: Holly Crouch 8" Line

Project #:

Project Manager: Bob Allen

Sampler:

On Ice: ☑ Yes ☐ No

Sample Temperature: 0.9

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	TCLP + RCT				Air Bubbles (Y or N)
12/15	0915	S	C-1 Spoils	6	Iced	1712A50 001												X				

Date: 12/15 Time: 1500 Relinquished by:

Received by: I. Ort Date: 12/16/17 Time: 09:00

Date: Time: Relinquished by:

Received by: Date: Time:

Remarks:

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

Appendix D
Site Photos

Holly Energy Partners
8 inch Crouch Line
Photos-12/14/2017