

**Revised Site Investigation Report & Corrective  
Action Plan  
Onsurez #2  
Eddy County, New Mexico**



*Prepared for:*

**Rockcliff Energy LLC**  
1301 McKinney Street  
Suite 1300  
Houston, Texas 77010

*Prepared by:*



**Kane Environmental Engineering Inc.**  
8816 Big View Drive  
Austin, Texas 78730  
Project: 17-389

**October 2017**

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# Site Investigation Summary

## Introduction:

As requested by NMOCD, Rockcliff Operating New Mexico, LLC (**Rockcliff**) retained Kane Environmental to collect additional soil samples from sample sites ES-4 and ES-13 (**Figure 1**).

## Site Evaluation Summary

1. Representatives of Kane Environmental (Kane) completed a New Mexico One Call (NM811) to verify clearance any utilities. Rockcliff operating personnel verified that these locations are clear of any underground equipment.
2. Kane personnel, Nathan Harvey and Alan Kane, P.E. began reviewed the site on September 12<sup>th</sup>, 2017. Photographs were taken to document the installation of the of the stuffing box spill elimination device. (**Appendix A**).
3. Kane personnel, on behalf of Rockcliff, as requested by NMOCD, collected additional soil samples (Sample ES4A- and ES-13A). These samples were collected from the original sample locations ES-4 and ES-13, based identical latitude longitude coordinates (**Figure 1**). Soils from each of the boreholes were collected at depths of 3 ft, 8 ft and 13 ft bgs. The samples were placed in sealable plastic bags, allowed to reach temperature equilibrium and then screened for hydrocarbons using a MiniRae 2000 photoionization detector (PID). The samples were also screened for chlorides using a Spectrum Field Scout electrical conductivity (EC) meter. The results are provided in (**Table 1**) along with a description of the soils encountered.
4. Kane personnel used an auger to collect each sample. After screening, each sample was then placed in appropriate containers, properly labeled, then on ice in a cooler and delivered to the Cardinal Laboratory located in Hobbs, New Mexico for analysis. Sample ES-4A was analyzed for the following constituents:  
  
Total Petroleum Hydrocarbons; Gasoline Rand Organics, Diesel Range Organics, and Oil Range Organics – (EPA Method 8105). Chlorides – (EPA Method 300 or equivalent).
5. Sample ES-13A was analyzed for the following constituent:  
  
Chlorides – (EPA Method 300 or equivalent).

6. The boreholes were backfilled.
7. A summary of the analytical results for each sample is provided in (**Table 2**).

## **Corrective Action Plan**

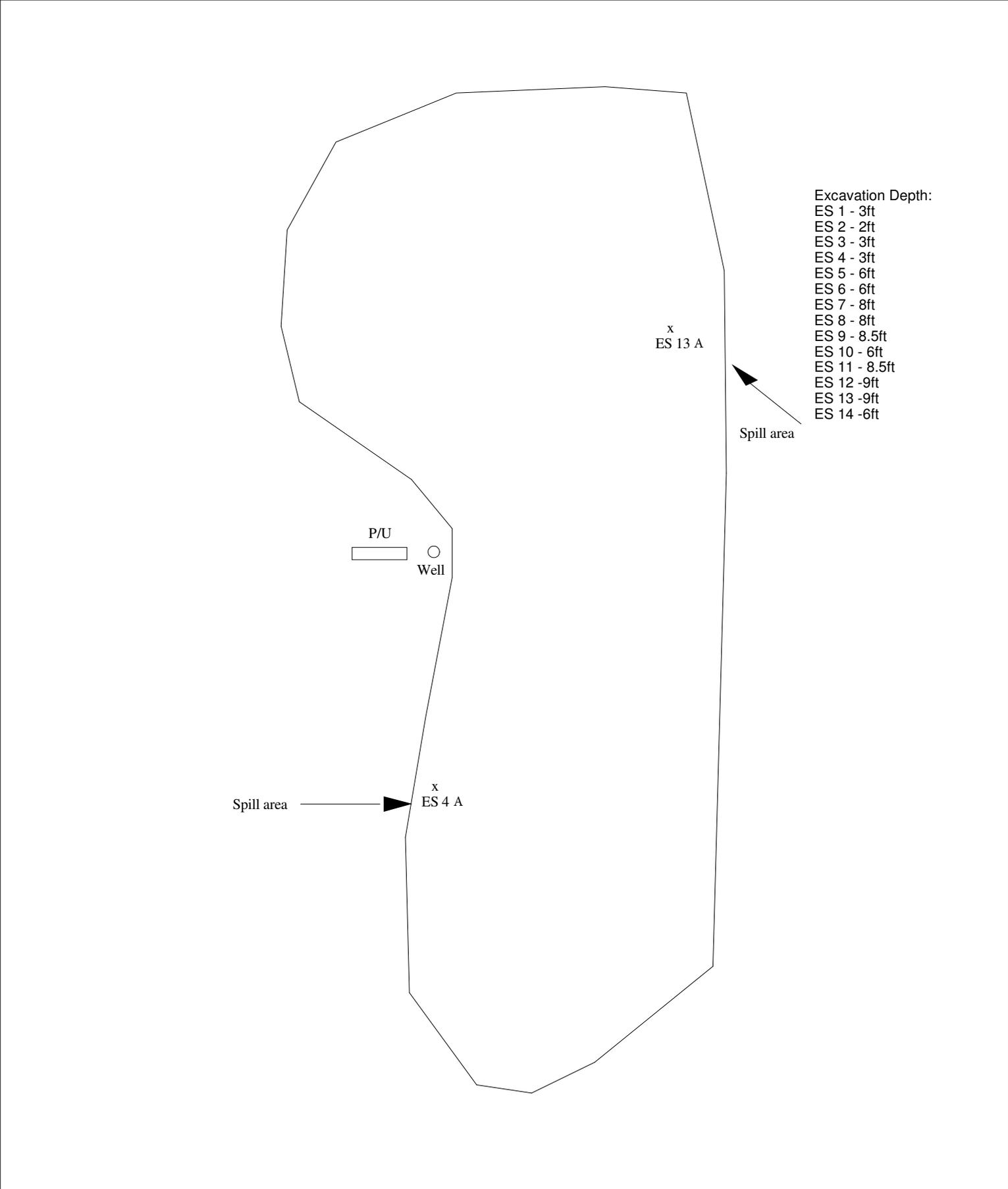
Based on the information obtained from this follow up site investigation and the analytical results of the soil samples the suggested corrective action plan includes the following:

- Remove an additional 3ft of soil from sample sites ES-4A and ES-13A to bring them into compliance.
- Photographs will be taken of the excavated areas and clean soil being backfilled.

A closure report will be prepared and submitted detailing the corrective actions taken as well as to serve as documentation that the proposed actions have been completed.

**FIGURE 1**

**Soil Sample Diagram**

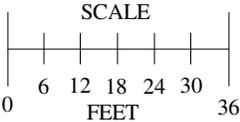


- Excavation Depth:
- ES 1 - 3ft
  - ES 2 - 2ft
  - ES 3 - 3ft
  - ES 4 - 3ft
  - ES 5 - 6ft
  - ES 6 - 6ft
  - ES 7 - 8ft
  - ES 8 - 8ft
  - ES 9 - 8.5ft
  - ES 10 - 6ft
  - ES 11 - 8.5ft
  - ES 12 - 9ft
  - ES 13 - 9ft
  - ES 14 - 6ft

P/U  
Well

Spill area → x  
ES 4 A

x  
ES 13 A  
← Spill area



Rockcliff Energy, LLC  
Houston, Texas

Onsurez #2

Eddy County  
New Mexico

**TABLE 1**

**Field Soil Screening Data**

**Table 1**

<b>Sample Point</b>	<b>Depth (Bgs)</b>	<b>EC (mS/cm)</b>	<b>PID (ppm)</b>	<b>Soil Description</b>
<b>ES-4A</b>	3 ft	0.75	0	Tan/brown silty sand
	8 ft	0.86	0	Brown silty clay
	13 ft	0.8	0	Light tan, silty clay
<b>ES-13A</b>	3 ft	1.7	0	Tan/brown silty sand
	8 ft	0.82	0	Brown silty clay
	13 ft	0.74	0	Light tan, sandy clay

**TABLE 2**

**Analytical Results Summary**

**Table 2**

<b>Sample</b>	<b>Chlorides</b>	<b>TPH-GRO</b>	<b>TPH-DRO</b>	<b>TPH-ORO</b>
<b>ES-4A 3 ft</b>	336	<10.0	<10.0	<10.0
<b>ES-4A 8 ft</b>	272	<10.0	<10.0	16.7
<b>ES-4A 13 ft</b>	304	<10.0	<10.0	<10.0
<b>ES-13A 3 ft</b>	224			
<b>ES-13A 8 ft</b>	368			
<b>ES-13A 13 ft</b>	352			

# **APPENDIX A**

## **Photographs**



## **APPENDIX B**

### **Analytical Data**

September 20, 2017

ALAN KANE

KANE ENVIROMENTAL

8816 BIG VIEW DRIVE

AUSTIN, TX 78730

RE: ONSUREZ #2

Enclosed are the results of analyses for samples received by the laboratory on 09/12/17 16:15.

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](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:**

 KANE ENVIROMENTAL  
 ALAN KANE  
 8816 BIG VIEW DRIVE  
 AUSTIN TX, 78730  
 Fax To:

Received:	09/12/2017	Sampling Date:	09/12/2017
Reported:	09/20/2017	Sampling Type:	Soil
Project Name:	ONSUREZ #2	Sampling Condition:	Cool & Intact
Project Number:	17-389	Sample Received By:	Tamara Oldaker
Project Location:	ROCKCLIFF OPERATING EDDY CO. NM		

**Sample ID: ES 4A 3' (H702456-01)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>336</b>	16.0	09/15/2017	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	09/15/2017	ND	196	97.9	200	6.06	
DRO >C10-C28	<10.0	10.0	09/15/2017	ND	188	93.9	200	16.9	
EXT DRO >C28-C36	<10.0	10.0	09/15/2017	ND					

Surrogate: 1-Chlorooctane 108 % 28.3-164  
 Surrogate: 1-Chlorooctadecane 108 % 34.7-157

**Sample ID: ES 4A 8' (H702456-02)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>272</b>	16.0	09/15/2017	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	09/15/2017	ND	198	99.1	200	2.68	
DRO >C10-C28	<10.0	10.0	09/15/2017	ND	209	105	200	0.235	
<b>EXT DRO &gt;C28-C36</b>	<b>16.7</b>	10.0	09/15/2017	ND					

Surrogate: 1-Chlorooctane 100 % 28.3-164  
 Surrogate: 1-Chlorooctadecane 106 % 34.7-157

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 KANE ENVIROMENTAL  
 ALAN KANE  
 8816 BIG VIEW DRIVE  
 AUSTIN TX, 78730  
 Fax To:

Received:	09/12/2017	Sampling Date:	09/12/2017
Reported:	09/20/2017	Sampling Type:	Soil
Project Name:	ONSUREZ #2	Sampling Condition:	Cool & Intact
Project Number:	17-389	Sample Received By:	Tamara Oldaker
Project Location:	ROCKCLIFF OPERATING EDDY CO. NM		

**Sample ID: ES 4A 13' (H702456-03)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>304</b>	16.0	09/15/2017	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	09/15/2017	ND	198	99.1	200	2.68	
DRO >C10-C28	<10.0	10.0	09/15/2017	ND	209	105	200	0.235	
EXT DRO >C28-C36	<10.0	10.0	09/15/2017	ND					
<i>Surrogate: 1-Chlorooctane</i>		<i>101 %</i>	<i>28.3-164</i>						
<i>Surrogate: 1-Chlorooctadecane</i>		<i>108 %</i>	<i>34.7-157</i>						

**Sample ID: ES 13A 3' (H702456-04)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>224</b>	16.0	09/15/2017	ND	400	100	400	3.92	

**Sample ID: ES 13A 8' (H702456-05)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>368</b>	16.0	09/15/2017	ND	400	100	400	3.92	

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 KANE ENVIROMENTAL  
 ALAN KANE  
 8816 BIG VIEW DRIVE  
 AUSTIN TX, 78730  
 Fax To:

Received:	09/12/2017	Sampling Date:	09/12/2017
Reported:	09/20/2017	Sampling Type:	Soil
Project Name:	ONSUREZ #2	Sampling Condition:	Cool & Intact
Project Number:	17-389	Sample Received By:	Tamara Oldaker
Project Location:	ROCKCLIFF OPERATING EDDY CO. NM		

**Sample ID: ES 13A 13' (H702456-06)**

Chloride, SM4500Cl-B	mg/kg	Analyzed By: AC							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>352</b>	16.0	09/15/2017	ND	400	100	400	3.92	

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Celey D. Keene, Lab Director/Quality Manager

**Notes and Definitions**

QR-04	The RPD for the BS/BSD was outside of historical limits.
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

## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

### BILL TO

### ANALYSIS REQUEST

Company Name: Kane Environmental	P.O. #:
Project Manager: Kevin Elrod	Company: Kane
Address: 8816 Big View Drive	Attn:
City: Austin State: TX zip: 78730	Address: 8816 Big View Dr.
Phone #: 979 450 8307 Fax #: NA	City: Austin
Project #: 17-389 Project Owner:	State: TX zip: 78736
Project Name: Onsite	Phone #: 281 370 6580
Project Location: Onsite #2	Fax #:
Sampler Name: Nathan Harvey	
FOR LAB USE ONLY	

Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX						DATE	TIME	REMARKS
				GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :			
A702456	ES 4A	0	1						9-12	930	Chlorides SM 4500	
	ES 4A	0	1						9-12	945	TPH 8015 Extended	
	ES 4A	0	1						9-12	1000		
	ES 4A	0	1						9-12	1015		
	ES 13A	0	1						9-12	1030		
	ES 13A	0	1						9-12	1045		

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Relinquished By: Nathan Harvey	Date: 9-12-17	Received By: [Signature]	Date: 9-12-17
Relinquished By: [Signature]	Date: 9-12-17	Received By: [Signature]	Date: 9-12-17
Delivered By: (Circle One) S.40	Sample Condition	CHECKED BY: [Signature]	
Sampler - UPS - Bus - Other: Composite Site	Cool Intact <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	(Initials) TP-475	

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

# **APPENDIX C**

## **Field Notes**