



APPROVED

By Olivia Yu at 7:13 am, Jun 26, 2017

201 Main Street, Suite 1360 ♦ Fort Worth, TX 76102 ♦ (817) 296w 1730

June 26, 2017

Ms. Yu

NMOCD District 1

1625 N. French Drive

Hobbs, NM 88240

Dear Ms. Yu:

NMOCD approves of the delineation and the proposed remediation plan with these conditions:

- 1) Remediate soil until < 600 mg/kg chloride levels.
- 2) Laboratory analyses for chloride levels in remediated soil using Method 300 and SM4500CL.
- 3) A minimum of 1 composite sample of 5 sample spots every 50 yd³ must be tested by a laboratory for BTEX (Method 8260 or 8021), TPH extended (Method 8015); and chlorides (Method 300 and SM4500CL).
- 4) Backfilling of remediated soil is not permitted until NMOCD receives confirmation of no groundwater, environmental or human harm of chemicals used in remediation process.

RXSoil, Inc. on behalf of Ruth Co Oil Co. LLC is pleased to submit the attached Corrective Action Work Plan summarizing the planned on-site soil remediation of produced water impacted and crude oil distressed soil at the Ruth Co Oil Co. LLC SWD site located in Lea County, New Mexico. The purpose of this work plan is to obtain approval from the New Mexico Oil Conservation Division (NMOCD) for remediation of the release that occurred on November 6, 2016.

RXSoil, Inc. and Safety and Environmental Solutions, Inc. (SESI) responded to assess and delineate the production fluids release associated with the Ruth Co. SWD location. The release was initially reported to the NMOCD by Joshua Ruth on November 7, 2016 and was a result of a lightning strike. Results of the assessment and delineation follow in the attached report.

Submitted by: RXSoil, Inc.

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Ruth Co SWD
1RP-4572-0

32°41'49.94"N 103° 5'33.15"W

Action Plan Proposal

Section 30, Township 18S, Range 39E

June 26, 2017

Prepared for:

Olivia Yu

Oil Conservation Division – District I 1625 N. French Drive
P.O. Box 1980 Hobbs, New Mexico 88240

**Prepared by: RXSoil, Inc. &
Safety & Environmental Solutions, Inc.**

RXSOIL



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I. Introduction

On behalf of Ruth Co. Oil LLC, RXSoil, Inc. has prepared this report that describes the assessment and initial delineation, performed by Safety and Environmental Solutions, Inc. (SESI), of the release associated with the Ruth Co. SWD site located in in Section 30, Township 18S, Range 39E, Lea County, New Mexico. Figure 1 illustrates the vicinity and location of the site. According to the C-141: As a result, from a lightning strike, fluids were released from a gun barrel on location. This document includes the proposed Work Plan to address the release, refer to Figure 2 for proposed work plan efforts.

II. Site Assessment and Initial Results

According the New Mexico Office of the State Engineer website, there is no record of groundwater in the immediate vicinity, but that average depth to water for the area is 76' bgs. (Appendix F)

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 1000 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

From November 16, 2016 to December 9, 2016, Dave Boyer, SESI, was on location multiple times. He then returned on May 25, 2017 to perform deeper tests per NMOCD request. The latest lab data is prioritized first. The site and impacted areas are shown via satellite imagery, refer to Figure 3 and 4. 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 represented in the tables below, please refer to Appendix A and B:

III. Soil Remediation Work Plan

On site remediation will be used to address the site contamination. RXSoil will supervise the excavation of affected soils with approval from area utilities owners via 811 and NMOCD. RXSoil will continuously guide the excavation activities by collecting soil samples for field screening. Excavation will occur to depths sufficient to delineate the plume by NMOCD District 1 Standards. The entire area of impact will be excavated to a below threshold value pre-approved by the District 1 NMOCD and confirmed through certified third-party, Cardinal Laboratories, for testing. Soil samples will be collected throughout the project. Discrete soil samples will be taken then compiled together creating composites. These composites will be taken from various rows, columns, and different depths within the grid creating a 3D representation of the profile. Each row will be collected separately then sent to Cardinal laboratories and tested for Chlorides using the Method SM4500Cl-B and TPH (total petroleum hydrocarbons) including GRO (6-10), DRO (10-28), MRO (28-36). Final closure samples will include Method 300.0 as well per request NMOCD. Samples A, B, C and D refer to these individual rows.

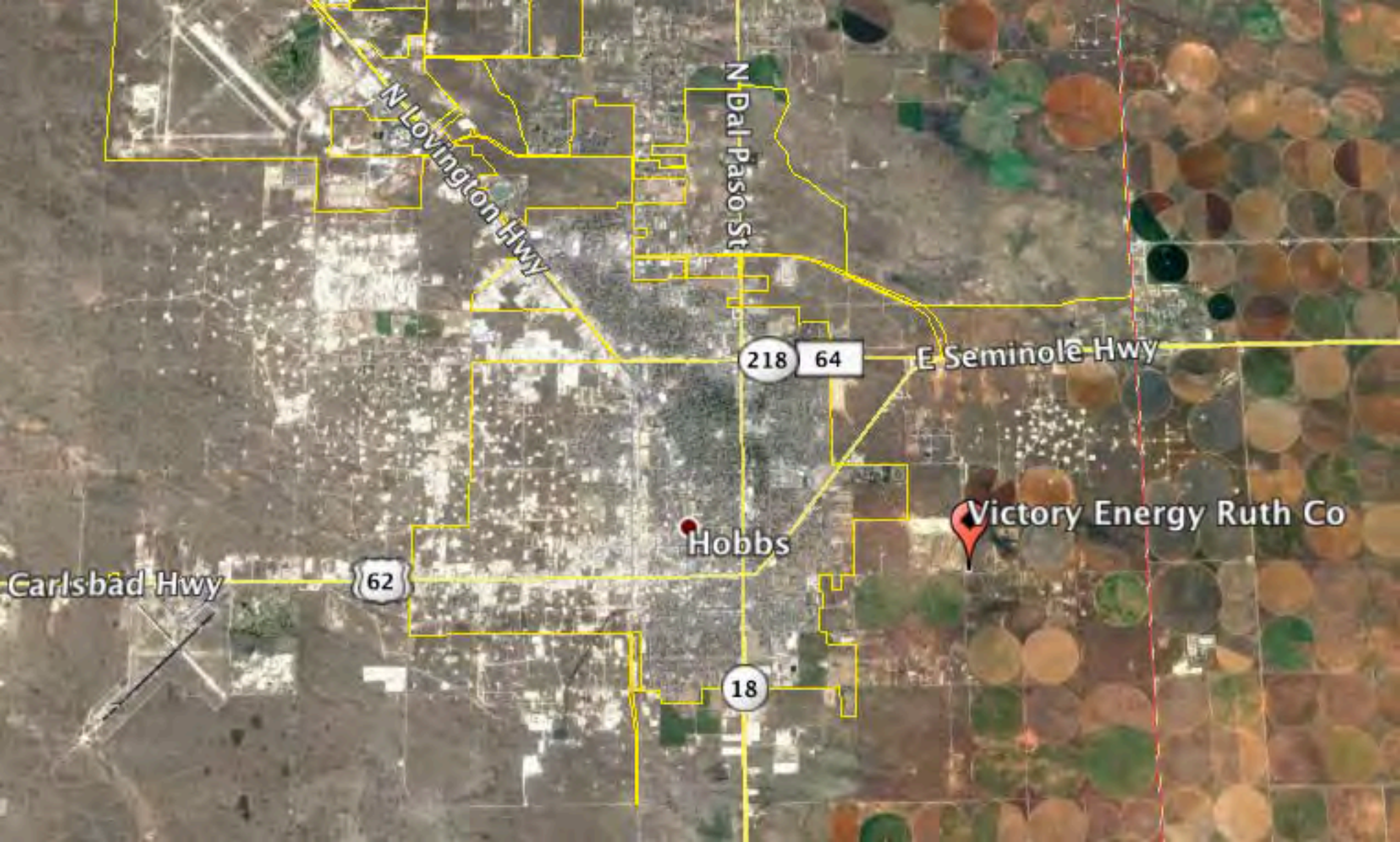
The impacted soil will be placed into an RXSoil proprietary engineered containment infrastructure and cleaned utilizing specialized delivery systems to effectively treat the soil. No harmful or hazardous chemicals are used in the RXSoil process. Estimated water usage will be less than ~5,000 bbl of fresh water will be used throughout the entire process. Effluent recovered from the treatment process will be pumped to an above ground holding tank for proper disposal at an NMOCD District 1 approved SWD or sold to other Producers for a secondary industrial use in their Drilling and/or Frac Operations.

Final soil samples will be collected and tested at the end of treatment to confirm impacted soil has been remediated to required chloride and TPH concentrations. Once soil health is restored to NMOCD District 1 Standards, the soil will be placed back into excavated area and the site will be returned to original grade and stabilized.

IV. Conclusions and Recommendations

NMOCD Guidelines for Remediation of Leaks, Spills, and Releases have established the following action levels for constituents of concern for a site ranking of 10: 10 ppm (mg/kg) Benzene, 50 ppm total BTEX, and 1000 ppm TPH. The release consisted of produced water and crude oil as confirmed during the initial sample testing. Remediation of chloride constituent requirements will be determined based on background samples.

FIGURE 1
Vicinity Map



N Lovington Hwy

N Dal Paso St

218 64

E Seminole Hwy

Carlsbad Hwy

62

Hobbs

18

Victory Energy Ruth Co

FIGURE 2
Site Map



Excavate 4' deep

This is an aerial photograph of an industrial site, likely a refinery or chemical plant, with several buildings and a large storage tank visible. The map is overlaid with red-shaded regions indicating areas for excavation or scraping. The labels are in white text. A red location pin is placed near the 'Victory Energy Ruth Co' label. The map is framed by a red border.

Excavate
4' deep

Scrape 4"-5"

Scrape 2"-3"

Excavate
4' deep

Victory Energy Ruth Co

Excavate
3-4' deep

© 2016 Google

FIGURE 3
Sample point map
December 2016

Bore Hole
Sample Point
Oil Sample
High in Chlorides
High in TPH

Sample Point # 1		
12/13/2016	CL	TPH
Depth ft'	ppm	ppm
SP-S'	880	<10.0

Bore Hole # 5		
12/13/2016	CL	TPH
Depth ft'	ppm	ppm
BH-1'	32	<10.0
BH-2'	32	
BH-3'	48	
BH-4'	48	
BH-8'	64	

Bore Hole # 4		
12/13/2016	CL	TPH
Depth ft'	ppm	ppm
BH-1'	96	<10.0
BH-2'	16	
BH-3'	16	
BH-4'	16	
BH-8'	32	

Bore Hole # 3		
12/13/2016	CL	TPH
Depth ft'	ppm	ppm
BH-1'	80	<10.0
BH-2'	16	
BH-3'	16	
BH-4'	64	
BH-8'	32	

Bore Hole # 2		
12/13/2016	CL	TPH
Depth ft'	ppm	ppm
BH-2'	64	<10.0
BH-3'	80	
BH-4'	128	
BH-8'	96	

Bore Hole # 6		
12/13/2016	CL	TPH
Depth ft'	ppm	ppm
BH-1'	688	<10.0
BH-2'	400	
BH-3'	192	
BH-4'	80	
BH-8'	32	

Bore Hole # 7		
12/13/2016	CL	TPH
Depth ft'	ppm	ppm
BH-1'	480	<10.0
BH-2'	64	
BH-3'	16	
BH-4'	32	
BH-8'	<16	

Bore Hole # 8		
12/13/2016	CL	TPH
Depth ft'	ppm	ppm
BH-1'	1090	<10.0
BH-2'	64	
BH-3'	144	
BH-4'	144	
BH-8'	<16	

Bore Hole # 14		
12/13/2016	CL	TPH
Depth ft'	ppm	ppm
BH-1'	96	64.1
BH-2'	48	
BH-3'	48	
BH-4'	48	

Bore Hole # 13		
12/13/2016	CL	TPH
Depth ft'	ppm	ppm
BH-1'	80	<10.0
BH-2'	16	
BH-3'	<16	
BH-4'	<16	

Sample Point # 2		
12/13/2016	CL	TPH
Depth ft'	ppm	ppm
SP-S'	208	47.7

Oil Sample # 3		
12/13/2016	CL	TPH
Depth ft'	ppm	ppm
OS-S'	6660	12,041

Oil Sample # 2		
12/13/2016	CL	TPH
Depth ft'	ppm	ppm
OS-S'	4000	4,280

Sample Point # 3		
12/13/2016	CL	TPH
Depth ft'	ppm	ppm
SP-S'	224	<10.0

Oil Sample # 1		
12/13/2016	CL	TPH
Depth ft'	ppm	ppm
OS-S'	4080	19,423

Sample Point # 4		
12/13/2016	CL	TPH
Depth ft'	ppm	ppm
SP-S'	32	<10.0

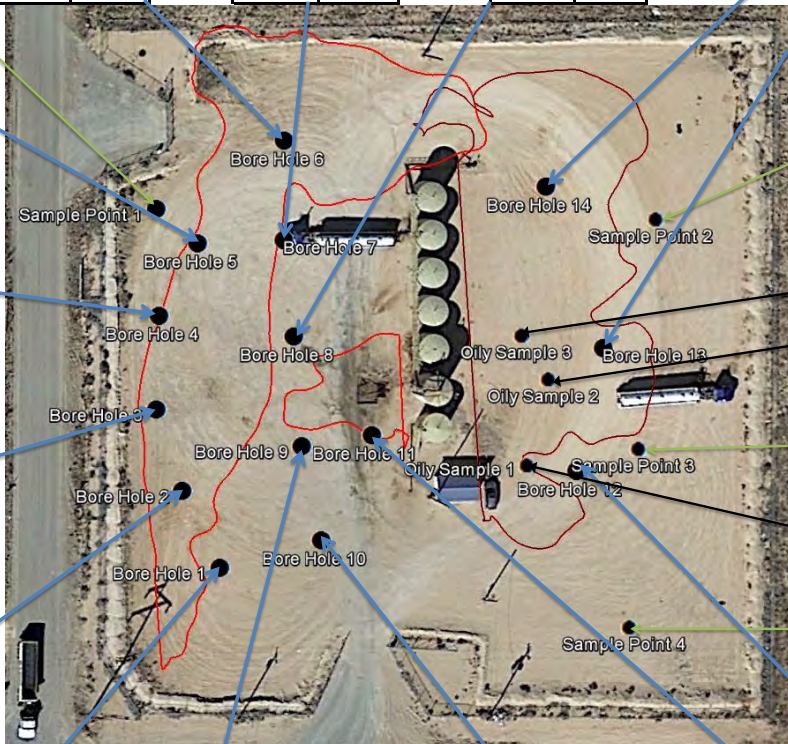
Bore Hole # 12		
12/13/2016	CL	TPH
Depth ft'	ppm	ppm
BH-1'	48	<10.0
BH-2'	32	
BH-3'	32	
BH-4'	32	

Bore Hole # 1		
12/13/2016	CL	TPH
Depth ft'	ppm	ppm
BH-1'	<16	<10.0
BH-2'	<16	
BH-3'	<16	
BH-4'	32	
BH-8'	48	

Bore Hole # 9		
12/13/2016	CL	TPH
Depth ft'	ppm	ppm
BH-1'	1250	<10.0
BH-2'	96	
BH-3'	80	
BH-4'	48	
BH-8'	16	

Bore Hole # 10		
12/13/2016	CL	TPH
Depth ft'	ppm	ppm
BH-1'	592	<10.0
BH-2'	48	
BH-3'	64	
BH-4'	128	
BH-8'	32	

Bore Hole # 11		
12/13/2016	CL	TPH
Depth ft'	ppm	ppm
BH-1'	2560	496
BH-2'	832	13.5
BH-3'	240	
BH-4'	272	



APPENDIX A
Lab Data Table
December 2016

Soil Sample Results: Cardinal Laboratories 12-16-16

Sample ID	Chlorides (mg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)	TPH EXT DRO (mg/kg)	Bottom of caliche pad/ top of sand (ft.)	Bottom of underlying sand/ top of native caliche (ft.)
BH-1, 0.9-1.1'	<16.0	<10.0	<10.0	<10.0	0.6	5.05
BH-1, 1.9-2.1'	<16.0					
BH-1, 2.7-2.9'	<16.0					
BH-1, 3.5-4'	32.0					
BH-1, 8'	48.0					
BH-2, 0.9-1.1'	32.0	<10.0	<10.0	<10.0	0.4	6.1
BH-2, 1.9-2.1'	64.0					
BH-2, 2.7-2.9'	80.0					
BH-2, 3.5-4'	128					
BH-2, 8'	96.0					
BH-3, 0.9-1.1'	80.0	<10.0	<10.0	<10.0	0.5	N/A
BH-3, 1.9-2.1'	16.0					
BH-3, 2.8-3.0'	16.0					
BH-3, 3.5-4'	64.0					
BH-3, 8'	32.0					
BH-4, 0.9-1.1'	96.0	<10.0	<10.0	<10.0	0.5	7.0
BH-4, 1.9-2.1'	16.0					
BH-4, 2.9-3.1'	16.0					
BH-4, 3.5-4'	16.0					
BH-4, 8'	32.0					
BH-5, 0.9-1.1'	32.0	<10.0	<10.0	<10.0	1.4	6.1
BH-5, 1.9-2.1'	32.0					
BH-5, 2.9-3.1'	48.0					
BH-5, 3.5-4'	48.0					
BH-5, 8'	64.0					
BH-6, 0.9-1.1'	688	<10.0	<10.0	<10.0	1.05	6.65
BH-6, 1.9-2.1'	400					
BH-6, 2.9-3.1'	192					
BH-6, 3.5-4'	80.0					
BH-6, 8'	32.0					
BH-7, 0.9-1.1'	480	<10.0	<10.0	<10.0	1.0	6.1
BH-7, 1.9-2.1'	64.0					
BH-7, 2.9-3.1'	16.0					
BH-7, 3.5-4'	32.0					
BH-7, 8'	<16.0					
BH-8, 0.9-1.1'	1,090	<10.0	<10.0	<10.0	1.3	All sand to 8'
BH-8, 1.9-2.1'	64.0					
BH-8, 2.9-3.1'	144					
BH-8, 3.5-4'	144					
BH-8, 8'	<16.0					
BH-9, 0.9-1.1'	1,250	<10.0	<10.0	<10.0	1.4	5.6
BH-9, 1.9-2.1'	96.0					
BH-9, 2.9-3.1'	80.0					

BH-9, 3.5-4'	48.0					
BH-9, 8'	16.0					
BH-10, 0.9-1.1'	592	<10.0	<10.0	<10.0	0.75	6.15
BH-10, 1.9-2.1'	48.0					
BH-10, 2.9-3.1'	64.0					
BH-10, 3.5-4'	128					
BH-10, 8'	32.0					
BH-11, 0.8-1.2'	2,560	<10.0	348	148	1.2	N/A
BH-11, 1.0-2.1'	832	<10.0	<10.0	13.5		
BH-11, 2.9-3.1'	240					
BH-11, 3.5-4.0'	272					
BH-11, 8'	N/T					
BH-12, 0.9-1.1'	48.0	<10.0	<10.0	<10.0	0.7	5.95
BH-12, 1.9-2.1'	32.0					
BH-12, 2.8-3.0'	32.0					
BH-12, 3.5-4.0'	32.0					
BH-12, 8'	N/T					
BH-13, 0.9-1.1'	80.0	<10.0	<10.0	<10.0	0.8	5.9
BH-13, 1.9-2.1'	16.0					
BH-13, 2.8-3.0'	<16.0					
BH-13, 3.5-4.0'	<16.0					
BH-13, 8'	N/T					
BH-14, 0.9-1.1'	96.0	<10.0	28.0	36.1	1.1	All sand to 8'
BH-14, 1.9-2.1'	48.0					
BH-14, 2.9-3.1'	48.0					
BH-14, 3.5-4.0'	48.0					
BH-14, 8'	N/T					
S-1, 0-0.85'	880	<10.0	<10.0	<10.0		
S-2, 0-0.55'	208	<10.0	26.7	21.0		
S-3, 0-0.55'	224	<10.0	<10.0	<10.0		
S-4, 0-0.55'	32.0	<10.0	<10.0	<10.0		
OS-1, 0-0.5'	4,080	493	13,500	5,430		
OS-2, 0-0.5'	4,000	<100	2,980	1,300		
OS-3, 0-0.5'	6,660	131	7,980	3,930		

N/T – Not tested

N/A – Info not available

FIGURE 4
Sample map
May 2017



APPENDIX B
Lab Data Table
May 2017

Soil Sample Results: Cardinal Laboratories April-May, 2017

Sample ID	Chlorides (mg/kg)	Benzene (mg/kg)	Total BTEX (mg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)	TPH EXT DRO (mg/kg)
BH-1, 1'	16.0	<0.050	<0.300	<10.0	<10.0	<10.0
BH-1, 2'	16.0	<0.050	<0.300	<10.0	<10.0	<10.0
BH-1, 3'	32.0	<0.050	<0.300	<10.0	<10.0	<10.0
BH-1, 4'	32.0	<0.050	<0.300	<10.0	<10.0	<10.0
BH-1, 5'	32.0					
BH-1, 6'	32.0					
BH-1, 7'	80.0					
BH-1, 8'	160	<0.050	<0.300	<10.0	<10.0	<10.0
BH-1, 9'	160	<0.050	<0.300	<10.0	<10.0	<10.0
BH-2, 1'	496	<0.050	<0.300	<10.0	<10.0	<10.0
BH-2, 2'	384	<0.050	<0.300	<10.0	<10.0	<10.0
BH-2, 3'	288	<0.050	<0.300	<10.0	<10.0	<10.0
BH-2, 4'	64.0	<0.050	<0.300	<10.0	<10.0	<10.0
BH-2, 5'	80.0					
BH-2, 6-9'	N/A	N/A	N/A	N/A	N/A	N/A
BH-2, 10'	128					
BH-2, 11'	128					
BH-2, 12'	160	<0.050	<0.300	<10.0	<10.0	<10.0
BH-2, 13'	160					
BH-2, 14	160					
BH-2, 15'	144	<0.050	<0.300	<10.0	<10.0	<10.0
BH-3, 2'	160	<0.050	<0.300	<10.0	<10.0	<10.0
BH-3, 3'	288	<0.050	<0.300	<10.0	<10.0	<10.0
BH-3, 4'	336	<0.050	<0.300	<10.0	<10.0	<10.0
BH-3, 5'	784					
BH-3, 6'	2,240					
BH-3, 7'	2,720					
BH-3, 8'	3,080	<0.050	<0.300	<10.0	<10.0	<10.0
BH-3, 8.5'	2,480	<0.050	<0.300	<10.0	<10.0	<10.0
BH-4, 1'	416	<0.050	<0.300	<10.0	<10.0	<10.0
BH-4, 2'	896	<0.050	<0.300	<10.0	<10.0	<10.0
BH-4, 3'	832	<0.050	<0.300	<10.0	<10.0	<10.0
BH-4, 4'	2,800	<0.050	<0.300	<10.0	<10.0	<10.0
BH-4, 5'	5,760					
BH-4, 6'	880					
BH-4, 7'	112					
BH-4, 8'	80.0	<0.050	<0.300	<10.0	<10.0	<10.0
BH-4, 9'	32.0					
BH-4, 10'	80.0					
BH-4, 11'	32.0					
BH-4, 12'	48.0	<0.050	<0.300	<10.0	<10.0	<10.0
BH-4, 13'	48.0	<0.050	<0.300	<10.0	<10.0	<10.0

Sample ID	Chlorides (mg/kg)	Benzene (mg/kg)	Total BTEX (mg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)	TPH EXT DRO (mg/kg)
BH-5, 2'	10,300	<0.050	<0.300	<10.0	<10.0	<10.0
BH-5, 3'	672	<0.050	<0.300	<10.0	<10.0	<10.0
BH-5, 4'	912	<0.050	<0.300	<10.0	<10.0	<10.0
BH-5, 6'	1,800					
BH-5, 7'	1,040					
BH-5, 8'	368	<0.050	<0.300	<10.0	<10.0	<10.0
BH-5, 9-12'	N/A	N/A	N/A	N/A	N/A	N/A
BH-5, 13'	<16.0	<0.050	<0.300	<10.0	<10.0	<10.0
BH-5, 14'	<16.0	<0.050	<0.300	<10.0	<10.0	<10.0
BH-6, 2'	160	<0.050	<0.300	<10.0	<10.0	<10.0
BH-6, 3'	144	<0.050	<0.300	<10.0	<10.0	<10.0
BH-6, 4'	448	<0.050	<0.300	<10.0	<10.0	<10.0
BH-6, 6'	224					
BH-6, 7'	1,250					
BH-6, 8'	32.0	<0.050	<0.300	<10.0	<10.0	<10.0
BH-6, 9'	32.0					
BH-6, 10'	<16.0					
BH-6, 10.8'	16.0	<0.050	<0.300	<10.0	<10.0	<10.0
BH-7, 5'	272	<0.050	<0.300	<10.0	<10.0	<10.0
BH-7, 10'	1,120	<0.050	<0.300	<10.0	<10.0	<10.0
BH-7, 25'	352	<0.050	<0.300	<10.0	<10.0	<10.0
BH-7, 30'	240	<0.050	<0.300	<10.0	<10.0	<10.0
BH-7, 35'	80.0	<0.050	<0.300	<10.0	<10.0	<10.0
BH-8, 4-6'	448	<0.050	<0.300	<10.0	16.2	<10.0
BH-8, 9-11'	32.0	<0.050	<0.300	<10.0	<10.0	<10.0
BH-8, 15'	16.0	<0.050	<0.300	<10.0	<10.0	<10.0
BH-8, 24-26'	32.0	<0.050	<0.300	<10.0	<10.0	<10.0

Notes:

Boreholes BH-1 – BH-6 sampled with Geoprobe, April 21, 2017

Boreholes BH-7 – BH-8 sampled with Foremost-Mobile hollow stem auger, May 18, 2017

Borehole BH-7 located adjacent to BH-3, BH-8 located adjacent to BH-5.

N/A – Info not available

APPENDIX C
Lab Data from
May 2017



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

May 25, 2017

Bob Allen

Safety & Environmental Solutions

703 East Clinton

Hobbs, NM 88240

RE: RXS-16-005

Enclosed are the results of analyses for samples received by the laboratory on 05/19/17 16:50.

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.

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: 05/19/2017
Reported: 05/25/2017
Project Name: RXS-16-005
Project Number: RXS-16-005
Project Location: NONE GIVEN

Sampling Date: 05/18/2017
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: BH - 7 5' (H701350-01)

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	05/23/2017	ND	1.88	94.2	2.00	0.168	
Toluene*	<0.050	0.050	05/23/2017	ND	1.86	93.2	2.00	0.197	
Ethylbenzene*	<0.050	0.050	05/23/2017	ND	1.96	97.9	2.00	0.372	
Total Xylenes*	<0.150	0.150	05/23/2017	ND	5.44	90.7	6.00	0.522	
Total BTX	<0.300	0.300	05/23/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 97.8 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	272	16.0	05/22/2017	ND	416	104	400	3.77	

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	05/22/2017	ND	186	93.0	200	5.75	
DRO >C10-C28	<10.0	10.0	05/22/2017	ND	193	96.4	200	7.87	
EXT DRO >C28-C36	<10.0	10.0	05/22/2017	ND					

Surrogate: 1-Chlorooctane 80.8 % 28.3-164

Surrogate: 1-Chlorooctadecane 85.3 % 34.7-157

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 Received: 05/19/2017
 Reported: 05/25/2017
 Project Name: RXS-16-005
 Project Number: RXS-16-005
 Project Location: NONE GIVEN

 Sampling Date: 05/18/2017
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: BH - 7 10' (H701350-02)

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	05/23/2017	ND	1.88	94.2	2.00	0.168	
Toluene*	<0.050	0.050	05/23/2017	ND	1.86	93.2	2.00	0.197	
Ethylbenzene*	<0.050	0.050	05/23/2017	ND	1.96	97.9	2.00	0.372	
Total Xylenes*	<0.150	0.150	05/23/2017	ND	5.44	90.7	6.00	0.522	
Total BTX	<0.300	0.300	05/23/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 98.3 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1120	16.0	05/22/2017	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	05/22/2017	ND	186	93.0	200	5.75	
DRO >C10-C28	<10.0	10.0	05/22/2017	ND	193	96.4	200	7.87	
EXT DRO >C28-C36	<10.0	10.0	05/22/2017	ND					

Surrogate: 1-Chlorooctane 90.8 % 28.3-164

Surrogate: 1-Chlorooctadecane 96.3 % 34.7-157

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Received: 05/19/2017
Reported: 05/25/2017
Project Name: RXS-16-005
Project Number: RXS-16-005
Project Location: NONE GIVEN

Sampling Date: 05/18/2017
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: BH - 7 15' (H701350-03)

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	05/23/2017	ND	1.88	94.2	2.00	0.168	
Toluene*	<0.050	0.050	05/23/2017	ND	1.86	93.2	2.00	0.197	
Ethylbenzene*	<0.050	0.050	05/23/2017	ND	1.96	97.9	2.00	0.372	
Total Xylenes*	<0.150	0.150	05/23/2017	ND	5.44	90.7	6.00	0.522	
Total BTEx	<0.300	0.300	05/23/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 98.7 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	528	16.0	05/22/2017	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	05/22/2017	ND	186	93.0	200	5.75	
DRO >C10-C28	<10.0	10.0	05/22/2017	ND	193	96.4	200	7.87	
EXT DRO >C28-C36	<10.0	10.0	05/22/2017	ND					

Surrogate: 1-Chlorooctane 88.0 % 28.3-164

Surrogate: 1-Chlorooctadecane 91.9 % 34.7-157

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Received: 05/19/2017
Reported: 05/25/2017
Project Name: RXS-16-005
Project Number: RXS-16-005
Project Location: NONE GIVEN

Sampling Date: 05/18/2017
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: BH - 7 25' (H701350-04)

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	05/23/2017	ND	1.88	94.2	2.00	0.168	
Toluene*	<0.050	0.050	05/23/2017	ND	1.86	93.2	2.00	0.197	
Ethylbenzene*	<0.050	0.050	05/23/2017	ND	1.96	97.9	2.00	0.372	
Total Xylenes*	<0.150	0.150	05/23/2017	ND	5.44	90.7	6.00	0.522	
Total BTEx	<0.300	0.300	05/23/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 98.9 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	352	16.0	05/22/2017	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	05/22/2017	ND	186	93.0	200	5.75	
DRO >C10-C28	<10.0	10.0	05/22/2017	ND	193	96.4	200	7.87	
EXT DRO >C28-C36	<10.0	10.0	05/22/2017	ND					

Surrogate: 1-Chlorooctane 83.4 % 28.3-164

Surrogate: 1-Chlorooctadecane 87.2 % 34.7-157

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Received: 05/19/2017
Reported: 05/25/2017
Project Name: RXS-16-005
Project Number: RXS-16-005
Project Location: NONE GIVEN

Sampling Date: 05/18/2017
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: BH - 7 30' (H701350-05)

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	05/23/2017	ND	1.88	94.2	2.00	0.168	
Toluene*	<0.050	0.050	05/23/2017	ND	1.86	93.2	2.00	0.197	
Ethylbenzene*	<0.050	0.050	05/23/2017	ND	1.96	97.9	2.00	0.372	
Total Xylenes*	<0.150	0.150	05/23/2017	ND	5.44	90.7	6.00	0.522	
Total BTEx	<0.300	0.300	05/23/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 99.0 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	240	16.0	05/22/2017	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	05/22/2017	ND	186	93.0	200	5.75	
DRO >C10-C28	<10.0	10.0	05/22/2017	ND	193	96.4	200	7.87	
EXT DRO >C28-C36	<10.0	10.0	05/22/2017	ND					

Surrogate: 1-Chlorooctane 84.7 % 28.3-164

Surrogate: 1-Chlorooctadecane 89.6 % 34.7-157

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Received: 05/19/2017
Reported: 05/25/2017
Project Name: RXS-16-005
Project Number: RXS-16-005
Project Location: NONE GIVEN

Sampling Date: 05/18/2017
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: BH - 7 35' (H701350-06)

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	05/23/2017	ND	1.88	94.2	2.00	0.168	
Toluene*	<0.050	0.050	05/23/2017	ND	1.86	93.2	2.00	0.197	
Ethylbenzene*	<0.050	0.050	05/23/2017	ND	1.96	97.9	2.00	0.372	
Total Xylenes*	<0.150	0.150	05/23/2017	ND	5.44	90.7	6.00	0.522	
Total BTEx	<0.300	0.300	05/23/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 98.9 % 72-148

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	05/22/2017	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	05/22/2017	ND	186	93.0	200	5.75	
DRO >C10-C28	<10.0	10.0	05/22/2017	ND	193	96.4	200	7.87	
EXT DRO >C28-C36	<10.0	10.0	05/22/2017	ND					

Surrogate: 1-Chlorooctane 92.5 % 28.3-164

Surrogate: 1-Chlorooctadecane 96.3 % 34.7-157

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Received: 05/19/2017
Reported: 05/25/2017
Project Name: RXS-16-005
Project Number: RXS-16-005
Project Location: NONE GIVEN

Sampling Date: 05/18/2017
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: BH - 8 4-6' (H701350-07)

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	05/23/2017	ND	1.88	94.2	2.00	0.168	
Toluene*	<0.050	0.050	05/23/2017	ND	1.86	93.2	2.00	0.197	
Ethylbenzene*	<0.050	0.050	05/23/2017	ND	1.96	97.9	2.00	0.372	
Total Xylenes*	<0.150	0.150	05/23/2017	ND	5.44	90.7	6.00	0.522	
Total BTEx	<0.300	0.300	05/23/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 98.8 % 72-148

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	448	16.0	05/22/2017	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	05/22/2017	ND	186	93.0	200	5.75	
DRO >C10-C28	16.2	10.0	05/22/2017	ND	193	96.4	200	7.87	
EXT DRO >C28-C36	<10.0	10.0	05/22/2017	ND					

Surrogate: 1-Chlorooctane 91.2 % 28.3-164

Surrogate: 1-Chlorooctadecane 92.8 % 34.7-157

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Bob Allen
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Received: 05/19/2017
Reported: 05/25/2017
Project Name: RXS-16-005
Project Number: RXS-16-005
Project Location: NONE GIVEN

Sampling Date: 05/18/2017
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: BH - 8 9-11' (H701350-08)

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	05/23/2017	ND	1.88	94.2	2.00	0.168	
Toluene*	<0.050	0.050	05/23/2017	ND	1.86	93.2	2.00	0.197	
Ethylbenzene*	<0.050	0.050	05/23/2017	ND	1.96	97.9	2.00	0.372	
Total Xylenes*	<0.150	0.150	05/23/2017	ND	5.44	90.7	6.00	0.522	
Total BTEx	<0.300	0.300	05/23/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 98.2 % 72-148

Chloride, SM4500Cl-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	05/22/2017	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	05/22/2017	ND	186	93.0	200	5.75	
DRO >C10-C28	<10.0	10.0	05/22/2017	ND	193	96.4	200	7.87	
EXT DRO >C28-C36	<10.0	10.0	05/22/2017	ND					

Surrogate: 1-Chlorooctane 83.3 % 28.3-164

Surrogate: 1-Chlorooctadecane 88.0 % 34.7-157

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Fax To: (575) 393-4388

Received: 05/19/2017
Reported: 05/25/2017
Project Name: RXS-16-005
Project Number: RXS-16-005
Project Location: NONE GIVEN

Sampling Date: 05/18/2017
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: BH - 8 15' (H701350-09)

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	05/23/2017	ND	1.88	94.2	2.00	0.168	
Toluene*	<0.050	0.050	05/23/2017	ND	1.86	93.2	2.00	0.197	
Ethylbenzene*	<0.050	0.050	05/23/2017	ND	1.96	97.9	2.00	0.372	
Total Xylenes*	<0.150	0.150	05/23/2017	ND	5.44	90.7	6.00	0.522	
Total BTEx	<0.300	0.300	05/23/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 99.6 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	16.0	16.0	05/22/2017	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	05/22/2017	ND	186	93.0	200	5.75	
DRO >C10-C28	<10.0	10.0	05/22/2017	ND	193	96.4	200	7.87	
EXT DRO >C28-C36	<10.0	10.0	05/22/2017	ND					

Surrogate: 1-Chlorooctane 92.3 % 28.3-164

Surrogate: 1-Chlorooctadecane 98.6 % 34.7-157

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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: 05/19/2017
Reported: 05/25/2017
Project Name: RXS-16-005
Project Number: RXS-16-005
Project Location: NONE GIVEN

Sampling Date: 05/18/2017
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: BH - 8 24-26' (H701350-10)

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	05/23/2017	ND	1.88	94.2	2.00	0.168		
Toluene*	<0.050	0.050	05/23/2017	ND	1.86	93.2	2.00	0.197		
Ethylbenzene*	<0.050	0.050	05/23/2017	ND	1.96	97.9	2.00	0.372		
Total Xylenes*	<0.150	0.150	05/23/2017	ND	5.44	90.7	6.00	0.522		
Total BTEx	<0.300	0.300	05/23/2017	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.5 % 72-148

Chloride, SM4500Cl-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	05/22/2017	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	05/22/2017	ND	186	93.0	200	5.75	
DRO >C10-C28	<10.0	10.0	05/22/2017	ND	193	96.4	200	7.87	
EXT DRO >C28-C36	<10.0	10.0	05/22/2017	ND					

Surrogate: 1-Chlorooctane 89.6 % 28.3-164

Surrogate: 1-Chlorooctadecane 91.2 % 34.7-157

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Celey D. Keene, Lab Director/Quality Manager

Notes and Definitions

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

101 East Marland, Hobbs, NM 88240
(505) 393-2326 Fax (505) 393-2476

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page 1 of 1

Company Name: Safety & Environmental Solutions, Inc.		P.O. #:		BILL TO		ANALYSIS REQUEST	
Project Manager: Bob Allen		City: Hobbs		State: NM Zip: 88240		Company: Same	
Address: 703 East Clinton		Phone #: 575-397-0510		Fax #: 575-393-4388		Attn: RXS-15	
City: Hobbs		State: NM Zip: 88240		Address: RXS-15		City: Hobbs	
Project #: RXS-15-DO5		Project Owner:		State: Zip:		Phone #:	
Project Name:		Project Location:		Fax #:		PRESERV	
Sampler Name: David Boyer		Phone #:		Zip:		SAMPLING	
FOR LAB USE ONLY		Matrix		PRESERV		SAMPLING	
Lab I.D.		Sample I.D.		Matrix		PRESERV	
H101350		BH-7, 5		GROUNDWATER		WASTEWATER	
1		BH-7, 15		SOIL		OIL	
2		BH-7, 25		SLUDGE		OTHER :	
3		BH-7, 35		ACID/BASE:		ICE / COOL	
4		BH-7, 45		OTHER :		DATE	
5		BH-7, 55		DATE		TIME	
6		BH-7, 65		DATE		TIME	
7		BH-7, 75		DATE		TIME	
8		BH-7, 85		DATE		TIME	
9		BH-7, 95		DATE		TIME	
10		BH-7, 105		DATE		TIME	
11		BH-7, 115		DATE		TIME	
12		BH-7, 125		DATE		TIME	
13		BH-7, 135		DATE		TIME	
14		BH-7, 145		DATE		TIME	
15		BH-7, 155		DATE		TIME	
16		BH-7, 165		DATE		TIME	
17		BH-7, 175		DATE		TIME	
18		BH-7, 185		DATE		TIME	
19		BH-7, 195		DATE		TIME	
20		BH-7, 205		DATE		TIME	
21		BH-7, 215		DATE		TIME	
22		BH-7, 225		DATE		TIME	
23		BH-7, 235		DATE		TIME	
24		BH-7, 245		DATE		TIME	
25		BH-7, 255		DATE		TIME	
26		BH-7, 265		DATE		TIME	
27		BH-7, 275		DATE		TIME	
28		BH-7, 285		DATE		TIME	
29		BH-7, 295		DATE		TIME	
30		BH-7, 305		DATE		TIME	
31		BH-7, 315		DATE		TIME	
32		BH-7, 325		DATE		TIME	
33		BH-7, 335		DATE		TIME	
34		BH-7, 345		DATE		TIME	
35		BH-7, 355		DATE		TIME	
36		BH-7, 365		DATE		TIME	
37		BH-7, 375		DATE		TIME	
38		BH-7, 385		DATE		TIME	
39		BH-7, 395		DATE		TIME	
40		BH-7, 405		DATE		TIME	
41		BH-7, 415		DATE		TIME	
42		BH-7, 425		DATE		TIME	
43		BH-7, 435		DATE		TIME	
44		BH-7, 445		DATE		TIME	
45		BH-7, 455		DATE		TIME	
46		BH-7, 465		DATE		TIME	
47		BH-7, 475		DATE		TIME	
48		BH-7, 485		DATE		TIME	
49		BH-7, 495		DATE		TIME	
50		BH-7, 505		DATE		TIME	
51		BH-7, 515		DATE		TIME	
52		BH-7, 525		DATE		TIME	
53		BH-7, 535		DATE		TIME	
54		BH-7, 545		DATE		TIME	
55		BH-7, 555		DATE		TIME	
56		BH-7, 565		DATE		TIME	
57		BH-7, 575		DATE		TIME	
58		BH-7, 585		DATE		TIME	
59		BH-7, 595		DATE		TIME	
60		BH-7, 605		DATE		TIME	
61		BH-7, 615		DATE		TIME	
62		BH-7, 625		DATE		TIME	
63		BH-7, 635		DATE		TIME	
64		BH-7, 645		DATE		TIME	
65		BH-7, 655		DATE		TIME	
66		BH-7, 665		DATE		TIME	
67		BH-7, 675		DATE		TIME	
68		BH-7, 685		DATE		TIME	
69		BH-7, 695		DATE		TIME	
70		BH-7, 705		DATE		TIME	
71		BH-7, 715		DATE		TIME	
72		BH-7, 725		DATE		TIME	
73		BH-7, 735		DATE		TIME	
74		BH-7, 745		DATE		TIME	
75		BH-7, 755		DATE		TIME	
76		BH-7, 765		DATE		TIME	
77		BH-7, 775		DATE		TIME	
78		BH-7, 785		DATE		TIME	
79		BH-7, 795		DATE		TIME	
80		BH-7, 805		DATE		TIME	
81		BH-7, 815		DATE		TIME	
82		BH-7, 825		DATE		TIME	
83		BH-7, 835		DATE		TIME	
84		BH-7, 845		DATE		TIME	
85		BH-7, 855		DATE		TIME	
86		BH-7, 865		DATE		TIME	
87		BH-7, 875		DATE		TIME	
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107		BH-7, 1075		DATE		TIME	
108		BH-7, 1085		DATE		TIME	
109		BH-7, 1095		DATE		TIME	
110		BH-7, 1105		DATE		TIME	
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112		BH-7, 1125		DATE		TIME	
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147		BH-7, 1475		DATE		TIME	
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149		BH-7, 1495		DATE		TIME	
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155		BH-7, 1555		DATE		TIME	
156		BH-7, 1565		DATE		TIME	
157		BH-7, 1575		DATE		TIME	
158		BH-7, 1585		DATE		TIME	
159		BH-7, 1595		DATE		TIME	
160		BH-7, 1605		DATE		TIME	
161		BH-7, 1615		DATE		TIME	
162		BH-7, 1625		DATE		TIME	
163		BH-7, 1635		DATE		TIME	
164		BH-7, 1645		DATE		TIME	
165		BH-7, 1655		DATE		TIME	
166		BH-7, 1665		DATE		TIME	
167		BH-7, 1675		DATE		TIME	
168		BH-7, 1685		DATE		TIME	
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170		BH-7, 1705		DATE		TIME	
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173		BH-7, 1735		DATE		TIME	
174		BH-7, 1745		DATE		TIME	
175		BH-7, 1755		DATE		TIME	
176		BH-7, 1765		DATE		TIME	
177		BH-7, 1775		DATE		TIME	
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184		BH-7, 1845		DATE		TIME	
185		BH-7, 1855		DATE		TIME	
186		BH-7, 1865		DATE		TIME	
187		BH-7, 1875		DATE		TIME	
188		BH-7, 1885		DATE		TIME	
189		BH-7, 1895		DATE		TIME	
190		BH-7, 1905		DATE		TIME	
191		BH-7, 1915		DATE		TIME	
192		BH-7, 1925		DATE		TIME	
193		BH-7, 1935		DATE		TIME	
194		BH-7, 1945		DATE		TIME	
195		BH-7, 1955		DATE		TIME	
196		BH-7, 1965		DATE		TIME	
197		BH-7, 1975		DATE		TIME	
198		BH-7, 1985		DATE		TIME	
199		BH-7, 1995		DATE		TIME	
200		BH-7, 2005		DATE		TIME	
201		BH-7, 2015		DATE		TIME	
202		BH-7, 2025		DATE		TIME	
203		BH-7, 2035		DATE		TIME	
204		BH-7, 2045		DATE		TIME	
205		BH-7, 2055		DATE		TIME	
206		BH-7, 2065		DATE		TIME	
207		BH-7, 2075		DATE		TIME	
208		BH-7, 2085		DATE		TIME	
209		BH-7, 2095		DATE		TIME	
210		BH-7, 2105		DATE		TIME	
211		BH-7, 2115		DATE		TIME	
212		BH-7, 2125		DATE		TIME	
213		BH-7, 2135		DATE		TIME	
214		BH-7, 2145		DATE		TIME	
215		BH-7, 2155		DATE		TIME	
216		BH-7, 2165		DATE		TIME	
217		BH-7, 2175		DATE		TIME	
218		BH-7, 2185		DATE		TIME	
219		BH-7, 2195		DATE		TIME	
220		BH-7, 2205		DATE		TIME	
221		BH-7, 2215		DATE		TIME	
222		BH-7, 2225		DATE		TIME	
223		BH-7, 2235		DATE		TIME	
224		BH-7, 2245		DATE		TIME	
225		BH-7, 2255		DATE		TIME	
226		BH-7, 2265		DATE		TIME	
227		BH-7, 2275		DATE		TIME	
228		BH-7, 2285		DATE		TIME	
229		BH-7, 2295		DATE		TIME	
230		BH-7, 2305		DATE		TIME	
231		BH-7, 2315		DATE		TIME	
232		BH-7, 2325		DATE		TIME	
233		BH-7, 2335		DATE		TIME	
234		BH-7, 2345		DATE		TIME	
235		BH-7, 2355		DATE		TIME	
236		BH-					

APPENDIX D
Lab Data from
December 2016

December 16, 2016

Bob Allen

Safety & Environmental Solutions

703 East Clinton

Hobbs, NM 88240

RE: RXS-16-005

Enclosed are the results of analyses for samples received by the laboratory on 12/13/16 10:15.

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.

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: 12/13/2016
 Reported: 12/16/2016
 Project Name: RXS-16-005
 Project Number: RXS-16-005
 Project Location: NONE GIVEN

Sampling Date: 12/07/2016
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Celey D. Keene

Sample ID: BH-1 0.9-1.1' (H602785-01)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	12/14/2016	ND	416	104	400	3.77	
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	12/13/2016	ND	209	105	200	1.47	
DRO >C10-C28	<10.0	10.0	12/13/2016	ND	228	114	200	0.353	
EXT DRO >C28-C35	<10.0	10.0	12/13/2016	ND					
Surrogate: 1-Chlorooctane	90.0 %	35-147							
Surrogate: 1-Chlorooctadecane	99.1 %	28-171							

Sample ID: BH-1 1.9-2.1' (H602785-02)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	12/14/2016	ND	416	104	400	3.77		

Sample ID: BH-1 2.7-2.9' (H602785-03)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	12/14/2016	ND	416	104	400	3.77		

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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: 12/13/2016
Reported: 12/16/2016
Project Name: RXS-16-005
Project Number: RXS-16-005
Project Location: NONE GIVEN

Sampling Date: 12/07/2016
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Celey D. Keene

Sample ID: BH-2 0.9-1.1' (H602785-04)

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	12/14/2016	ND	416	104	400	3.77	
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	12/13/2016	ND	209	105	200	1.47	
DRO >C10-C28	<10.0	10.0	12/13/2016	ND	228	114	200	0.353	
EXT DRO >C28-C35	<10.0	10.0	12/13/2016	ND					
Surrogate: 1-Chlorooctane		82.9 %	35-147						
Surrogate: 1-Chlorooctadecane		81.6 %	28-171						

Sample ID: BH-2 1.9-2.1' (H602785-05)

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	12/14/2016	ND	416	104	400	3.77		

Sample ID: BH-2 2.7-2.9' (H602785-06)

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	12/14/2016	ND	416	104	400	3.77		

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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: 12/13/2016
Reported: 12/16/2016
Project Name: RXS-16-005
Project Number: RXS-16-005
Project Location: NONE GIVEN

Sampling Date: 12/07/2016
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Celey D. Keene

Sample ID: BH-3 0.9-1.1' (H602785-07)

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	12/14/2016	ND	416	104	400	3.77	
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	12/13/2016	ND	209	105	200	1.47	
DRO >C10-C28	<10.0	10.0	12/13/2016	ND	228	114	200	0.353	
EXT DRO >C28-C35	<10.0	10.0	12/13/2016	ND					
Surrogate: 1-Chlorooctane	78.9 %	35-147							
Surrogate: 1-Chlorooctadecane	79.9 %	28-171							

Sample ID: BH-3 1.9-2.1' (H602785-08)

Chloride, SM4500Cl-B		mg / kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	16.0	16.0	12/14/2016	ND	416	104	400	3.77		

Sample ID: BH-3 2.8-3.0' (H602785-09)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	16.0	16.0	12/14/2016	ND	416	104	400	3.77		

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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: 12/13/2016
Reported: 12/16/2016
Project Name: RXS-16-005
Project Number: RXS-16-005
Project Location: NONE GIVEN

Sampling Date: 12/07/2016
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Celey D. Keene

Sample ID: BH-4 0.9-1.1' (H602785-10)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	96.0	16.0	12/14/2016	ND	416	104	400	3.77	
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	12/13/2016	ND	209	105	200	1.47	
DRO >C10-C28	<10.0	10.0	12/13/2016	ND	228	114	200	0.353	
EXT DRO >C28-C35	<10.0	10.0	12/13/2016	ND					
Surrogate: 1-Chlorooctane	76.1 %	35-147							
Surrogate: 1-Chlorooctadecane	83.9 %	28-171							

Sample ID: BH-4 1.9-2.1' (H602785-11)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	16.0	16.0	12/14/2016	ND	416	104	400	3.77		

Sample ID: BH-4 2.9-3.1' (H602785-12)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	16.0	16.0	12/14/2016	ND	416	104	400	3.77		

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Received: 12/13/2016
Reported: 12/16/2016
Project Name: RXS-16-005
Project Number: RXS-16-005
Project Location: NONE GIVEN

Sampling Date: 12/07/2016
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Celey D. Keene

Sample ID: BH-5 0.9-1.1' (H602785-13)

Chloride, SM4500Cl-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	12/14/2016	ND	416	104	400	3.77	
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	12/13/2016	ND	209	105	200	1.47	
DRO >C10-C28	<10.0	10.0	12/13/2016	ND	228	114	200	0.353	
EXT DRO >C28-C35	<10.0	10.0	12/13/2016	ND					
Surrogate: 1-Chlorooctane	85.4 %	35-147							
Surrogate: 1-Chlorooctadecane	90.1 %	28-171							

Sample ID: BH-5 1.9-2.1' (H602785-14)

Chloride, SM4500Cl-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	12/14/2016	ND	416	104	400	3.77		

Sample ID: BH-5 2.9-3.1' (H602785-15)

Chloride, SM4500CI-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	12/14/2016	ND	416	104	400	3.77		

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Received: 12/13/2016
Reported: 12/16/2016
Project Name: RXS-16-005
Project Number: RXS-16-005
Project Location: NONE GIVEN

Sampling Date: 12/07/2016
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Celey D. Keene

Sample ID: BH-6 0.9-1.1' (H602785-16)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	688	16.0	12/14/2016	ND	416	104	400	3.77	
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	12/13/2016	ND	209	105	200	1.47	
DRO >C10-C28	<10.0	10.0	12/13/2016	ND	228	114	200	0.353	
EXT DRO >C28-C35	<10.0	10.0	12/13/2016	ND					
Surrogate: 1-Chlorooctane		87.0 %	35-147						
Surrogate: 1-Chlorooctadecane		91.0 %	28-171						

Sample ID: BH-6 1.9-2.1' (H602785-17)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	400	16.0	12/14/2016	ND	416	104	400	3.77		

Sample ID: BH-6 2.9-3.1' (H602785-18)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	192	16.0	12/14/2016	ND	416	104	400	3.77		

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 Received: 12/13/2016
 Reported: 12/16/2016
 Project Name: RXS-16-005
 Project Number: RXS-16-005
 Project Location: NONE GIVEN

 Sampling Date: 12/07/2016
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Celey D. Keene

Sample ID: BH-7 0.9-1.1' (H602785-19)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	480	16.0	12/14/2016	ND	416	104	400	3.77		
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	12/13/2016	ND	209	105	200	1.47		
DRO >C10-C28	<10.0	10.0	12/13/2016	ND	228	114	200	0.353		
EXT DRO >C28-C35	<10.0	10.0	12/13/2016	ND						
Surrogate: 1-Chlorooctane		89.3 %	35-147							
Surrogate: 1-Chlorooctadecane		104 %	28-171							

Sample ID: BH-7 1.9-2.1' (H602785-20)

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	12/14/2016	ND	416	104	400	3.77		

Sample ID: BH-7 2.9-3.1' (H602785-21)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	16.0	16.0	12/14/2016	ND	416	104	400	3.77		

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Received: 12/13/2016
Reported: 12/16/2016
Project Name: RXS-16-005
Project Number: RXS-16-005
Project Location: NONE GIVEN

Sampling Date: 12/07/2016
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Celey D. Keene

Sample ID: BH-8 0.9-1.1' (H602785-22)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1090	16.0	12/14/2016	ND	416	104	400	3.77	
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	12/13/2016	ND	209	105	200	1.47	
DRO >C10-C28	<10.0	10.0	12/13/2016	ND	228	114	200	0.353	
EXT DRO >C28-C35	<10.0	10.0	12/13/2016	ND					
Surrogate: 1-Chlorooctane		80.8 %	35-147						
Surrogate: 1-Chlorooctadecane		96.4 %	28-171						

Sample ID: BH-8 1.9-2.1' (H602785-23)

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	12/14/2016	ND	416	104	400	3.77		

Sample ID: BH-8 2.9-3.1' (H602785-24)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	144	16.0	12/14/2016	ND	416	104	400	3.77		

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Received: 12/13/2016
Reported: 12/16/2016
Project Name: RXS-16-005
Project Number: RXS-16-005
Project Location: NONE GIVEN

Sampling Date: 12/07/2016
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Celey D. Keene

Sample ID: BH-9 0.9-1.1' (H602785-25)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1250	16.0	12/14/2016	ND	416	104	400	3.77	
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	12/13/2016	ND	209	105	200	1.47	
DRO >C10-C28	<10.0	10.0	12/13/2016	ND	228	114	200	0.353	
EXT DRO >C28-C35	<10.0	10.0	12/13/2016	ND					
Surrogate: 1-Chlorooctane	86.9 %	35-147							
Surrogate: 1-Chlorooctadecane	91.0 %	28-171							

Sample ID: BH-9 1.9-2.1' (H602785-26)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	96.0	16.0	12/14/2016	ND	416	104	400	3.77	

Sample ID: BH-9 2.9-3.1' (H602785-27)

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	12/14/2016	ND	416	104	400	3.77		

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Received: 12/13/2016
Reported: 12/16/2016
Project Name: RXS-16-005
Project Number: RXS-16-005
Project Location: NONE GIVEN

Sampling Date: 12/07/2016
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Celey D. Keene

Sample ID: BH-10 0.9-1.1' (H602785-28)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	592	16.0	12/14/2016	ND	416	104	400	3.77	
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	12/13/2016	ND	209	105	200	1.47	
DRO >C10-C28	<10.0	10.0	12/13/2016	ND	228	114	200	0.353	
EXT DRO >C28-C35	<10.0	10.0	12/13/2016	ND					
Surrogate: 1-Chlorooctane	89.1 %	35-147							
Surrogate: 1-Chlorooctadecane	106 %	28-171							

Sample ID: BH-10 1.9-2.1' (H602785-29)

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	12/14/2016	ND	416	104	400	3.77	

Sample ID: BH-10 2.9-3.1' (H602785-30)

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	12/14/2016	ND	416	104	400	3.77		

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Received: 12/13/2016
Reported: 12/16/2016
Project Name: RXS-16-005
Project Number: RXS-16-005
Project Location: NONE GIVEN

Sampling Date: 12/09/2016
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Celey D. Keene

Sample ID: BH-11 0.8-1.2' (H602785-31)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	2560	16.0	12/15/2016	ND	400	100	400	3.92	QM-07	
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	12/13/2016	ND	209	105	200	1.47		
DRO >C10-C28	348	10.0	12/13/2016	ND	228	114	200	0.353		
EXT DRO >C28-C35	148	10.0	12/13/2016	ND						
Surrogate: 1-Chlorooctane	81.9 %	35-147								
Surrogate: 1-Chlorooctadecane	106 %	28-171								

Sample ID: BH-11 1.9-2.1' (H602785-32)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	832	16.0	12/15/2016	ND	400	100	400	3.92		
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	12/13/2016	ND	209	105	200	1.47		
DRO >C10-C28	<10.0	10.0	12/13/2016	ND	228	114	200	0.353		
EXT DRO >C28-C35	13.5	10.0	12/13/2016	ND						
Surrogate: 1-Chlorooctane	83.3 %	35-147								
Surrogate: 1-Chlorooctadecane	86.0 %	28-171								

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Received: 12/13/2016
Reported: 12/16/2016
Project Name: RXS-16-005
Project Number: RXS-16-005
Project Location: NONE GIVEN

Sampling Date: 12/09/2016
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Celey D. Keene

Sample ID: BH-11 2.9-3.1' (H602785-33)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	240	16.0	12/15/2016	ND	400	100	400	3.92	

Sample ID: BH-11 3.5-4.0 (H602785-34)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	272	16.0	12/15/2016	ND	400	100	400	3.92	

Sample ID: BH-12 0.9-1.1' (H602785-35)

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	12/15/2016	ND	400	100	400	3.92	

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	12/13/2016	ND	209	105	200	1.47	
DRO >C10-C28	<10.0	10.0	12/13/2016	ND	228	114	200	0.353	
EXT DRO >C28-C35	<10.0	10.0	12/13/2016	ND					

Surrogate: 1-Chlorooctane 88.6 % 35-147

Surrogate: 1-Chlorooctadecane 97.8 % 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: 12/13/2016
 Reported: 12/16/2016
 Project Name: RXS-16-005
 Project Number: RXS-16-005
 Project Location: NONE GIVEN

 Sampling Date: 12/09/2016
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Celey D. Keene

Sample ID: BH-12 1.9-2.1' (H602785-36)

Chloride, SM4500Cl-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	12/15/2016	ND	400	100	400	3.92	

Sample ID: BH-12 2.8-3.0' (H602785-37)

Chloride, SM4500Cl-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	12/15/2016	ND	400	100	400	3.92	

Sample ID: BH-12 3.5-4.0' (H602785-38)

Chloride, SM4500Cl-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	12/15/2016	ND	400	100	400	3.92		

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Received: 12/13/2016
Reported: 12/16/2016
Project Name: RXS-16-005
Project Number: RXS-16-005
Project Location: NONE GIVEN

Sampling Date: 12/09/2016
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Celey D. Keene

Sample ID: BH-13 0.9-1.1' (H602785-39)

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	12/15/2016	ND	400	100	400	3.92	
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	12/13/2016	ND	209	105	200	1.47	
DRO >C10-C28	<10.0	10.0	12/13/2016	ND	228	114	200	0.353	
EXT DRO >C28-C35	<10.0	10.0	12/13/2016	ND					
Surrogate: 1-Chlorooctane	86.4 %	35-147							
Surrogate: 1-Chlorooctadecane	96.2 %	28-171							

Sample ID: BH-13 1.9-2.1' (H602785-40)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	16.0	16.0	12/15/2016	ND	400	100	400	3.92		

Sample ID: BH-13 2.8-3.0' (H602785-41)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	12/15/2016	ND	400	100	400	3.92		

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Received: 12/13/2016
Reported: 12/16/2016
Project Name: RXS-16-005
Project Number: RXS-16-005
Project Location: NONE GIVEN

Sampling Date: 12/09/2016
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Celey D. Keene

Sample ID: BH-13 3.5-4.0' (H602785-42)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	12/15/2016	ND	400	100	400	3.92		

Sample ID: BH-14 0.9-1.1' (H602785-43)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	96.0	16.0	12/15/2016	ND	400	100	400	3.92	
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	12/13/2016	ND	209	105	200	1.47	
DRO >C10-C28	28.0	10.0	12/13/2016	ND	228	114	200	0.353	
EXT DRO >C28-C35	36.1	10.0	12/13/2016	ND					

Surrogate: 1-Chlorooctane 82.3 % 35-147

Surrogate: 1-Chlorooctadecane 92.1 % 28-171

Sample ID: BH-14 1.9-2.1' (H602785-44)

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	12/15/2016	ND	400	100	400	3.92	

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Fax To: (575) 393-4388

Received: 12/13/2016
Reported: 12/16/2016
Project Name: RXS-16-005
Project Number: RXS-16-005
Project Location: NONE GIVEN

Sampling Date: 12/09/2016
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Celey D. Keene

Sample ID: BH-14 2.9-3.1' (H602785-45)

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	12/15/2016	ND	400	100	400	3.92	

Sample ID: BH-14 3.5-4.0' (H602785-46)

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	12/15/2016	ND	400	100	400	3.92	

Sample ID: S-1 0-0.85 (H602785-47)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	880	16.0	12/15/2016	ND	400	100	400	3.92	

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	12/13/2016	ND	209	105	200	1.47	
DRO >C10-C28	<10.0	10.0	12/13/2016	ND	228	114	200	0.353	
EXT DRO >C28-C35	<10.0	10.0	12/13/2016	ND					

Surrogate: 1-Chlorooctane 87.3 % 35-147

Surrogate: 1-Chlorooctadecane 103 % 28-171

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Received: 12/13/2016
Reported: 12/16/2016
Project Name: RXS-16-005
Project Number: RXS-16-005
Project Location: NONE GIVEN

Sampling Date: 12/09/2016
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Celey D. Keene

Sample ID: S-2 0-0.55 (H602785-48)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	208	16.0	12/15/2016	ND	400	100	400	3.92	
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	12/14/2016	ND	189	94.6	200	0.431	
DRO >C10-C28	26.7	10.0	12/14/2016	ND	199	99.5	200	0.921	
EXT DRO >C28-C35	21.0	10.0	12/14/2016	ND					
Surrogate: 1-Chlorooctane	86.2 %	35-147							
Surrogate: 1-Chlorooctadecane	94.7 %	28-171							

Sample ID: S-3 0-0.55' (H602785-49)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	224	16.0	12/15/2016	ND	400	100	400	3.92	
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	12/14/2016	ND	189	94.6	200	0.431	
DRO >C10-C28	<10.0	10.0	12/14/2016	ND	199	99.5	200	0.921	
EXT DRO >C28-C35	<10.0	10.0	12/14/2016	ND					
Surrogate: 1-Chlorooctane	80.3 %	35-147							
Surrogate: 1-Chlorooctadecane	89.6 %	28-171							

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Analytical Results For:

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

Received: 12/13/2016
 Reported: 12/16/2016
 Project Name: RXS-16-005
 Project Number: RXS-16-005
 Project Location: NONE GIVEN

Sampling Date: 12/09/2016
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Celey D. Keene

Sample ID: S-4 0-0.55' (H602785-50)

Chloride, SM4500Cl-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	12/15/2016	ND	400	100	400	3.92	
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	12/14/2016	ND	189	94.6	200	0.431	
DRO >C10-C28	<10.0	10.0	12/14/2016	ND	199	99.5	200	0.921	
EXT DRO >C28-C35	<10.0	10.0	12/14/2016	ND					
Surrogate: 1-Chlorooctane		68.1 %	35-147						
Surrogate: 1-Chlorooctadecane		81.8 %	28-171						

Sample ID: OS-1 (H602785-51)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	4080	16.0	12/16/2016	ND	416	104	400	0.00	QM-07	
TPH 8015M		mg/kg		Analyzed By: MS						S-06
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	493	100	12/14/2016	ND	189	94.6	200	0.431		
DRO >C10-C28	13500	100	12/14/2016	ND	199	99.5	200	0.921		
EXT DRO >C28-C35	5430	100	12/14/2016	ND						
Surrogate: 1-Chlorooctane		112 %	35-147							
Surrogate: 1-Chlorooctadecane		478 %	28-171							

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Analytical Results For:

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

Received: 12/13/2016
Reported: 12/16/2016
Project Name: RXS-16-005
Project Number: RXS-16-005
Project Location: NONE GIVEN

Sampling Date: 12/12/2016
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Celey D. Keene

Sample ID: OS-2 (H602785-52)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	4000	16.0	12/16/2016	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	<100	100	12/14/2016	ND	189	94.6	200	0.431	
DRO >C10-C28	2980	100	12/14/2016	ND	199	99.5	200	0.921	
EXT DRO >C28-C35	1300	100	12/14/2016	ND					
Surrogate: 1-Chlorooctane									
	85.2 %	35-147							
Surrogate: 1-Chlorooctadecane									
	158 %	28-171							

Sample ID: OS-3 (H602785-53)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	6660	16.0	12/16/2016	ND	416	104	400	0.00		
TPH 8015M		mg/kg		Analyzed By: MS						S-06
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	131	100	12/14/2016	ND	189	94.6	200	0.431		
DRO >C10-C28	7980	100	12/14/2016	ND	199	99.5	200	0.921		
EXT DRO >C28-C35	3930	100	12/14/2016	ND						
Surrogate: 1-Chlorooctane										
	100 %	35-147								
Surrogate: 1-Chlorooctadecane										
	220 %	28-171								

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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



CARDINAL Laboratories

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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page 1 of 6

BILL TO

ANALYSIS REQUEST

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 #: RXS-16-005 Project Owner:

Project Name:

Project Location:

Sample Name: DAD 16 Boyer

FOR LAB USE ONLY

(G)RAB OR (C)OMP.

CONTAINERS

GROUNDWATER

WASTEWATER

SOIL

OIL

SLUDGE

OTHER :

ACID/BASE:

ICE / COOL

OTHER :

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Lab I.D.

Sample I.D.

H602785

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CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Page 2 of 4

BILL TO

ANALYSIS REQUEST

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 #: 8X5-16-005 Project Owner:

Project Name:

Project Location:

Sample Name: 10/11/15 Boyer

FOR LAB USE ONLY

(G)RAB OR (C)OMP.

CONTAINERS

GROUNDWATER

WASTEWATER

SOIL

OIL

SLUDGE

OTHER :

ACID/BASE:

ICE / COOL

OTHER :

DATE

TIME

TIME

TIME

TIME

TIME

TIME

TIME

TIME

TIME

TIME

TIME

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TIME

Lab I.D.

Sample I.D.

11002785-

11 BH-4 4.9-2.1'

12 BH-4 2.9-3.1'

13 BH-5 0.9-1.1'

14 BH-5 1.9-3.1'

15 BH-5 2.9-3.1'

16 BH-6 0.9-1.1'

17 BH-6 1.9-2.1'

18 BH-6 2.9-3.1'

19 BH-7 0.9-1.1'

20 BH-7 1.9-2.1'

Relinquished By:

Date:

Time:

Received By:

Date:

Time:

Relinquished By:

Date:

Time:

Received By:

Date:

Time:

Relinquished By:

Date:

Time:

Received By:

Date:

Time:

Relinquished By:

Date:

Time:

Received By:

Date:

Time:

Delivered By: (Circle One)

Sampler - UPS - Bus - Other:

Sample Condition

Cool ☒ Intact ☒

Yes ☒ No ☐

Yes ☒ No ☐

CHECKED BY:

(Initials)

2.8c

Col # 75

1300

1300

1300

1300

1300

Phone Result:

Yes ☐ No ☒

Yes ☒ No ☐

Yes ☐ No ☐

Yes ☐ No ☐

Yes ☐ No ☐

Yes ☐ No ☐

Yes ☐ No ☐

Yes ☐ No ☐

Fax Result:

Yes ☐ No ☒

Yes ☒ No ☐

Yes ☐ No ☐

Yes ☐ No ☐

Yes ☐ No ☐

Yes ☐ No ☐

Yes ☐ No ☐

Yes ☐ No ☐

REMARKS:

Cardinal

Cardinal

Cardinal

Cardinal

Cardinal

Cardinal

Cardinal

Cardinal

CHLORIDE
TPH (BODIS MAL)
Ext *



CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Page 3066

Company Name: Safety and Environmental Solutions		BILL TO		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 #: RXS-16-005		State:											
Project Owner:		Zip:											
Project Name:		Phone #:											
Project Location:		Fax #:											
Sampler Name: Bob Allen		SAMPLING											
FOR LAB USE ONLY		MATRIX											
Lab I.D.		Sample I.D.											
H00785-		(G)RAB OR (C)OMP.											
		# CONTAINERS											
		GROUNDWATER											
		WASTEWATER											
		SOIL											
		OIL											
		SLUDGE											
		OTHER :											
		ACID/BASE:											
		ICE / COOL											
		OTHER :											
		DATE											
		TIME											
21		12/1											
22		14/2											
23		14/4											
24		14/4											
25		16/5											
26		16/5											
27		17/10											
28		17/10											
29		17/10											
30		17/10											

PLEASE NOTE: Liability and Damages, Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analysis. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Relinquished By: [Signature]	Date: 12/15/16	Received By: [Signature]	Phone Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Add'l Phone #:
Relinquished By: [Signature]	Date: 12/15/16	Received By: [Signature]	Fax Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Add'l Fax #:
REMARKS:				

Delivered By: (Circle One) ☒ UPS ☐ Bus ☐ Other: 2.8°C

Sample Condition: ☒ Cool ☐ Intact ☐ Yes ☒ No

CHECKED BY: [Signature]

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Page 4 of 6

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 #: 15-16-005 Project Owner: Project Name: Project Location: Sampler Name: David Royce <small>FOR LAB USE ONLY</small>				BILL TO P.O. #: Company: Same Attn: Address: City: State: Zip: Phone #: Fax #:							
Lab I.D. Sample I.D.				MATRIX (G)RAB OR (C)OMP. # CONTAINERS GROUNDWATER WASTEWATER SOIL OIL SLUDGE OTHER : ACID/BASE: ICE / COOL OTHER : DATE TIME				PRESERV SAMPLING CH Horizon TPH (2015 mg/L) EXT*			
31 BH-11 0.8-1.2 21 12/9 1405 X 32 BH-11 1.9-2.1 21 1405 X 33 BH-11 2.9-3.1 21 1405 X 34 BH-11 3.5-4.2 21 1405 X 35 BH-12 0.9-1.1 21 1430 X 36 BH-12 1.9-2.1 21 1430 X 37 BH-12 2.8-3.0 21 1430 X 38 BH-12 3.5-4.0 21 1430 X 39 BH-13 0.9-1.1 21 1445 X 40 BH-13 1.9-2.1 21 1445 X											

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Relinquished By: [Signature] Date: 12/13/15 Time: 10:15 Relinquished By: [Signature] Date: 12/13/15 Time:		Received By: [Signature] Date: Time:	
Delivered By: (Circle One) Sampler - UPS - Bus - Other:		Sample Condition Cool / Intact <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No CHECKED BY: [Signature] (Initials) #75	

REMARKS:



CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Page 6

Page 26 of 27



CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

(575) 393-2326 FAX (575) 393-2476

BILL TO

ANALYSIS REQUEST

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 #: RX5-16-005 Project Owner: Project Name: Project Location:										P.O. #: Company: Same Attn: Address: City: State: Zip: Phone #: Fax #:		BILL TO		ANALYSIS REQUEST																											
FOR LAB USE ONLY		Sampler Name: B9010B900		Fax #:																																					
Lab I.D.		Sample I.D.		(G)RAB OR (C)OMP.		# CONTAINERS		GROUNDWATER		WASTEWATER		SOIL		OIL		SLUDGE		OTHER :		ACID/BASE:		ICE / COOL		OTHER :		DATE		TIME													
H602785		51		05-1		61		X		X		X		X		X		X		X		X		X		X		X													
52		05-2		61		X		X		X		X		X		X		X		X		X		X		X		X													
53		05-3		61		X		X		X		X		X		X		X		X		X		X		X		X													
Date:		Time:		Date:		Time:		Date:		Time:		Date:		Time:		Date:		Time:		Date:		Time:		Date:		Time:		Date:		Time:											
Relinquished By:		Relinquished By:		Relinquished By:		Relinquished By:		Relinquished By:		Relinquished By:		Relinquished By:		Relinquished By:		Relinquished By:		Relinquished By:		Relinquished By:		Relinquished By:		Relinquished By:		Relinquished By:		Relinquished By:													
Delivered By: (Circle One)		Delivered By: (Circle One)		Delivered By: (Circle One)		Delivered By: (Circle One)		Delivered By: (Circle One)		Delivered By: (Circle One)		Delivered By: (Circle One)		Delivered By: (Circle One)		Delivered By: (Circle One)		Delivered By: (Circle One)		Delivered By: (Circle One)		Delivered By: (Circle One)		Delivered By: (Circle One)		Delivered By: (Circle One)		Delivered By: (Circle One)													
Sampler - UPS - Bus - Other:		Sampler - UPS - Bus - Other:		Sampler - UPS - Bus - Other:		Sampler - UPS - Bus - Other:		Sampler - UPS - Bus - Other:		Sampler - UPS - Bus - Other:		Sampler - UPS - Bus - Other:		Sampler - UPS - Bus - Other:		Sampler - UPS - Bus - Other:		Sampler - UPS - Bus - Other:		Sampler - UPS - Bus - Other:		Sampler - UPS - Bus - Other:		Sampler - UPS - Bus - Other:		Sampler - UPS - Bus - Other:		Sampler - UPS - Bus - Other:													
Sample Condition		Sample Condition		Sample Condition		Sample Condition		Sample Condition		Sample Condition		Sample Condition		Sample Condition		Sample Condition		Sample Condition		Sample Condition		Sample Condition		Sample Condition		Sample Condition		Sample Condition													
Cool		Cool		Cool		Cool		Cool		Cool		Cool		Cool		Cool		Cool		Cool		Cool		Cool		Cool		Cool													
Intact		Intact		Intact		Intact		Intact		Intact		Intact		Intact		Intact		Intact		Intact		Intact		Intact		Intact		Intact													
Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes													
No		No																																							

Appendix E

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 <u>Ruthco Oil Co. LLC</u>	Contact <u>Joshua Ruth</u>	
Address	Telephone No. <u>575-631-0437</u>	
Facility Name <u>Ruthco SWD</u>	Facility Type <u>Disposal</u>	
Surface Owner	Mineral Owner	API No. <u>30-025-07950</u>

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
<u>F</u>	<u>30</u>	<u>18S</u>	<u>39E</u>	<u>1980</u>	<u>N</u>	<u>2310</u>	<u>W</u>	<u>hea</u>

Latitude _____ Longitude _____

NATURE OF RELEASE

Type of Release <u>water and skin oil</u>	Volume of Release <u>69</u>	Volume Recovered <u>69</u>
Source of Release <u>tanks on location</u>	Date and Hour of Occurrence <u>11 PM 11/16/11</u>	Date and Hour of Discovery <u>11 PM 11/16/11</u>
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? <u>Kristen Lynch</u>	
By Whom? <u>Joshua Ruth</u>	Date and Hour <u>11/17/11 8 am</u>	
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.* lightning struck TSD oil gun barrel on location - pick up all fluids on ground and going to haul off bad soil and bring back in good dirt.

Describe Area Affected and Cleanup Action Taken.*

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.

OIL CONSERVATION DIVISION

Signature: <u>Josh C Ruth</u>	Approved by Environmental Specialist:		
Printed Name: <u>Joshua Ruth</u>			
Title: <u>President</u>	Approval Date:	Expiration Date:	
E-mail Address:	Conditions of Approval:		Attached <input type="checkbox"/>
Date: _____ Phone: _____			

* Attach Additional Sheets If Necessary

Appendix F

Ground Water Table



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
L 02204	L	LE		1	4	1	30	18S	39E	679189	3621984*	123	65	58
L 05134	R	L	LE	1	1	2	30	18S	39E	679584	3622394*	150	78	72
L 05134 POD2	L	LE		1	1	2	30	18S	39E	679584	3622394*	250		
L 05197	L	LE				2	30	18S	39E	679893	3622093*	100	70	30
L 05924 POD2	R	L	LE		3	2	30	18S	39E	679692	3621892*	150	85	65
L 05924 POD3	L	LE		4	3	2	30	18S	39E	679898	3621873	237		
L 06512	L	LE			2	2	30	18S	39E	680087	3622302*	170	70	100
L 07113	L	LE		4	2	2	30	18S	39E	680186	3622201*	120		
L 07231	R	L	LE	2	3	2	30	18S	39E	679791	3621991*	126	72	54
L 07231 POD2	R	L	LE	2	3	2	30	18S	39E	679791	3621991*	150	50	100
L 07231 POD3	L	LE		2	3	2	30	18S	39E	679791	3621991*	195		
L 07492	L	LE				2	30	18S	39E	679893	3622093*	150	82	68
L 07671 POD1	L	LE		2	4	1	30	18S	39E	679389	3621984*	150		
L 07671 POD2	L	LE		2	4	1	30	18S	39E	679389	3621984*	150		
L 08039	L	LE			4	2	30	18S	39E	680095	3621899*	150	50	100
L 08040	L	LE			4	2	30	18S	39E	680095	3621899*	150	85	65
L 08294	L	LE		2	3	2	30	18S	39E	679791	3621991*	150	90	60
L 08550	L	LE		2	3	2	30	18S	39E	679791	3621991*	150	82	68
L 09289	L	LE		1	2	2	30	18S	39E	679986	3622401*	150	60	90
L 09787	R	L	LE	2	4	2	30	18S	39E	680194	3621998*	150	78	72
L 09912	L	LE			2	2	30	18S	39E	680087	3622302*	155	95	60
L 09948	R	L	LE		2	2	30	18S	39E	680087	3622302*	150	88	62
L 09948 POD2	L	LE		3	2	2	30	18S	39E	679950	3622157	255		
L 10389	L	LE				2	30	18S	39E	679893	3622093*	180	87	93
L 10538	L	LE		1	1	2	30	18S	39E	679584	3622394*	200		
L 11356	L	LE		4	3	2	30	18S	39E	679791	3621791*	238		

*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-Code	basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
L 11498	L	LE		2	3	2	30	18S	39E	679791	3621991*	245		
L 11634	L	LE		4	3	2	30	18S	39E	679791	3621791*	234		
L 11639	L	LE		1	1	2	30	18S	39E	679584	3622394*	250		
L 12305 POD1	L	LE		1	2	4	30	18S	39E	679921	3621593	235		
L 12535 POD1	L	LE		2	2	2	30	18S	39E	680238	3622387	235		
L 12711 POD1	L	LE		2	1	4	30	18S	39E	679895	3621595	250		
L 13397 POD1	L	LE		2	2	2	30	18S	39E	680164	3622398	235	98	137

Average Depth to Water: **76 feet**

Minimum Depth: **50 feet**

Maximum Depth: **98 feet**

Record Count: 33

PLSS Search:

Section(s): 30

Township: 18S

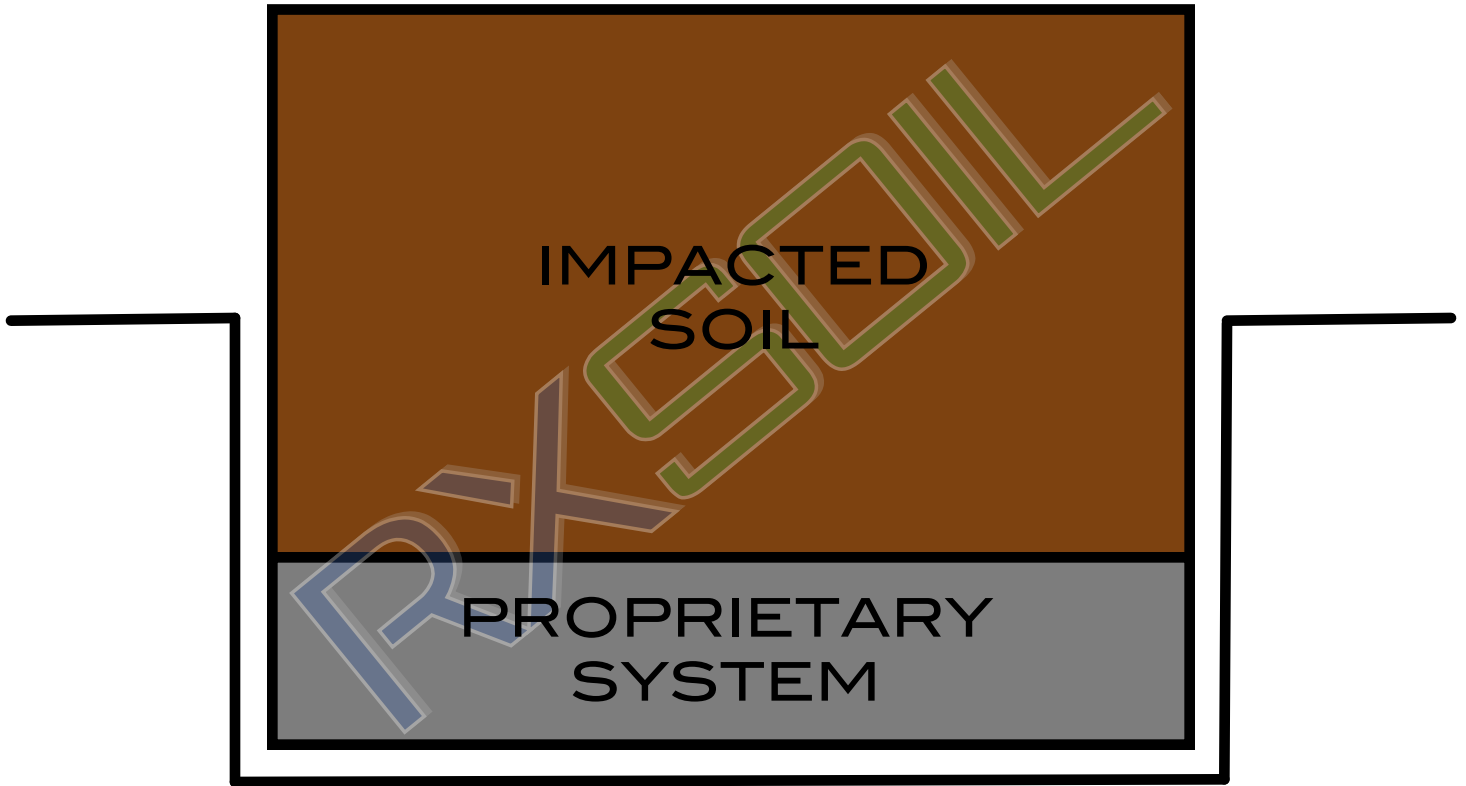
Range: 39E

*UTM location was derived from PLSS - see Help

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

FIGURE 5
Soil Remediation Design

FULLY CONTAINED LINED TREATMENT CELL



BOUNDARY SYSTEM