

**Gandy Corporation**  
**Nuckols Battery**  
**Delineation Report & Work Plan**

**Section 24, Township 7S, Range 31E**  
**Chaves County, New Mexico**

**30-005-20736**  
**1-RP-4222**

**September 9, 2016**



**Prepared for:**

**Cross Border Resources**  
**14282 Gillis Rd.,**  
**Farmers Branch, TX 14282**

**By:**

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

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## I. Company Contacts

Representative	Company	Telephone	E-mail
Ross Pearson	Cross Border Resources	469-995-0425	<a href="mailto:Ross@redmountainresources.com">Ross@redmountainresources.com</a>
Bob Allen	SESI	575-397-0510	<a href="mailto:ballen@sesi-nm.com">ballen@sesi-nm.com</a>

## II. Background

Safety and Environmental Solutions, Inc., hereinafter referred to as (SESI) was engaged by Red Mountain Resources to assess a spill area on the Nuckols Battery, concerning a One Hundred and Sixty (160) bbl. release comprised of oil and produced water. This site is situated in Chaves County, Section 24, Township 7S, and Range 31E.

According to the C-141: Vandals opened the load line valves on the oil and water tanks allowing all of the contained fluids to impact ground surface. The spill area was mapped, using a Trimble Juno 3B. Whereby, the total area of impact was estimated to be 4,441 sq. ft. The NMOCD and BLM respectively, were notified on March 20, 2016, and the C-141 filed and stamped by the NMOCD on March 24, 2016 assigning this event number **1RP-4222** (Appendix A).

## III. Surface and Ground Water

There is no record of groundwater in the immediate vicinity of the site location. Further research of the New Mexico Office of the State Engineer records indicates the average depth to groundwater for the area to be 238' bgs. Thereby, posing no eminent threat or danger to life forms in the area (Appendix B).

## 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	<b>X</b>
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	<b>X</b>
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	<b>X</b>
RANKING SCORE (TOTAL POINTS)			<b>0</b>

## **V. Work Performed**

On April 11, 2016 SESI personnel together with equipment and personnel from Gandy Corporation were onsite to photograph, assess and map the spill area. The backhoe removed all heavy hydro carbon staining. SESI personnel were present to conduct simultaneous field testing to perform confirmation sampling. Field tests were conducted of the representative soil samples. Approximately 35 yds. Of impacted soil were removed and disposed of at an NMOCD approved facility. The results of field tests are presented in the table below.

<b>Soil Sample Results: Field Tests 04-11-16</b>		
<b>SAMPLE ID</b>	<b>TPH</b>	<b>CHLORIDES</b>
TT-1 @ 6"	06 ppm	156 ppm
TT-1 @ 1.5'	No test	<108 ppm
TT-2 @ 6"	06 ppm	<108 ppm
TT-2 @ 1.5'	No test	<108 ppm

On June 28, 2016 SESI personnel met with Representative Jamie Keyes of the NMOCD, in order to verify any further delineation that should be conducted on this site. Mr. Keyes recommended that sample be taken from the area northwest of the battery.

Based on the request of Mr. Keyes of the NMOCD, SESI personnel returned to the site to install an auger hole to a depth of 1' bgs., slightly to the Northwest of the impacted area (Figure 2). A representative soil sample was taken from the surface and at a depth of 1' bgs., properly packaged, preserved and transported to Cardinal Laboratories of Hobbs, NM by chain of custody, and analyzed for Chloride (Method SM4500Cl-B). The results are recapped in the following table:

<b>Lab Confirmation Sample Date 07-01-16</b>	
<b>SAMPLE ID</b>	<b>CHLORIDES</b>
AH-1 Surface	<16.0 mg/kg
AH-1 1'	<16.0 mg/kg

On August 19, 2016 SESI personnel revisited the site at the request of Mr. Jamie Keyes with the NMOCD, in order to further delineate spill areas that were not previously identified.

Sixteen (16) additional sample point positions were mapped, identified utilizing the Juno 3B GPS positioning, and flagged. Auger holes were installed and advanced at one foot intervals, and retrieving representative soil samples. The soil samples were properly packaged, preserved, and transported to Cardinal Lab via Chain of Custody. The soil was analyzed for BTEX (Benzene, Toluene, Ethylbenzene, and Total Xylenes) (Method BTEX 8021B), Chlorides (Method SM4500Cl-B), and TPH (Total Petroleum Hydrocarbons), (Method TPH 8051M). Below is a table recapping those results (Appendix C):

Soil Sample Results: 08-19-16				
SAMPLE ID	TPH		BTEX	CHLORIDES
	GRO	DRO		
AH-2 SURFACE	<200	13500	<0.300	<16.0
AH-2 @ 1'	<50.0	742	<0.300	32.0
AH-3 @ 1'	<10.0	65.8	<0.300	192
AH-4 @ SURFACE	<10.0	37.9	<0.300	<16.0
AH-4 @ 1'	<200	1750	<0.300	<16.0
AH-5 @ 1'	<10.0	37.4	<0.300	32.0
AH-6 @ SURFACE	<50.0	1930	<0.300	<16.0
AH-6 @ 1'	<10.0	192	>0.300	96.0
AH-7 @ 1'	<10.0	<10.0	<0.300	<16.0
AH-8 @ SURFACE	<10.0	234	<0.300	176
AH-8 @ 1'	>10.0	<10.0	<0.300	<16.0
AH-9 @ 1'	<10.0	<10.0	<0.300	<16.0
AH-10 @ SURFACE	<50.0	1150	<0.300	576
AH-10 @ 1'	<10.0	<10.0	<0.300	144
AH-11 @ 1'	<10.0	2300	<0.300	<16.0
AH-12 @ SURFACE	<10.0	<10.0	<0.300	<16.0
AH-12 @ 1'	<10.0	922	<0.300	128
AH-13 @ 1'	<10.0	648	<0.300	<16.0
AH-14 @ SURFACE	<10.0	44.4	<0.300	<16.0
AH-14 @ 1'	<10.0	4270	<0.300	<16.0
AH-15 @ 1'	<200	310	<0.300	<16.0
AH-16 @ SURFACE	<50.0	1130	<0.300	<16.0
AH-16 @ 1'	<10.0	<10.0	<0.300	<16.0

On September 02, 2016 SESI personnel revisited the site in order to confirm the vertical extent of impact on four (4) of the above sample points. Representative soil samples were properly packaged, preserved and transport to Cardinal Laboratories, and analyzed for BTEX (Benzene, Toluene, Ethylbenzene, and Total Xylenes) (Method BTEX 8021B), Chlorides (Method SM4500CI-B), and TPH (Total Petroleum Hydrocarbons), (Method TPH 8051M). Below is a table recapping those results (Appendix C):

Soil Sample Results: Field Tests 09-02-16				
SAMPLE ID	TPH		BTEX	CHLORIDES
	GRO	DRO		
AH-2 @ 2.5'	<10	<10.0	<0.300	32.0
AH-4 @ 2.5'	<10	<10.0	<0.300	<16.0
AH-13 @ 3'	<10.0	<10.0	<0.300	<16.0
AH-14 @ 2.5'	<10.0	<10.0	<0.300	<16.0

On September 09, 2016 SESI personnel revisited the site together with personnel from Gandy's with equipment. This was to determine the vertical extent of the impact between sample points 12 and 15. The test trench was advanced to a depth a depth of 7' bgs and 9' respectively where a final confirmation sample was retrieved.

All soil samples were properly packaged, preserved and transported to Cardinal laboratories to be analyzed for BTEX (Benzene, Toluene, Ethylbenzene, and Total Xylenes) (Method BTEX 8021B), Chlorides (Method SM4500Cl-B), and TPH (Total Petroleum Hydrocarbons), (Method TPH 8051M). Below is a table recapping those results (Appendix C):

Soil Sample Results: 09-08-16				
SAMPLE ID	TPH		BTEX	CHLORIDES
	GRO	DRO		
SP-17 @ 7'	<10	<10.0	<0.300	32.0
SP-17 @ 9'	<10	<10.0	<0.300	32.0

## **VI. Action Plan**

The NMOCD site ranking requires a 5,000 ppm TPH cleanup, and no BTEX is present in any of the samples taken at this site. Vertical extent of contamination was found at all sample points. Cross Border Resources is proposing to excavated and remove the impacted soil where Chloride levels are >1,000 mg/kg, and TPH levels are >5,000 mg/kg. All impacted soils will be transported to an NMOCD approved facility.

Upon completion of remediation activities: all surface areas off of the location area will be re-seeded according New Mexico State Land Office Guidelines. All closure documentation will be drafted and submitted to the proper parties of concern.

## **VII. Figures & Appendices**

Figure 1 - Vicinity Map

Figure 2 - Site Plan

Appendix A – C-141

Appendix B – Groundwater

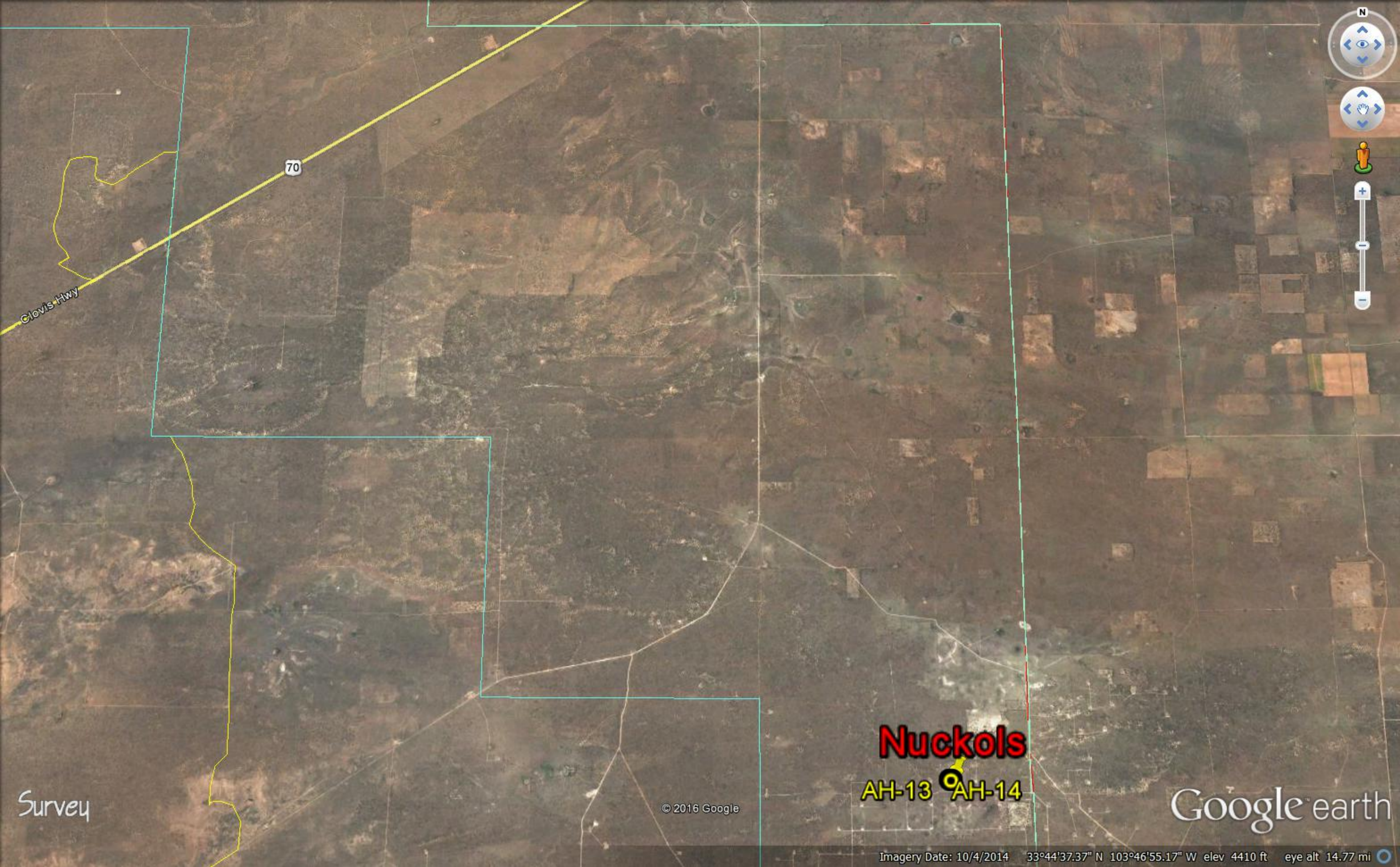
Appendix C – Analytical Results

Appendix D – Photo Documentation

# **Figure 1**

## **Vicinity Map**





Survey

© 2016 Google

**Nuckols**  
AH-13 AH-14

Google earth

Imagery Date: 10/4/2014 33°44'37.37" N 103°46'55.17" W elev 4410 ft eye alt 14.77 mi



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



Cross Border Resources  
Nuckols

AH-1 @ 1ft. AH-1 @ 1ft.



Survey

© 2016 Google

Google earth

1996

Imagery Date: 9/30/2014 33°41'12.37" N 103°44'01.14" W elev 4391 ft eye alt 4636 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 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: Cross Border Resources	Contact: Ross Pearson	
Address: 14282 Gillis Rd., Farmers Branch, TX, 14282	Telephone No. 469-995-0425	
Facility Name: Nuckols Battery	Facility Type: Tank Battery	
Surface Owner: Jake, Maureen Howards	Mineral Owner: Nuckols et al	API No. 30-005-20736

**LOCATION OF RELEASE**

Unit Letter M	Section 24	Township 7-S	Range 31-E	Feet from the 660'	North/South Line South	Feet from the 660'	East/West Line West	County Chaves
------------------	---------------	-----------------	---------------	-----------------------	---------------------------	-----------------------	------------------------	------------------

Latitude 33°41'13" Longitude 103°44'1"

**NATURE OF RELEASE**

Type of Release: Oil and Produced Water	Volume of Release: 160 Bbls	Volume Recovered: None
Source of Release: Load lines	Date and Hour of Occurrence 3/18/2016, Unknown	Date and Hour of Discovery 3/19/2016 10:00 am
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? Baldo Vasquez, Chaves County Sheriff Kellie Jones, NMOCD, Harley Davis BLM	
By Whom? Joseph Urban, Ross Pearson	Date and Hour 3/19/2016, 11:00 am Sheriff. And 3/20/2016, 2:24 pm	
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.\*

Vandals opened the load line valves on the oil and water tanks. Allowed the entire contents to be drained on location. Not sure on the exact time of release occurred. Fluids had soaked into the ground. Contacted sheriff first to establish a case for the criminal activity.

Describe Area Affected and Cleanup Action Taken.\*

Approximately 35 bbls of oil was released from the oil load lines. The spill area was 20' by 180' north of the tank battery. The majority of the spill is still on the location pad. Plans are to take samples of the spill area.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature: <u>Ross Pearson</u>		<b>OIL CONSERVATION DIVISION</b>	
Printed Name: <u>Ross Pearson</u>		Approved by Environmental Specialist:	
Title: <u>V.P. Operations</u>	Approval Date: <u>03/24/2016</u>	Expiration Date: <u>05/24/2016</u>	
E-mail Address: <u>ross@redmountainresources.com</u>	Conditions of Approval: Discrete site samples only. Delineate and remediate per NMOCD guidelines.		Attached <input type="checkbox"/> 1RP 4222
Date: <u>3/24/16</u>	Phone: <u>469-995-0425</u>		

\* Attach Additional Sheets If Necessary

nJXK1608427167  
pJXK1608427253

# **Appendix B**

## **Groundwater**



# New Mexico Office of the State Engineer

## Water Column/Average Depth to Water

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

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

(quarters are 1=NW 2=NE 3=SW 4=SE)  
(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

POD Number	POD Sub-Code	basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
<a href="#">RA 11245 POD1</a>			CH	3	3	1	20	07S	31E	610806	3728777*	220	180	40
<a href="#">RA 11251 POD1</a>			CH	1	2	4	10	07S	31E	615240	3731841*	210	190	20
<a href="#">RA 11252 POD1</a>			CH	2	4	2	10	07S	31E	615436	3732243*	210		
<a href="#">RA 11255 POD1</a>			CH	2	4	4	04	07S	31E	613805	3733024*	450	350	100
<a href="#">RA 11256 POD1</a>			CH	2	4	4	04	07S	31E	613805	3733024*	450	350	100
<a href="#">RA 11260 POD1</a>			CH	1	2	3	26	07S	31E	616038	3727739	158	120	38

Average Depth to Water: **238 feet**

Minimum Depth: **120 feet**

Maximum Depth: **350 feet**

Record Count: 6

PLSS Search:

Township: 07S

Range: 31E

\*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.



# **Appendix C**

## **Analytical Results**

July 12, 2016

Bob Allen

Safety & Environmental Solutions

703 East Clinton

Hobbs, NM 88240

RE: GAN-16-002

Enclosed are the results of analyses for samples received by the laboratory on 07/06/16 9:00.

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

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,



Celey D. Keene

Lab Director/Quality Manager

**Analytical Results For:**

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

Received: 07/06/2016  
Reported: 07/12/2016  
Project Name: GAN-16-002  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 07/01/2016  
Sampling Type: Soil  
Sampling Condition: \*\* (See Notes)  
Sample Received By: Jodi Henson

**Sample ID: AH-1 SURFACE (H601505-01)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	07/07/2016	ND	416	104	400	0.00	

**Sample ID: AH-1 1' (H601505-02)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	07/07/2016	ND	416	104	400	0.00	

Cardinal Laboratories

\*=Accredited Analyte

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 client for 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 thirty (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 the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



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

---

Cardinal Laboratories

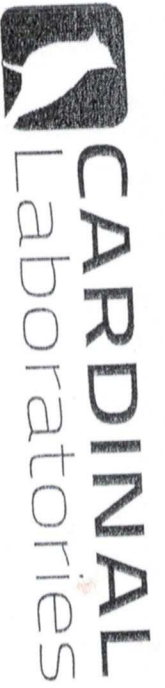
\*=Accredited Analyte

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---

Celey D. Keene, Lab Director/Quality Manager



CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

22

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

Company Name: Safety and Environmental Solutions

Project Manager: Bob Allen

Address: 703 East Clinton, PO Box 1613

City: Hobbs State: NM Zip: 88240

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

Project #: 64M-16-002 Project Owner:

Project Name:

Project Location:

Sampler Name:

FOR LAB USE ONLY

BILL TO

P.O. #:

Company: Same

Attn:

Address:

City:

State: Zip:

Phone #:

Fax #:

ANALYSIS REQUEST

Lab I.D. Sample I.D.

H1601505

1 AH-1 Surface  
2 AH-1 (R)

(G)RAB OR (C)OMP.

# CONTAINERS

GROUNDWATER

WASTEWATER

SOIL

OIL

SLUDGE

OTHER :

ACID/BASE:

ICE / COOL

OTHER :

DATE

TIME

07/01 1600  
07/01 1605

Ch boundary

Reimposed By:

Date: 07/01/16

Received By:

Heidi Shender

Requisitioned By:

Date: 0800

Received By:

Delivered By: (Circle One)

25.40

Sample Condition  
Cool ☒ Intact ☒  
Yes ☒ No ☐

CHECKED BY:

Sampler - UPS - Bus - Other:

# 76

REMARKS:

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

August 30, 2016

Bob Allen

Safety & Environmental Solutions

703 East Clinton

Hobbs, NM 88240

RE: RMR-16-002

Enclosed are the results of analyses for samples received by the laboratory on 08/23/16 8:40.

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

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,



Celey D. Keene

Lab Director/Quality Manager



**Analytical Results For:**

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

Received: 08/23/2016  
Reported: 08/30/2016  
Project Name: RMR-16-002  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 08/19/2016  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: AH-2 SURFACE (H601887-01)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/24/2016	ND	2.37	118	2.00	1.51	
Toluene*	<0.050	0.050	08/24/2016	ND	2.37	118	2.00	1.94	
Ethylbenzene*	<0.050	0.050	08/24/2016	ND	2.22	111	2.00	2.56	
Total Xylenes*	<0.150	0.150	08/24/2016	ND	6.71	112	6.00	2.61	
Total BTEX	<0.300	0.300	08/24/2016	ND					

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	08/24/2016	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	<200	200	08/24/2016	ND	214	107	200	0.125	
DRO >C10-C28	13500	200	08/24/2016	ND	217	108	200	4.78	

Surrogate: 1-Chlorooctane 71.1 % 35-147

Surrogate: 1-Chlorooctadecane 311 % 28-171

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received: 08/23/2016  
Reported: 08/30/2016  
Project Name: RMR-16-002  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 08/19/2016  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: AH-2 1' (H601887-02)**

BTEx 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/24/2016	ND	2.37	118	2.00	1.51	
Toluene*	<0.050	0.050	08/24/2016	ND	2.37	118	2.00	1.94	
Ethylbenzene*	<0.050	0.050	08/24/2016	ND	2.22	111	2.00	2.56	
Total Xylenes*	<0.150	0.150	08/24/2016	ND	6.71	112	6.00	2.61	
Total BTEX	<0.300	0.300	08/24/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 104 % 73.6-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	08/24/2016	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	<50.0	50.0	08/24/2016	ND	214	107	200	0.125	
DRO >C10-C28	742	50.0	08/24/2016	ND	217	108	200	4.78	

Surrogate: 1-Chlorooctane 111 % 35-147

Surrogate: 1-Chlorooctadecane 148 % 28-171

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Hobbs NM, 88240  
Fax To: (575) 393-4388

Received: 08/23/2016  
Reported: 08/30/2016  
Project Name: RMR-16-002  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 08/19/2016  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: AH-3 1' (H601887-03)**

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	08/24/2016	ND	2.37	118	2.00	1.51	
Toluene*	<0.050	0.050	08/24/2016	ND	2.37	118	2.00	1.94	
Ethylbenzene*	<0.050	0.050	08/24/2016	ND	2.22	111	2.00	2.56	
Total Xylenes*	<0.150	0.150	08/24/2016	ND	6.71	112	6.00	2.61	
Total BTX	<0.300	0.300	08/24/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 106 % 73.6-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	192	16.0	08/24/2016	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/24/2016	ND	214	107	200	0.125	
DRO >C10-C28	65.8	10.0	08/24/2016	ND	217	108	200	4.78	

Surrogate: 1-Chlorooctane 102 % 35-147

Surrogate: 1-Chlorooctadecane 118 % 28-171

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Hobbs NM, 88240  
Fax To: (575) 393-4388

Received: 08/23/2016  
Reported: 08/30/2016  
Project Name: RMR-16-002  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 08/19/2016  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: AH-4 SURFACE (H601887-04)**

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	08/24/2016	ND	2.37	118	2.00	1.51	
Toluene*	<0.050	0.050	08/24/2016	ND	2.37	118	2.00	1.94	
Ethylbenzene*	<0.050	0.050	08/24/2016	ND	2.22	111	2.00	2.56	
Total Xylenes*	<0.150	0.150	08/24/2016	ND	6.71	112	6.00	2.61	
Total BTX	<0.300	0.300	08/24/2016	ND					

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

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	08/24/2016	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/24/2016	ND	214	107	200	0.125	
DRO >C10-C28	37.9	10.0	08/24/2016	ND	217	108	200	4.78	

Surrogate: 1-Chlorooctane 90.4 % 35-147

Surrogate: 1-Chlorooctadecane 94.0 % 28-171

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

Received: 08/23/2016  
Reported: 08/30/2016  
Project Name: RMR-16-002  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 08/19/2016  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: AH-4 1' (H601887-05)**

BTX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/24/2016	ND	2.37	118	2.00	1.51	
Toluene*	<0.050	0.050	08/24/2016	ND	2.37	118	2.00	1.94	
Ethylbenzene*	<0.050	0.050	08/24/2016	ND	2.22	111	2.00	2.56	
Total Xylenes*	<0.150	0.150	08/24/2016	ND	6.71	112	6.00	2.61	
Total BTX	<0.300	0.300	08/24/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 106 % 73.6-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	08/24/2016	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	<200	200	08/24/2016	ND	214	107	200	0.125	
DRO >C10-C28	1750	200	08/24/2016	ND	217	108	200	4.78	

Surrogate: 1-Chlorooctane 50.6 % 35-147

Surrogate: 1-Chlorooctadecane 188 % 28-171

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Received: 08/23/2016  
Reported: 08/30/2016  
Project Name: RMR-16-002  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 08/19/2016  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: AH-5 1' (H601887-06)**

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	08/24/2016	ND	2.37	118	2.00	1.51	
Toluene*	<0.050	0.050	08/24/2016	ND	2.37	118	2.00	1.94	
Ethylbenzene*	<0.050	0.050	08/24/2016	ND	2.22	111	2.00	2.56	
Total Xylenes*	<0.150	0.150	08/24/2016	ND	6.71	112	6.00	2.61	
Total BTEX	<0.300	0.300	08/24/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 106 % 73.6-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	08/24/2016	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/24/2016	ND	214	107	200	0.125	
DRO >C10-C28	37.4	10.0	08/24/2016	ND	217	108	200	4.78	

Surrogate: 1-Chlorooctane 98.0 % 35-147

Surrogate: 1-Chlorooctadecane 106 % 28-171

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

Received: 08/23/2016  
Reported: 08/30/2016  
Project Name: RMR-16-002  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 08/19/2016  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: AH-6 SURFACE (H601887-07)**

BTX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/24/2016	ND	2.37	118	2.00	1.51	
Toluene*	<0.050	0.050	08/24/2016	ND	2.37	118	2.00	1.94	
Ethylbenzene*	0.094	0.050	08/24/2016	ND	2.22	111	2.00	2.56	
Total Xylenes*	<0.150	0.150	08/24/2016	ND	6.71	112	6.00	2.61	
Total BTX	<0.300	0.300	08/24/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 103 % 73.6-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	08/24/2016	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	<50.0	50.0	08/24/2016	ND	217	109	200	0.743	
DRO >C10-C28	1930	50.0	08/24/2016	ND	237	119	200	0.708	QM-07, QR-03

Surrogate: 1-Chlorooctane 104 % 35-147

Surrogate: 1-Chlorooctadecane 135 % 28-171

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Hobbs NM, 88240  
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Received: 08/23/2016  
Reported: 08/30/2016  
Project Name: RMR-16-002  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 08/19/2016  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: AH-6 1' (H601887-08)**

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	08/24/2016	ND	2.37	118	2.00	1.51	
Toluene*	<0.050	0.050	08/24/2016	ND	2.37	118	2.00	1.94	
Ethylbenzene*	<0.050	0.050	08/24/2016	ND	2.22	111	2.00	2.56	
Total Xylenes*	<0.150	0.150	08/24/2016	ND	6.71	112	6.00	2.61	
Total BTX	<0.300	0.300	08/24/2016	ND					

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	96.0	16.0	08/24/2016	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/24/2016	ND	217	109	200	0.743	
DRO >C10-C28	19.2	10.0	08/24/2016	ND	237	119	200	0.708	

Surrogate: 1-Chlorooctane 105 % 35-147

Surrogate: 1-Chlorooctadecane 112 % 28-171

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Received: 08/23/2016  
Reported: 08/30/2016  
Project Name: RMR-16-002  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 08/19/2016  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: AH-7 1' (H601887-09)**

BTX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/24/2016	ND	2.37	118	2.00	1.51	
Toluene*	<0.050	0.050	08/24/2016	ND	2.37	118	2.00	1.94	
Ethylbenzene*	<0.050	0.050	08/24/2016	ND	2.22	111	2.00	2.56	
Total Xylenes*	<0.150	0.150	08/24/2016	ND	6.71	112	6.00	2.61	
Total BTX	<0.300	0.300	08/24/2016	ND					

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

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	08/24/2016	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/24/2016	ND	217	109	200	0.743	
DRO >C10-C28	<10.0	10.0	08/24/2016	ND	237	119	200	0.708	

Surrogate: 1-Chlorooctane 94.4 % 35-147

Surrogate: 1-Chlorooctadecane 102 % 28-171

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Hobbs NM, 88240  
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Received: 08/23/2016  
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Project Name: RMR-16-002  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 08/19/2016  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: AH-8 SURFACE (H601887-10)**

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	08/24/2016	ND	2.37	118	2.00	1.51	
Toluene*	<0.050	0.050	08/24/2016	ND	2.37	118	2.00	1.94	
Ethylbenzene*	<0.050	0.050	08/24/2016	ND	2.22	111	2.00	2.56	
Total Xylenes*	<0.150	0.150	08/24/2016	ND	6.71	112	6.00	2.61	
Total BTX	<0.300	0.300	08/24/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 106 % 73.6-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	176	16.0	08/24/2016	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/24/2016	ND	217	109	200	0.743	
DRO >C10-C28	234	10.0	08/24/2016	ND	237	119	200	0.708	

Surrogate: 1-Chlorooctane 97.7 % 35-147

Surrogate: 1-Chlorooctadecane 104 % 28-171

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Bob Allen  
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Received: 08/23/2016  
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Project Name: RMR-16-002  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 08/19/2016  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: AH-8 1' (H601887-11)**

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	08/24/2016	ND	2.37	118	2.00	1.51	
Toluene*	<0.050	0.050	08/24/2016	ND	2.37	118	2.00	1.94	
Ethylbenzene*	<0.050	0.050	08/24/2016	ND	2.22	111	2.00	2.56	
Total Xylenes*	<0.150	0.150	08/24/2016	ND	6.71	112	6.00	2.61	
Total BTX	<0.300	0.300	08/24/2016	ND					

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

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	08/24/2016	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/24/2016	ND	217	109	200	0.743	
DRO >C10-C28	<10.0	10.0	08/24/2016	ND	237	119	200	0.708	

Surrogate: 1-Chlorooctane 96.2 % 35-147

Surrogate: 1-Chlorooctadecane 105 % 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: 08/23/2016  
Reported: 08/30/2016  
Project Name: RMR-16-002  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 08/19/2016  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: AH-9 1' (H601887-12)**

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	08/24/2016	ND	2.37	118	2.00	1.51	
Toluene*	<0.050	0.050	08/24/2016	ND	2.37	118	2.00	1.94	
Ethylbenzene*	<0.050	0.050	08/24/2016	ND	2.22	111	2.00	2.56	
Total Xylenes*	<0.150	0.150	08/24/2016	ND	6.71	112	6.00	2.61	
Total BTEX	<0.300	0.300	08/24/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 104 % 73.6-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	08/24/2016	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/24/2016	ND	217	109	200	0.743	
DRO >C10-C28	<10.0	10.0	08/24/2016	ND	237	119	200	0.708	

Surrogate: 1-Chlorooctane 94.8 % 35-147

Surrogate: 1-Chlorooctadecane 105 % 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: 08/23/2016  
Reported: 08/30/2016  
Project Name: RMR-16-002  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 08/19/2016  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: AH-10 SURFACE (H601887-13)**

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	08/24/2016	ND	2.37	118	2.00	1.51	
Toluene*	<0.050	0.050	08/24/2016	ND	2.37	118	2.00	1.94	
Ethylbenzene*	<0.050	0.050	08/24/2016	ND	2.22	111	2.00	2.56	
Total Xylenes*	<0.150	0.150	08/24/2016	ND	6.71	112	6.00	2.61	
Total BTX	<0.300	0.300	08/24/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 104 % 73.6-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	576	16.0	08/24/2016	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	<50.0	50.0	08/24/2016	ND	217	109	200	0.743	
DRO >C10-C28	1150	50.0	08/24/2016	ND	237	119	200	0.708	

Surrogate: 1-Chlorooctane 83.3 % 35-147

Surrogate: 1-Chlorooctadecane 155 % 28-171

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

Received: 08/23/2016  
 Reported: 08/30/2016  
 Project Name: RMR-16-002  
 Project Number: NONE GIVEN  
 Project Location: NOT GIVEN

Sampling Date: 08/19/2016  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: AH-10 1' (H601887-14)**

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	08/25/2016	ND	2.29	115	2.00	0.411	
Toluene*	<0.050	0.050	08/25/2016	ND	2.34	117	2.00	0.253	
Ethylbenzene*	<0.050	0.050	08/25/2016	ND	2.24	112	2.00	0.280	
Total Xylenes*	<0.150	0.150	08/25/2016	ND	6.80	113	6.00	0.295	
Total BTX	<0.300	0.300	08/25/2016	ND					

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

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	144	16.0	08/24/2016	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/24/2016	ND	217	109	200	0.743	
DRO >C10-C28	<10.0	10.0	08/24/2016	ND	237	119	200	0.708	

Surrogate: 1-Chlorooctane 93.4 % 35-147

Surrogate: 1-Chlorooctadecane 103 % 28-171

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

Received: 08/23/2016  
Reported: 08/30/2016  
Project Name: RMR-16-002  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 08/19/2016  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: AH-11 1' (H601887-15)**

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	08/25/2016	ND	2.29	115	2.00	0.411	
Toluene*	<0.050	0.050	08/25/2016	ND	2.34	117	2.00	0.253	
Ethylbenzene*	<0.050	0.050	08/25/2016	ND	2.24	112	2.00	0.280	
Total Xylenes*	<0.150	0.150	08/25/2016	ND	6.80	113	6.00	0.295	
Total BTX	<0.300	0.300	08/25/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 112 % 73.6-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	08/24/2016	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/24/2016	ND	217	109	200	0.743	
DRO >C10-C28	2300	10.0	08/24/2016	ND	237	119	200	0.708	

Surrogate: 1-Chlorooctane 102 % 35-147

Surrogate: 1-Chlorooctadecane 171 % 28-171

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

Received: 08/23/2016  
Reported: 08/30/2016  
Project Name: RMR-16-002  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 08/19/2016  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: AH-12 SURFACE (H601887-16)**

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	08/25/2016	ND	2.29	115	2.00	0.411	
Toluene*	<0.050	0.050	08/25/2016	ND	2.34	117	2.00	0.253	
Ethylbenzene*	<0.050	0.050	08/25/2016	ND	2.24	112	2.00	0.280	
Total Xylenes*	<0.150	0.150	08/25/2016	ND	6.80	113	6.00	0.295	
Total BTX	<0.300	0.300	08/25/2016	ND					

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

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	08/24/2016	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/24/2016	ND	217	109	200	0.743	
DRO >C10-C28	<10.0	10.0	08/24/2016	ND	237	119	200	0.708	

Surrogate: 1-Chlorooctane 99.2 % 35-147

Surrogate: 1-Chlorooctadecane 105 % 28-171

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

Received: 08/23/2016  
Reported: 08/30/2016  
Project Name: RMR-16-002  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 08/19/2016  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: AH-12 1' (H601887-17)**

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	08/25/2016	ND	2.29	115	2.00	0.411	
Toluene*	<0.050	0.050	08/25/2016	ND	2.34	117	2.00	0.253	
Ethylbenzene*	<0.050	0.050	08/25/2016	ND	2.24	112	2.00	0.280	
Total Xylenes*	<0.150	0.150	08/25/2016	ND	6.80	113	6.00	0.295	
Total BTX	<0.300	0.300	08/25/2016	ND					

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

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	128	16.0	08/24/2016	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/24/2016	ND	217	109	200	0.743	
DRO >C10-C28	922	10.0	08/24/2016	ND	237	119	200	0.708	

Surrogate: 1-Chlorooctane 111 % 35-147

Surrogate: 1-Chlorooctadecane 167 % 28-171

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

 Received: 08/23/2016  
 Reported: 08/30/2016  
 Project Name: RMR-16-002  
 Project Number: NONE GIVEN  
 Project Location: NOT GIVEN

 Sampling Date: 08/19/2016  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: AH-13 1' (H601887-18)**

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	08/25/2016	ND	2.29	115	2.00	0.411	
Toluene*	<0.050	0.050	08/25/2016	ND	2.34	117	2.00	0.253	
Ethylbenzene*	<0.050	0.050	08/25/2016	ND	2.24	112	2.00	0.280	
Total Xylenes*	<0.150	0.150	08/25/2016	ND	6.80	113	6.00	0.295	
Total BTX	<0.300	0.300	08/25/2016	ND					

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

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	08/24/2016	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/25/2016	ND	217	109	200	0.743	
DRO >C10-C28	648	10.0	08/25/2016	ND	237	119	200	0.708	

Surrogate: 1-Chlorooctane 106 % 35-147

Surrogate: 1-Chlorooctadecane 119 % 28-171

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

Received: 08/23/2016  
Reported: 08/30/2016  
Project Name: RMR-16-002  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 08/19/2016  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: AH-14 SURFACE (H601887-19)**

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	08/25/2016	ND	2.29	115	2.00	0.411	
Toluene*	<0.050	0.050	08/25/2016	ND	2.34	117	2.00	0.253	
Ethylbenzene*	<0.050	0.050	08/25/2016	ND	2.24	112	2.00	0.280	
Total Xylenes*	<0.150	0.150	08/25/2016	ND	6.80	113	6.00	0.295	
Total BTX	<0.300	0.300	08/25/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 108 % 73.6-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	08/24/2016	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/25/2016	ND	217	109	200	0.743	
DRO >C10-C28	44.4	10.0	08/25/2016	ND	237	119	200	0.708	

Surrogate: 1-Chlorooctane 103 % 35-147

Surrogate: 1-Chlorooctadecane 101 % 28-171

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

Received: 08/23/2016  
Reported: 08/30/2016  
Project Name: RMR-16-002  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 08/19/2016  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: AH-14 1' (H601887-20)**

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	08/25/2016	ND	2.29	115	2.00	0.411		
Toluene*	<0.050	0.050	08/25/2016	ND	2.34	117	2.00	0.253		
Ethylbenzene*	<0.050	0.050	08/25/2016	ND	2.24	112	2.00	0.280		
Total Xylenes*	<0.150	0.150	08/25/2016	ND	6.80	113	6.00	0.295		
Total BTX	<0.300	0.300	08/25/2016	ND						

Surrogate: 4-Bromofluorobenzene (PID) 104 % 73.6-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	08/24/2016	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS				S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/25/2016	ND	217	109	200	0.743	
DRO >C10-C28	4270	10.0	08/25/2016	ND	237	119	200	0.708	

Surrogate: 1-Chlorooctane 104 % 35-147

Surrogate: 1-Chlorooctadecane 232 % 28-171

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received: 08/23/2016  
Reported: 08/30/2016  
Project Name: RMR-16-002  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 08/19/2016  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: AH-15 1' (H601887-21)**

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	08/26/2016	ND	2.29	115	2.00	0.411	
Toluene*	<0.050	0.050	08/26/2016	ND	2.34	117	2.00	0.253	
Ethylbenzene*	<0.050	0.050	08/26/2016	ND	2.24	112	2.00	0.280	
Total Xylenes*	<0.150	0.150	08/26/2016	ND	6.80	113	6.00	0.295	
Total BTX	<0.300	0.300	08/26/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 104 % 73.6-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	08/24/2016	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	<200	200	08/24/2016	ND	217	109	200	0.743	
DRO >C10-C28	3110	200	08/24/2016	ND	237	119	200	0.708	

Surrogate: 1-Chlorooctane 54.9 % 35-147

Surrogate: 1-Chlorooctadecane 248 % 28-171

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received: 08/23/2016  
Reported: 08/30/2016  
Project Name: RMR-16-002  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 08/19/2016  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: AH-16 SURFACE (H601887-22)**

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	08/25/2016	ND	2.29	115	2.00	0.411	
Toluene*	<0.050	0.050	08/25/2016	ND	2.34	117	2.00	0.253	
Ethylbenzene*	<0.050	0.050	08/26/2016	ND	2.24	112	2.00	0.280	
Total Xylenes*	<0.150	0.150	08/25/2016	ND	6.80	113	6.00	0.295	
Total BTX	<0.300	0.300	08/25/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 103 % 73.6-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	08/24/2016	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	<50.0	50.0	08/24/2016	ND	217	109	200	0.743	
DRO >C10-C28	1130	50.0	08/24/2016	ND	237	119	200	0.708	

Surrogate: 1-Chlorooctane 81.2 % 35-147

Surrogate: 1-Chlorooctadecane 165 % 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: 08/23/2016  
Reported: 08/30/2016  
Project Name: RMR-16-002  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 08/19/2016  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: AH-16 1' (H601887-23)**

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	08/25/2016	ND	2.29	115	2.00	0.411	
Toluene*	<0.050	0.050	08/25/2016	ND	2.34	117	2.00	0.253	
Ethylbenzene*	<0.050	0.050	08/25/2016	ND	2.24	112	2.00	0.280	
Total Xylenes*	<0.150	0.150	08/25/2016	ND	6.80	113	6.00	0.295	
Total BTX	<0.300	0.300	08/25/2016	ND					

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	08/24/2016	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/25/2016	ND	195	97.5	200	0.460	
DRO >C10-C28	<10.0	10.0	08/25/2016	ND	210	105	200	1.75	

Surrogate: 1-Chlorooctane 83.4 % 35-147

Surrogate: 1-Chlorooctadecane 86.7 % 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.
S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
QR-03	The RPD value for the sample duplicate or MS/MSD was outside 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

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Celey D. Keene, Lab Director/Quality Manager



# CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Company Name: Safety and Environmental Solutions		BILL TO		ANALYSIS REQUEST									
Project Manager: Bob Allen		P.O. #:											
Address: 703 East Clinton, PO Box 1613		Company: Same											
City: Hobbs		Attn:											
State: NM		Address:											
Zip: 88240		City:											
Phone #: 575 397-0510		State:											
Fax #: 575 393-4388		Zip:											
Project #:		Project Owner:											
Project Name: RMR-16-002 *		Phone #:											
Project Location:		Fax #:											
Sampler Name:		SAMPLING											
FOR LAB USE ONLY		MATRIX											
Lab I.D.		PRESERV.											
Sample I.D.		OTHER:											
ALC01867		DATE											
1		TIME											
2		TPH											
3		BTEX											
4		Chloride											
5													
6													
7													
8													
9													
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:		Received By:											
Date: 8/23/16		Time: 8:40											
Relinquished By:		Received By:											
Date: 8/23/16		Time: 8:40											
Delivered By: (Circle One)		Sample Condition											
Sampler - UPS - Bus - Other:		Cool <input checked="" type="checkbox"/> Intact <input checked="" type="checkbox"/>											
		Yes <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/>											
		Checked By: (Initials)											
		4.56											
		REMARKS:											
		* Rebecca changed name of project.											
		8/30/16											
		Add'l Phone #:											
		Add'l Fax #:											





# CARDINAL Laboratories

## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

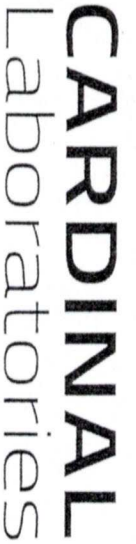
101 East Marland, Hobbs, NM 88240  
(575) 393-2326 FAX (575) 393-2476

Company Name: Safety and Environmental Solutions		P.O. #:		BILL TO		ANALYSIS REQUEST																																	
Project Manager: Bob Allen		Company: Same																																					
Address: 703 East Clinton, PO Box 1613		Attn:																																					
City: Hobbs		Address:																																					
Phone #: 575 397-0510		City:																																					
Fax #: 575 393-4388		State:																																					
Project #: <del>600-16-003</del>		Project Owner:																																					
Project Name: <del>RMR-16-002</del>		State:																																					
Project Location:		Phone #:																																					
Sampler Name:		Fax #:																																					
FOR LAB USE ONLY		MATRIX		PRESERV		SAMPLING																																	
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											
H1601887		11		ATT-8 1FT		G 1		X		X		X		X		X		X		X		X		X		08/19		1200		TPH									
		12		ATT-9 1FT		G 1		X		X		X		X		X		X		X		X		X		1215		1215		BTEX									
		13		ATT-10 Surface		G 1		X		X		X		X		X		X		X		X		X		1230		1230		Chlorides									
		14		ATT-10 1FT		G 1		X		X		X		X		X		X		X		X		X		1230		1230											
		15		ATT-11 1FT		G 1		X		X		X		X		X		X		X		X		X		1300		1300											
		16		ATT-12 Surface		G 1		X		X		X		X		X		X		X		X		X		1320		1320											
		17		ATT-12 1FT		G 1		X		X		X		X		X		X		X		X		X		1325		1325											
		18		ATT-13 1FT		G 1		X		X		X		X		X		X		X		X		X		1345		1345											
		19		ATT-14 Surface		G 1		X		X		X		X		X		X		X		X		X		1405		1405											
		20		ATT-14 1FT		G 1		X		X		X		X		X		X		X		X		X		08/19		1400											

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Relinquished By: <i>[Signature]</i>	Date: <i>8/23/16</i>	Received By: <i>[Signature]</i>	Date: <i>8/23/16</i>	Time: <i>5:40</i>	Sample Condition: <i>Intact</i>	Cool: <i>Yes</i>	Intact: <i>Yes</i>	Checked By: <i>[Signature]</i>	Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Phone #: <i>450</i>	Add'l Fax #: <i>450</i>	REMARKS:
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## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

[illegible]





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

---

September 06, 2016

Bob Allen

Safety & Environmental Solutions

703 East Clinton

Hobbs, NM 88240

RE: RMR-16-002

Enclosed are the results of analyses for samples received by the laboratory on 09/02/16 16:30.

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

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

Celey D. Keene

Lab Director/Quality Manager

**Analytical Results For:**

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

 Received: 09/02/2016  
 Reported: 09/06/2016  
 Project Name: RMR-16-002  
 Project Number: NONE GIVEN  
 Project Location: NOT GIVEN

 Sampling Date: 09/02/2016  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: AH-2 2.5' (H601979-01)**

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	09/06/2016	ND	2.13	107	2.00	0.929	
Toluene*	<0.050	0.050	09/06/2016	ND	2.18	109	2.00	1.23	
Ethylbenzene*	<0.050	0.050	09/06/2016	ND	2.11	105	2.00	0.932	
Total Xylenes*	<0.150	0.150	09/06/2016	ND	6.41	107	6.00	0.744	
Total BTX	<0.300	0.300	09/06/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 97.5 % 73.6-140

Chloride, SM4500Cl-B			mg/kg		Analyzed By: AC				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	09/06/2016	ND	416	104	400	0.00	

TPH 8015M			mg/kg		Analyzed By: MS				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	09/02/2016	ND	203	102	200	3.23	
DRO >C10-C28	<10.0	10.0	09/02/2016	ND	223	111	200	3.64	

Surrogate: 1-Chlorooctane 97.3 % 35-147

Surrogate: 1-Chlorooctadecane 105 % 28-171

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received: 09/02/2016  
Reported: 09/06/2016  
Project Name: RMR-16-002  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 09/02/2016  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: AH-4 2.5' (H601979-02)**

BTEx 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	09/06/2016	ND	2.13	107	2.00	0.929	
Toluene*	<0.050	0.050	09/06/2016	ND	2.18	109	2.00	1.23	
Ethylbenzene*	<0.050	0.050	09/06/2016	ND	2.11	105	2.00	0.932	
Total Xylenes*	<0.150	0.150	09/06/2016	ND	6.41	107	6.00	0.744	
Total BTEx	<0.300	0.300	09/06/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 97.2 % 73.6-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	09/06/2016	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	09/02/2016	ND	203	102	200	3.23	
DRO >C10-C28	<10.0	10.0	09/02/2016	ND	223	111	200	3.64	

Surrogate: 1-Chlorooctane 93.0 % 35-147

Surrogate: 1-Chlorooctadecane 104 % 28-171

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received: 09/02/2016  
Reported: 09/06/2016  
Project Name: RMR-16-002  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 09/02/2016  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: AH-13 3' (H601979-03)**

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	09/06/2016	ND	2.13	107	2.00	0.929	
Toluene*	<0.050	0.050	09/06/2016	ND	2.18	109	2.00	1.23	
Ethylbenzene*	<0.050	0.050	09/06/2016	ND	2.11	105	2.00	0.932	
Total Xylenes*	<0.150	0.150	09/06/2016	ND	6.41	107	6.00	0.744	
Total BTEx	<0.300	0.300	09/06/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 96.9 % 73.6-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	09/06/2016	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	09/02/2016	ND	203	102	200	3.23	
DRO >C10-C28	<10.0	10.0	09/02/2016	ND	223	111	200	3.64	

Surrogate: 1-Chlorooctane 98.5 % 35-147

Surrogate: 1-Chlorooctadecane 111 % 28-171

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received: 09/02/2016  
Reported: 09/06/2016  
Project Name: RMR-16-002  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 09/02/2016  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: AH-14 2.5' (H601979-04)**

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	09/06/2016	ND	2.13	107	2.00	0.929	
Toluene*	<0.050	0.050	09/06/2016	ND	2.18	109	2.00	1.23	
Ethylbenzene*	<0.050	0.050	09/06/2016	ND	2.11	105	2.00	0.932	
Total Xylenes*	<0.150	0.150	09/06/2016	ND	6.41	107	6.00	0.744	
Total BTEx	<0.300	0.300	09/06/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 96.7 % 73.6-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	09/06/2016	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	09/02/2016	ND	203	102	200	3.23	
DRO >C10-C28	<10.0	10.0	09/02/2016	ND	223	111	200	3.64	

Surrogate: 1-Chlorooctane 103 % 35-147

Surrogate: 1-Chlorooctadecane 116 % 28-171

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\*=Accredited Analyte

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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



## Page 7 of 7

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+ Cardinal cannot accept verbal changes. Please fax written changes to (575) 393-2326

#75

September 09, 2016

Bob Allen

Safety & Environmental Solutions

703 East Clinton

Hobbs, NM 88240

RE: RMR-16-002

Enclosed are the results of analyses for samples received by the laboratory on 09/08/16 16:30.

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

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,



Celey D. Keene

Lab Director/Quality Manager

**Analytical Results For:**

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

Received: 09/08/2016  
Reported: 09/09/2016  
Project Name: RMR-16-002  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 09/08/2016  
Sampling Type: Soil  
Sampling Condition: \*\* (See Notes)  
Sample Received By: Angela Cabrera

**Sample ID: SP-17 7' (H602027-01)**

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	09/09/2016	ND	2.15	107	2.00	2.29	
Toluene*	<0.050	0.050	09/09/2016	ND	2.19	110	2.00	2.59	
Ethylbenzene*	<0.050	0.050	09/09/2016	ND	2.12	106	2.00	2.48	
Total Xylenes*	<0.150	0.150	09/09/2016	ND	6.43	107	6.00	2.47	
Total BTX	<0.300	0.300	09/09/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 97.2 % 73.6-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	32.0	16.0	09/09/2016	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	09/09/2016	ND	184	92.1	200	17.6	
DRO >C10-C28	<10.0	10.0	09/09/2016	ND	196	97.9	200	18.2	

Surrogate: 1-Chlorooctane 96.9 % 35-147

Surrogate: 1-Chlorooctadecane 102 % 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: 09/08/2016  
 Reported: 09/09/2016  
 Project Name: RMR-16-002  
 Project Number: NONE GIVEN  
 Project Location: NOT GIVEN

 Sampling Date: 09/08/2016  
 Sampling Type: Soil  
 Sampling Condition: \*\* (See Notes)  
 Sample Received By: Angela Cabrera

**Sample ID: SP-17 9' (H602027-02)**

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	09/09/2016	ND	2.15	107	2.00	2.29	
Toluene*	<0.050	0.050	09/09/2016	ND	2.19	110	2.00	2.59	
Ethylbenzene*	<0.050	0.050	09/09/2016	ND	2.12	106	2.00	2.48	
Total Xylenes*	<0.150	0.150	09/09/2016	ND	6.43	107	6.00	2.47	
Total BTX	<0.300	0.300	09/09/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 97.2 % 73.6-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	09/09/2016	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	09/09/2016	ND	184	92.1	200	17.6	
DRO >C10-C28	<10.0	10.0	09/09/2016	ND	196	97.9	200	18.2	

Surrogate: 1-Chlorooctane 102 % 35-147

Surrogate: 1-Chlorooctadecane 113 % 28-171

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Celey D. Keene, Lab Director/Quality Manager



### Notes and Definitions

QR-02	The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.
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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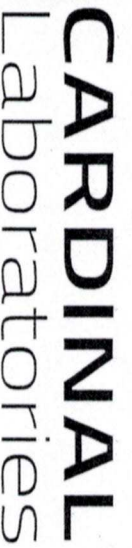
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Celey D. Keene, Lab Director/Quality Manager



# CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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## **Appendix D**

### **Site Photos**



**Cross Border Resources**  
**Nuckols 24 #1 Location**



Sign marking location



Release Point



Release Point Area



Impacted area West side of location



Pasture Impact



Fluid run Southwest pasture area



**Cross Border Resources  
Nuckols 24 #1 Location**



Spill run impacting pasture



Impacted area west of location



Spill run looking south



Spill traverse west onto lease road



Spill Run North side



Surface Removal of north side



**Cross Border Resources  
Nuckols 24 #1 Location**



Standing fluid west of pad



Removal of surface impact



Impact inside bermed area



Surface removal



**Cross Border Resources  
Nuckols 24 #1 Location**



Test Trench



Test Trench

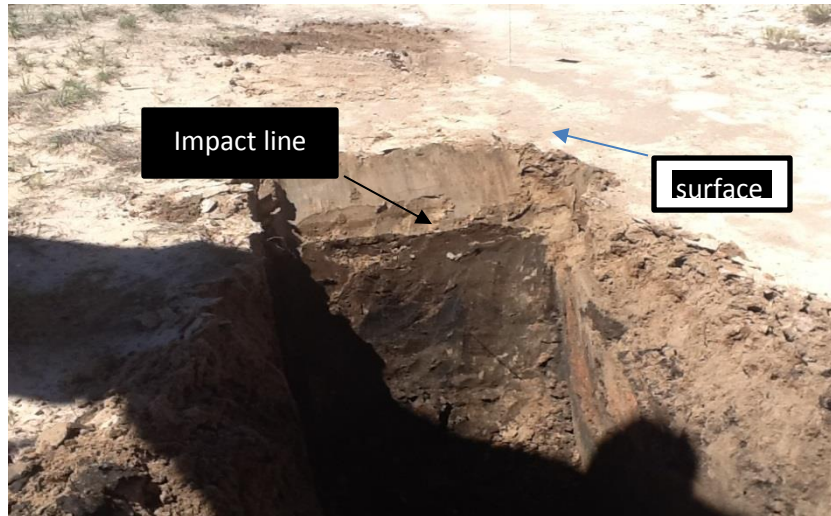


Surface removal at release point



Stockpiled soil

## Cross Border Resources Nuckols



Test Trench 9-8-16 @ BH-6



Impacted Soil Demarcation Lines





## **Cross Border Resources Nuckols**



Location of trench in relation to tanks



Depth of Impact

