



May 27, 2015

NMOCD District I  
1625 N. French Drive  
Hobbs, New Mexico 88240

SUBJECT: SOIL REMEDIATION WORK PLAN FOR INCIDENT 1RP-4197 STATE "S" BRINE AND WATER STATION (BW-028), LEA COUNTY, NEW MEXICO

Dear Mr. Keyes:

On behalf of Key Energy Services (Key) Souder Miller & Associates (SMA) is pleased to submit the attached Work Plan summarizing the planned soil remediation of the release site located on the State "S" Brine And Water Station (BW-028) in Lea County, New Mexico. The purpose of the work plan is to obtain approval from the New Mexico Oil Conservation Division for remediation of the release that occurred on March 2, 2016.

At the request of Key, SMA responded to assess and delineate the production fluids release associated with the State "S" Brine And Water Station (BW-028) location. The release was initially reported to NMOCD by Key on March 2, 2016 and was a result of a human error. The table below summarizes information regarding the release. Results of the assessment and delineation follow in the attached report.

Table 1: Release information and Site Ranking					
Name	State "S" Brine and Water Station (BW-028)				
Location	Incident Number	API Number	Section, Township, Range		
	1RP-4197	30-025-33547	SW/NE (Unit D)	Section 15	T 21S, R37 E NMPM
Estimated Date of Release	March 2, 2016				
Date Reported to NMOCD	March 3, 2016				
Reported by	Maren Coligan, Key Energy Services				
Land Owner	Millard Deck Trust				
Reported To	NM Oil Conservation Division (NMOCD)				
Source of Release	Human Error				
Released Material	Produced Water				
Released Volume	80 bbls Produced Water				
Recovered Volume	0 bbls Produced Water				
Net Release	80 bbls Produced Water				
Nearest Waterway	46 West of the location				
Depth to Groundwater	Estimated to be 70 feet				

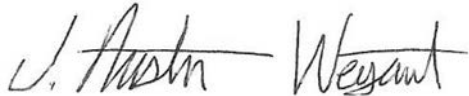


Nearest Domestic Water Source	Great than 1,000 feet
NMOCD Ranking	10
SMA Response Dates	Initial: 4/11/16 Mitigation Activities:
Estimated Yd <sup>3</sup> Contaminated Soil Excavated and Disposed	2,680

A copy of the C-141 Initial is located in Appendix B. For questions or comments pertaining to the release or the attached Work Plan, please feel free to contact either of us.

Submitted by:

SOUDER, MILLER & ASSOCIATES



Austin Weyant  
Project Scientist

Reviewed by:



Cynthia Gray, CHMM  
Senior Scientist



# SOIL REMEDIATION WORK PLAN FOR INCIDENT 1RP-4197

## KEY ENERGY SERVICES, LLC

STATE "S" BRINE AND WATER STATION (BW-028)

API# 30-025-33547

SECTION 15, T21S R37E, NMPM

LEA COUNTY, NM



Prepared for:  
Key Energy Services LLC  
6 Desta Dr. Suite 4300  
Midland, TX 79705

Prepared by:  
Souder, Miller & Associates  
201 S. Halagueno  
Carlsbad, NM 88221  
575-689-7040

May 27, 2015  
SMA Reference  
5B24998 BG1



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## **1.0 Introduction**

On behalf of Key Energy Services (Key) Souder Miller & Associates (SMA) has prepared this report that describes the assessment and initial delimitation of the releases associated with the State "S" Brine And Water Station (BW-028) in Lea County, New Mexico on land owned by the Millard Deck Trust. Figure 1 illustrates the vicinity and location of the site.

## **2.0 Site Ranking and Land Jurisdiction**

The release site is located approximately 46 miles (> 1,000 feet) west of Salt Lake, in an area owned by Millard Deck Trust with an elevation of approximately 3,460 feet above sea level. After evaluation of the site using aerial photography and topographic maps, depth to groundwater is estimated to be greater less 100 feet but greater than 50 feet below ground surface (bgs). Figure 1 depicts the site vicinity and Figure 2 depicts the site details and sample locations.

SMA searched the New Mexico State Engineer's Office online water well database for water wells in the vicinity of the release. No well is located within a 1000 foot radius of the site. Figure 1 depicts the site vicinity and Figure 2 shows the site itself. The physical location of this release is within the jurisdiction of NMOCD.

This release location has been assigned a NMOCD ranking of 10 which requires a soil remediation standard of 10 parts per million (ppm) benzene, 50 ppm combined benzene, toluene, ethyl-benzene, and total xylenes (BTEX), and 1000 ppm total petroleum hydrocarbons (TPH). Table 1 illustrates site ranking rationale.

## **3.0 Assessment and Initial Results**

On April 11, 2015, SMA personnel assessed the release area onsite with an gas powered auger, an Photo Ionization Detector (PID), and a mobile chlorides titration kit. The affected area was found to be 580 feet long and 15-80 feet wide. The release impact area was found to be in the pastor east of the well pad. Soils were impacted to at least 3 feet bgs in pasture. Sample locations are noted on Figure 2 Site Details and Sample Location Map. All samples were collected and processed according to NMOCD soil sampling procedures. The laboratory samples were sent under chain-of-custody protocols to Hall Environmental Analysis Laboratory for analysis for Benzene and Total BTEX using EPA Method 8021B, DRO and GRO by EPA Method 8015D, and total Chlorides using EPA Method 300.0.

## **4.0 Soil Remediation Work Plan**

SMA will begin the site delineation and excavation of affected soils, with approval from area utilities owners via 811 and NMOCD. SMA personal continuously will guide the excavation activities by collecting composite soil samples for field screening with a mobile titration unit (EPA 4500) and a calibrated PID. Delineation will occurred to sufficiently map the plume of contamination by NMOCD standards. Delineation results from April 11, 2016 shows that affected soil occurs to a minimum of 3 feet bgs. A method on instu-remediation will be done by flushing the contaminants from the soil in to a lined sump and then pumped out for disposal. This process is described a following. The pasture will be excavated to 3 foot bgs and placed onsite within a liner. Then a 40 mill. plastic liner and bentonite layer will be added to bottom of excavation to create a cap. Next the contaminated soil will be placed on top of the cap within the

excavation with amendments of citric acid and hay. A lined sump with a berm on the east side will be installed at L8 shown in Figure 2. Also a small berm will be added to the south side of the affected area to allow the water to run only within the affected area and down to the sump. 9 inches of fresh water will be pump from a tank on location and dispersed by an irrigation sprinkler on the west side of the affected area. The elevation change is 8 feet from west to east which will allow the water to mix with the citric acid to help flush the chlorides from the soil and down in the lined sump. Calculations show this method should flush the chloride concentration to an average of 2000 ppm. Then the natural rain events in the year will help lower the average chloride concentration of the soil to 1000 ppm. Final samples will be collected at final depth and on sidewalls of excavation, where an in-situ cap will be placed within the excavation. After excavation, installation of in-situ cap and backfill occurs topsoil will be added as over burden to help with contouring of the area. The area will be sampled and tested periodically with a EC meter to confirm the flushing of contamination. Approximately 2,680 cubic yards of contaminated soil will be remediated onsite. The contaminated soil was transported for proper disposal at New Mexico permitted Sundance facility in New Mexico.

## **5.0 Conclusions and Recommendations**

NMOCD Guidelines for Remediation of Leaks, Spills, and Releases have established the following action levels for contaminants of concern with a site ranking of 10: 10 ppm (mg/kg) Benzene, 50 ppm total BTEX, and 1000 ppm TPH. The release consisted of produced and associated petroleum found during the initial assessment and delineation.

After the soil remediation work plan is approved by NMOCD, SMA will begin soil remediation activities on site.

Soil contaminant concentrations found during the initial delineation are illustrated in Figure 2. A summary of the laboratory analyses is included in Table 3. Laboratory reports are included in Appendix A.

## **6.0 Closure and Limitations**

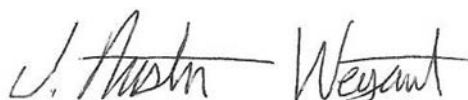
The scope of our services consisted of the performance of a preliminary spill assessment, verification of release stabilization, regulatory liaison, and preparation of this Remediation Work Plan. All work has been performed in accordance with generally accepted professional environmental consulting practices for oil and gas releases in the Permian Basin in New Mexico.

If there are any questions regarding this report, please contact either Austin Weyant at 575-689-7040 or Cindy Gray at 505-325-7535.

Submitted by:

Reviewed by:

SOUDER, MILLER & ASSOCIATES



Austin Weyant  
Project Scientist



Cynthia Gray, CHMM  
Senior Scientist

**Figures:**

Figure 1: Vicinity Map  
Figure 2: Site Map  
Figure 3: In-situ Cap Design

**Tables:**

Table 1: Release Information and Site Ranking  
Table 2: Summary of Chloride Field Screening Results  
Table 3: Summary of Laboratory Analyses

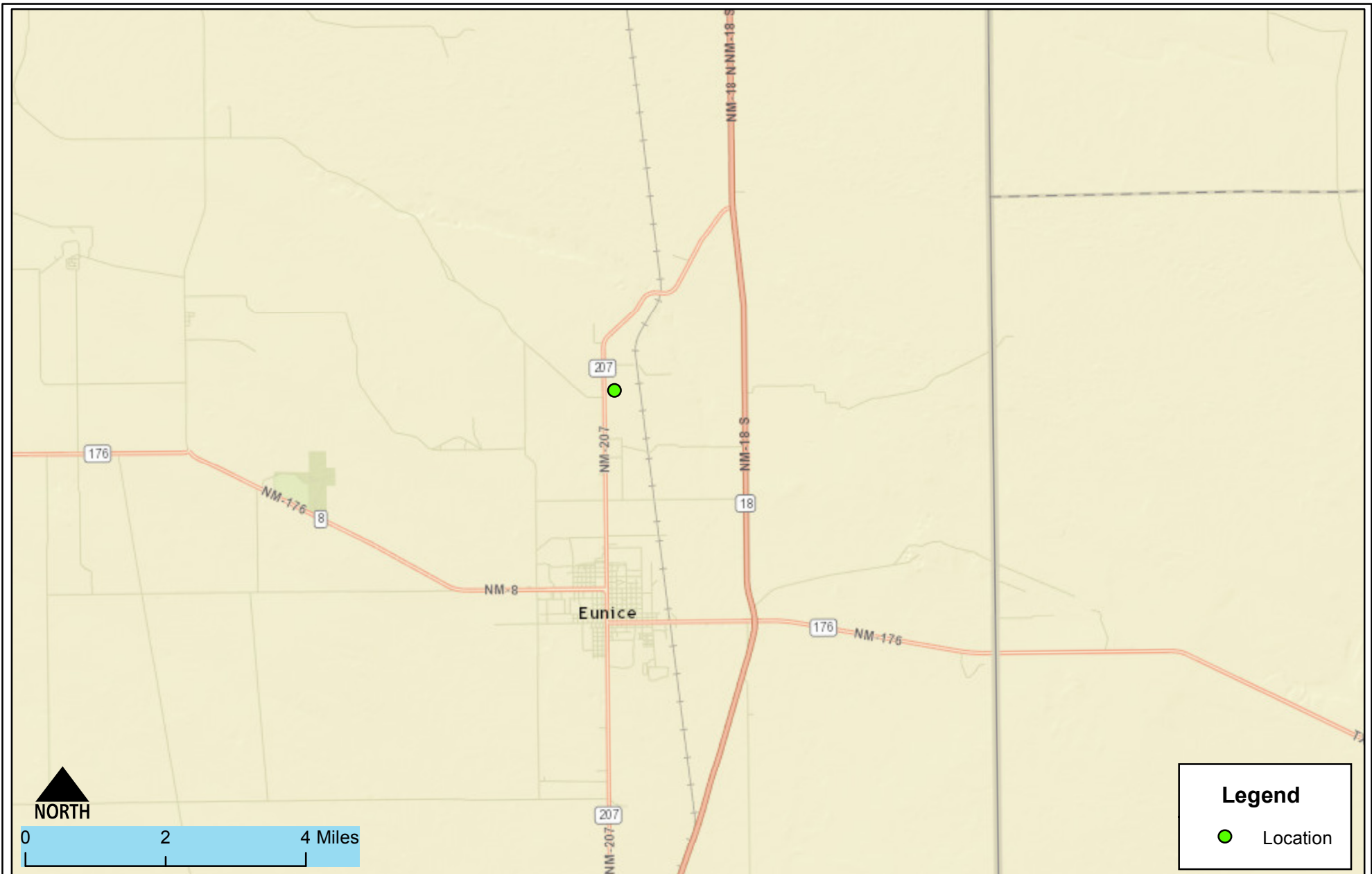
**Appendices:**

Appendix A: Laboratory Analytical Reports  
Appendix B: Form C141 Initial

# FIGURE 1

## VICINITY MAP





Vicinity Map  
Key Energy- State S  
Eunice, New Mexico

Figure 1

Date Saved:  
4/12/2016

By:	Date:	Revisions	Descr:
By:	Date:		Descr:

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Drawn	Lucas Middleton
Checked	
Approved	



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# FIGURE 2

# SITE MAP



*Detailed Site and Sample Map*  
 Key Energy- State S  
 Eunice, New Mexico

Figure 2

Date Saved: 4/12/2016	By: _____	Date: _____	Revisions	Descr: _____
	By: _____	Date: _____		Descr: _____
Copyright 2015 Souder, Miller & Associates - All Rights Reserved				

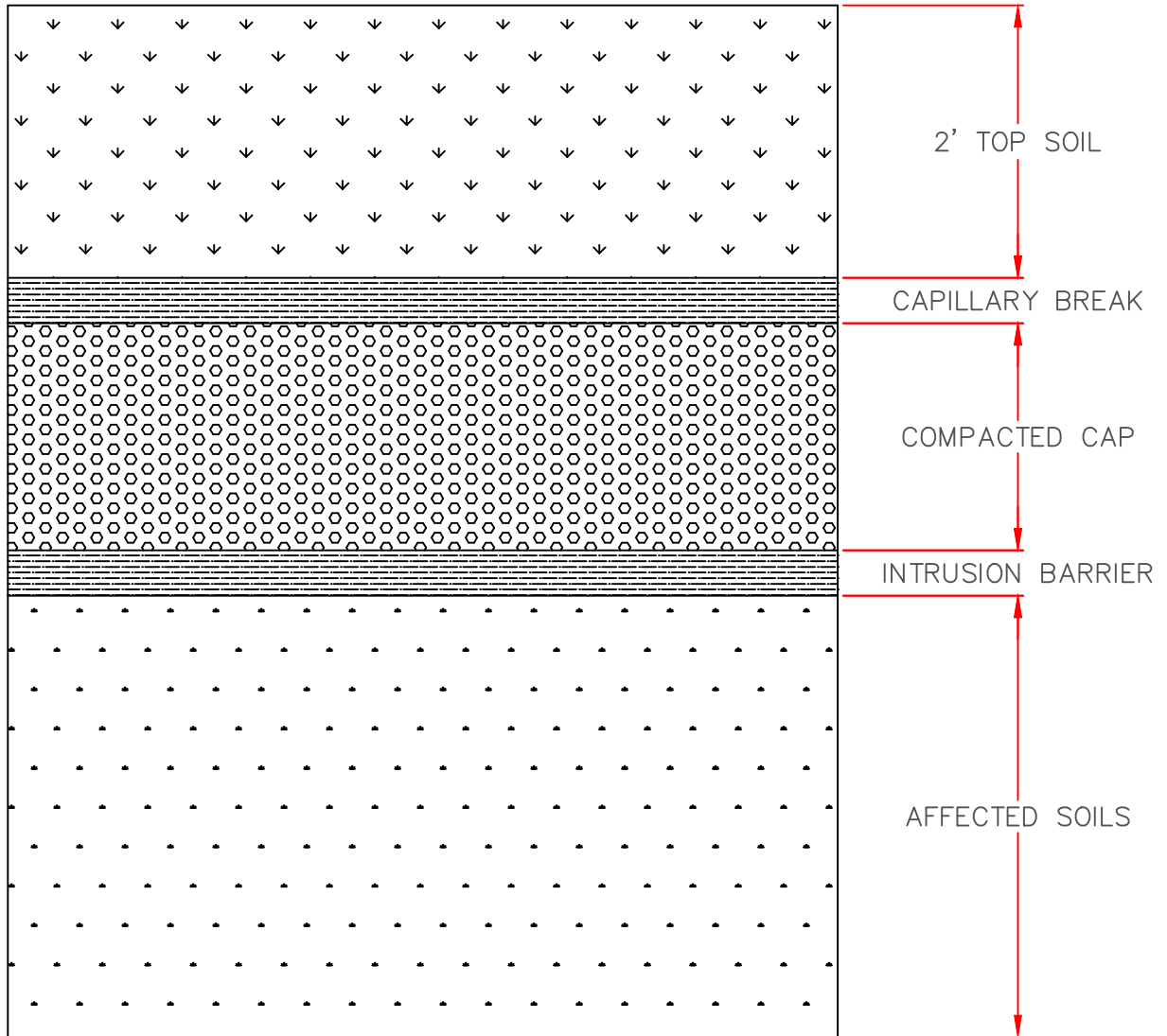
Drawn	<u>Lucas Middleton</u>
Checked	_____
Approved	_____



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# FIGURE 3

## IN-SITU CAP AND BIO BARRIER DESIGN



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COG

IN-SITU CAP  
AND BIOBARRIER DESIGN  
Key Station- State 1 Brine Station

Designed LM	Drawn GJF	Checked KT
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Date: May 2016

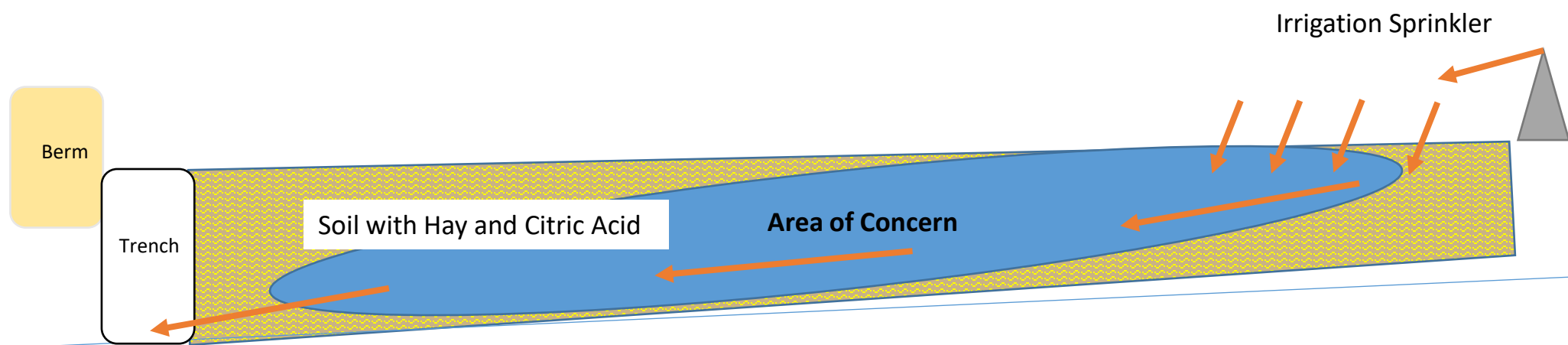
Scale: Horiz: NA  
Vert: NA

Project No: 5B23978

Figure 3

EAST

WEST



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(575) 689-7040

KEY Services—  
State S SWD Remediation Diagram

Date: 8/31/2015

Figure: 3

# TABLE 1

## RELEASE INFORMATION AND SITE RANKING



Key Energy LLC  
Table 1: Site Ranking

Site Ranking Determination Table

Depth to Groundwater	NMOCD Numeric Rank for this Site	Source for Ranking	Notes
< 50 BGS = 20		USGS Topo Maps; Google Earth Elevation Difference from the site and	Monument Draw is 1 miles to the north east of the location. ; Site elevation is approximately 2500 feet above salt lake
50' to 99' = 10	10		
>100' = 0			
Ranking Criteria for Horizontal Distance to Nearest Surface Water	NMOCD Numeric Rank for this Site	Source for Ranking	Notes
< 200' = 20		USGS Topo Maps; Google Earth ; ArcMap	Salt Lake nearset surface water is 46 miles west of location
200' - 1000' = 10			
>1000' = 0	0		
Ranking Criteria for Horizontal Distance to a Water Well or Water Source	NMOCD Numeric Rank for this Site	Source for Ranking	Notes
<1000' from a water source? <200' from a private domestic water source? YES OR NO to BOTH. YES = 20, NO = 0	0	NM State Engineer Water Well Database	nearest well is 1080 feet west of location
	0		
Total Site Ranking	10		
Soil Remedation Standards	0 to 9	10 to 19	>19
Benzene	10 PPM	10 PPM	10 PPM
BTEX	50 PPM	50 PPM	50 PPM
TPH	5000 PPM	1000 PPM	100 PPM







# 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	Distance	Depth Well	Depth Water	Water Column
<a href="#">CP 00554</a>			LE	2	2	16	21S		37E	672744	3595610*	302	80	70	10

Average Depth to Water: **70 feet**

Minimum Depth: **70 feet**

Maximum Depth: **70 feet**

Record Count: 1

### UTM NAD83 Radius Search (in meters):

**Easting (X):** 673042

**Northing (Y):** 3595557.18

**Radius:** 1000

\*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.

# TABLE 2

## SUMMARY OF CHLORIDE FIELD SCREENING RESULTS

Table 1: Summary of Site PID Field Screening Results

FIELD SCREENING RESULTS SUMMARY					
Date	Time	Field Screening Reference	Sample Depth (Feet BGS)	PID Reading	Lab Sample Collected Y/N
4/11/2016	11:00 a.m.	L1-S	Surface	2,394	Y
4/11/2016	11:00 a.m.	L1-1	1'	559	Y
4/11/2016	11:00 a.m.	L1-3	3'	301	Y
4/11/2016	11:00 a.m.	L2-1	1'	3,354	Y
4/11/2016	11:00 a.m.	L3-1	1	8,385	Y
4/11/2016	11:00 a.m.	L4-1.5	1.5'	7,769	Y
4/11/2016	11:00 a.m.	L5-0.5	.5'	6,106	Y
4/11/2016	11:00 a.m.	L6-0.5	.5'	7,697	Y
4/11/2016	11:00 a.m.	L6-2	2'	7,511	Y
4/11/2016	11:00 a.m.	L6-1	1'	5,203	Y
4/11/2016	11:00 a.m.	L7-1	1'	5,762	Y
4/11/2016	11:00 a.m.	L8-1	1'	7,181	Y
4/11/2016	11:00 a.m.	L9-1	1'	8,185	Y
4/11/2016	11:00 a.m.	L10-1.5	1.5'	3,899	Y
4/11/2016	11:00 a.m.	L10-3	3'	258	Y
4/11/2016	11:00 a.m.	L11-S	Surface	559	Y
4/11/2016	11:00 a.m.	L11-1	1'	140	Y
4/11/2016	11:00 a.m.	L12-1	1'	4,186	Y
4/11/2016	11:00 a.m.	BG	1'	180	Y



# TABLE 3

## SUMMARY OF LABORATORY ANALYSES

**Table 3: Summary of Laboratory Analyses**

Analytical Report-	Sample Number on Figure 2 Map	Sample Date	Depth	BTEX	Benzene	GRO	DRO	Cl-
TC84237				ppm	mg/Kg	mg/Kg	mg/Kg	mg/Kg
TC84237-1	L1-1	4/11/2016	1'	N/A	N/A	N/A	N/A	440
TC84237-2	L1-3	4/11/2016	3'	N/A	N/A	N/A	N/A	116
TC84237-3	L2-1	4/11/2016	1'	N/A	N/A	N/A	N/A	4290
TC84237-4	L3-1	4/11/2016	1'	N/A	N/A	N/A	N/A	9,880
TC84237-5	L4-1.5	4/11/2016	1.5'	N/A	N/A	N/A	N/A	9,620
TC84237-6	L5-0.5	4/11/2016	0.5'	N/A	N/A	N/A	N/A	7790
TC84237-7	L6-0.5	4/11/2016	0.5'	N/A	N/A	N/A	N/A	8290
TC84237-8	L6-1	4/11/2016	1'	N/A	N/A	N/A	N/A	5650
TC84237-9	L6-2	4/11/2016	2'	N/A	N/A	N/A	N/A	5510
TC84237-10	L7-1	4/11/2016	1'	N/A	N/A	N/A	N/A	5490
TC84237-11	L8-1	4/11/2016	1'	N/A	N/A	N/A	N/A	7840
TC84237-12	L9-1	4/11/2016	1'	N/A	N/A	N/A	N/A	4190
TC84237-13	L10-1.5	4/11/2016	1.5'	N/A	N/A	N/A	N/A	374
TC84237-14	L10-3	4/11/2016	3'	N/A	N/A	N/A	N/A	1290
TC84237-15	L11-5	4/11/2016	5'	N/A	N/A	N/A	N/A	BDL
TC84237-16	L11-1	4/11/2016	1'	N/A	N/A	N/A	N/A	BDL
TC84237-17	L12-1	4/11/2016	2'	N/A	N/A	N/A	N/A	5140
TC84237-18	BG	4/11/2016	Surface	N/A	N/A	N/A	N/A	38.2

# APPENDIX A

## LABORATORY ANALYTICAL REPORTS

**Technical Report for****Key Energy**

State# S Brine Station

SGS Accutest Job Number: TC84237

Sampling Date: 04/11/16

**Report to:****Key Energy**  
6 Desota Drvie Suite 4300  
Midland, TX 79705  
aramirez01@keyenergy.com**ATTN: Ana Ramirez****Total number of pages in report: 37**Test results contained within this data package meet the requirements  
of the National Environmental Laboratory Accreditation Program  
and/or state specific certification programs as applicable.  
**Richard Rodriguez**  
Laboratory Director**Client Service contact: Electa Brown 713-271-4700**Certifications: TX (T104704220-16-24) AR (14-016-0) AZ (AZ0769) FL (E87628)  
KS (E-10366) LA (85695/04004) NJ (TX010) OK (2014-172) VA (7654)This report shall not be reproduced, except in its entirety, without the written approval of SGS Accutest.  
Test results relate only to samples analyzed.

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Sample Summary

Key Energy

Job No: TC84237

State# S Brine Station

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
TC84237-1	04/11/16	10:00	04/22/16	SO	Soil	L1-1
TC84237-2	04/11/16	10:00	04/22/16	SO	Soil	L1-3
TC84237-3	04/11/16	10:00	04/22/16	SO	Soil	L2-1
TC84237-4	04/11/16	10:00	04/22/16	SO	Soil	L3-1
TC84237-5	04/11/16	10:00	04/22/16	SO	Soil	L4-1.5
TC84237-6	04/11/16	10:00	04/22/16	SO	Soil	L5-0.5
TC84237-7	04/11/16	10:00	04/22/16	SO	Soil	L6-0.5
TC84237-8	04/11/16	10:00	04/22/16	SO	Soil	L6-1
TC84237-9	04/11/16	10:00	04/22/16	SO	Soil	L6-2
TC84237-10	04/11/16	10:00	04/22/16	SO	Soil	L7-1
TC84237-11	04/11/16	10:00	04/22/16	SO	Soil	L8-1
TC84237-12	04/11/16	10:00	04/22/16	SO	Soil	L9-1
TC84237-13	04/11/16	10:00	04/22/16	SO	Soil	L10-1.5

Soil samples reported on a dry weight basis unless otherwise indicated on result page.



Sample Summary  
(continued)

Key Energy

Job No: TC84237

State# S Brine Station

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
TC84237-14	04/11/16	10:00	04/22/16	SO	Soil	L10-3
TC84237-15	04/11/16	10:00	04/22/16	SO	Soil	L11-5
TC84237-16	04/11/16	10:00	04/22/16	SO	Soil	L11-1
TC84237-17	04/11/16	10:00	04/22/16	SO	Soil	L12-1
TC84237-18	04/11/16	10:00	04/22/16	SO	Soil	B6

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

## Summary of Hits

Page 1 of 2

**Job Number:** TC84237  
**Account:** Key Energy  
**Project:** State# S Brine Station  
**Collected:** 04/11/16

2

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
<b>TC84237-1</b>	<b>L1-1</b>					
Chloride <sup>a</sup>		440	22		mg/kg	EPA 300/SW846 9056A
<b>TC84237-2</b>	<b>L1-3</b>					
Chloride <sup>a</sup>		116	22		mg/kg	EPA 300/SW846 9056A
<b>TC84237-3</b>	<b>L2-1</b>					
Chloride <sup>a</sup>		4290	22		mg/kg	EPA 300/SW846 9056A
<b>TC84237-4</b>	<b>L3-1</b>					
Chloride <sup>a</sup>		9880	89		mg/kg	EPA 300/SW846 9056A
<b>TC84237-5</b>	<b>L4-1.5</b>					
Chloride <sup>a</sup>		9620	89		mg/kg	EPA 300/SW846 9056A
<b>TC84237-6</b>	<b>L5-0.5</b>					
Chloride <sup>a</sup>		7790	67		mg/kg	EPA 300/SW846 9056A
<b>TC84237-7</b>	<b>L6-0.5</b>					
Chloride <sup>a</sup>		8290	89		mg/kg	EPA 300/SW846 9056A
<b>TC84237-8</b>	<b>L6-1</b>					
Chloride <sup>a</sup>		5650	68		mg/kg	EPA 300/SW846 9056A
<b>TC84237-9</b>	<b>L6-2</b>					
Chloride <sup>a</sup>		5510	66		mg/kg	EPA 300/SW846 9056A
<b>TC84237-10</b>	<b>L7-1</b>					
Chloride <sup>a</sup>		5490	46		mg/kg	EPA 300/SW846 9056A
<b>TC84237-11</b>	<b>L8-1</b>					
Chloride <sup>a</sup>		7840	69		mg/kg	EPA 300/SW846 9056A

## Summary of Hits

**Job Number:** TC84237  
**Account:** Key Energy  
**Project:** State# S Brine Station  
**Collected:** 04/11/16

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
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**TC84237-12 L9-1**

Chloride <sup>a</sup>	4190	23		mg/kg	EPA 300/SW846 9056A
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**TC84237-13 L10-1.5**

Chloride <sup>a</sup>	374	22		mg/kg	EPA 300/SW846 9056A
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**TC84237-14 L10-3**

Chloride <sup>a</sup>	1290	21		mg/kg	EPA 300/SW846 9056A
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**TC84237-15 L11-5**

No hits reported in this sample.

**TC84237-16 L11-1**

No hits reported in this sample.

**TC84237-17 L12-1**

Chloride <sup>a</sup>	5140	65		mg/kg	EPA 300/SW846 9056A
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**TC84237-18 B6**

Chloride <sup>a</sup>	38.2	21		mg/kg	EPA 300/SW846 9056A
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(a) Analysis performed at Accutest Laboratories, Dayton, NJ.

## Sample Results

## Report of Analysis

Report of Analysis

<b>Client Sample ID:</b>	L1-1	<b>Date Sampled:</b>	04/11/16
<b>Lab Sample ID:</b>	TC84237-1	<b>Date Received:</b>	04/22/16
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	90.3
<b>Project:</b>	State# S Brine Station		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride <sup>a</sup>	440	22	mg/kg	1	05/02/16 22:23	ANJ	EPA 300/SW846 9056A
Solids, Percent	90.3		%	1	04/26/16	DS	SM 2540 G

(a) Analysis performed at Accutest Laboratories, Dayton, NJ.

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	L1-3	<b>Date Sampled:</b>	04/11/16
<b>Lab Sample ID:</b>	TC84237-2	<b>Date Received:</b>	04/22/16
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	90.0
<b>Project:</b>	State# S Brine Station		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride <sup>a</sup>	116	22	mg/kg	1	05/02/16 23:11	ANJ	EPA 300/SW846 9056A
Solids, Percent	90		%	1	04/26/16	DS	SM 2540 G

(a) Analysis performed at Accutest Laboratories, Dayton, NJ.

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	L2-1	<b>Date Sampled:</b>	04/11/16
<b>Lab Sample ID:</b>	TC84237-3	<b>Date Received:</b>	04/22/16
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	90.5
<b>Project:</b>	State# S Brine Station		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride <sup>a</sup>	4290	22	mg/kg	1	05/02/16 23:35	ANJ	EPA 300/SW846 9056A
Solids, Percent	90.5		%	1	04/26/16	DS	SM 2540 G

(a) Analysis performed at Accutest Laboratories, Dayton, NJ.

RL = Reporting Limit



Report of Analysis

<b>Client Sample ID:</b>	L3-1	<b>Date Sampled:</b>	04/11/16
<b>Lab Sample ID:</b>	TC84237-4	<b>Date Received:</b>	04/22/16
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	89.2
<b>Project:</b>	State# S Brine Station		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride <sup>a</sup>	9880	89	mg/kg	4	05/02/16 23:59	ANJ	EPA 300/SW846 9056A
Solids, Percent	89.2		%	1	04/26/16	DS	SM 2540 G

(a) Analysis performed at Accutest Laboratories, Dayton, NJ.

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	L4-1.5	<b>Date Sampled:</b>	04/11/16
<b>Lab Sample ID:</b>	TC84237-5	<b>Date Received:</b>	04/22/16
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	89.4
<b>Project:</b>	State# S Brine Station		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride <sup>a</sup>	9620	89	mg/kg	4	05/03/16 13:45	ANJ	EPA 300/SW846 9056A
Solids, Percent	89.4		%	1	04/26/16	DS	SM 2540 G

(a) Analysis performed at Accutest Laboratories, Dayton, NJ.

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	L5-0.5	<b>Date Sampled:</b>	04/11/16
<b>Lab Sample ID:</b>	TC84237-6	<b>Date Received:</b>	04/22/16
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	89.0
<b>Project:</b>	State# S Brine Station		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride <sup>a</sup>	7790	67	mg/kg	3	05/03/16 01:35	ANJ	EPA 300/SW846 9056A
Solids, Percent	89		%	1	04/26/16	DS	SM 2540 G

(a) Analysis performed at Accutest Laboratories, Dayton, NJ.

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	L6-0.5	<b>Date Sampled:</b>	04/11/16
<b>Lab Sample ID:</b>	TC84237-7	<b>Date Received:</b>	04/22/16
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	89.5
<b>Project:</b>	State# S Brine Station		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride <sup>a</sup>	8290	89	mg/kg	4	05/03/16 01:59	ANJ	EPA 300/SW846 9056A
Solids, Percent	89.5		%	1	04/26/16	DS	SM 2540 G

(a) Analysis performed at Accutest Laboratories, Dayton, NJ.

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	L6-1	<b>Date Sampled:</b>	04/11/16
<b>Lab Sample ID:</b>	TC84237-8	<b>Date Received:</b>	04/22/16
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	87.6
<b>Project:</b>	State# S Brine Station		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride <sup>a</sup>	5650	68	mg/kg	3	05/03/16 02:22	ANJ	EPA 300/SW846 9056A
Solids, Percent	87.6		%	1	04/26/16	DS	SM 2540 G

(a) Analysis performed at Accutest Laboratories, Dayton, NJ.

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	L6-2	<b>Date Sampled:</b>	04/11/16
<b>Lab Sample ID:</b>	TC84237-9	<b>Date Received:</b>	04/22/16
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	90.3
<b>Project:</b>	State# S Brine Station		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride <sup>a</sup>	5510	66	mg/kg	3	05/03/16 02:46	ANJ	EPA 300/SW846 9056A
Solids, Percent	90.3		%	1	04/26/16	DS	SM 2540 G

(a) Analysis performed at Accutest Laboratories, Dayton, NJ.

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	L7-1	<b>Date Sampled:</b>	04/11/16
<b>Lab Sample ID:</b>	TC84237-10	<b>Date Received:</b>	04/22/16
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	87.3
<b>Project:</b>	State# S Brine Station		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride <sup>a</sup>	5490	46	mg/kg	2	05/03/16 03:10	ANJ	EPA 300/SW846 9056A
Solids, Percent	87.3		%	1	04/26/16	DS	SM 2540 G

(a) Analysis performed at Accutest Laboratories, Dayton, NJ.

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	L8-1	<b>Date Sampled:</b>	04/11/16
<b>Lab Sample ID:</b>	TC84237-11	<b>Date Received:</b>	04/22/16
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	86.3
<b>Project:</b>	State# S Brine Station		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride <sup>a</sup>	7840	69	mg/kg	3	05/03/16 03:34	ANJ	EPA 300/SW846 9056A
Solids, Percent	86.3		%	1	04/26/16	DS	SM 2540 G

(a) Analysis performed at Accutest Laboratories, Dayton, NJ.

RL = Reporting Limit



Report of Analysis

<b>Client Sample ID:</b>	L9-1	<b>Date Sampled:</b>	04/11/16
<b>Lab Sample ID:</b>	TC84237-12	<b>Date Received:</b>	04/22/16
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	87.1
<b>Project:</b>	State# S Brine Station		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride <sup>a</sup>	4190	23	mg/kg	1	05/03/16 03:58	ANJ	EPA 300/SW846 9056A
Solids, Percent	87.1		%	1	04/26/16	DS	SM 2540 G

(a) Analysis performed at Accutest Laboratories, Dayton, NJ.

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	L10-1.5		
<b>Lab Sample ID:</b>	TC84237-13	<b>Date Sampled:</b>	04/11/16
<b>Matrix:</b>	SO - Soil	<b>Date Received:</b>	04/22/16
		<b>Percent Solids:</b>	92.1
<b>Project:</b>	State# S Brine Station		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride <sup>a</sup>	374	22	mg/kg	1	05/03/16 04:22	ANJ	EPA 300/SW846 9056A
Solids, Percent	92.1		%	1	04/26/16	DS	SM 2540 G

(a) Analysis performed at Accutest Laboratories, Dayton, NJ.

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	L10-3	<b>Date Sampled:</b>	04/11/16
<b>Lab Sample ID:</b>	TC84237-14	<b>Date Received:</b>	04/22/16
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	92.6
<b>Project:</b>	State# S Brine Station		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride <sup>a</sup>	1290	21	mg/kg	1	05/03/16 04:46	ANJ	EPA 300/SW846 9056A
Solids, Percent	92.6		%	1	04/26/16	DS	SM 2540 G

(a) Analysis performed at Accutest Laboratories, Dayton, NJ.

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	L11-5	<b>Date Sampled:</b>	04/11/16
<b>Lab Sample ID:</b>	TC84237-15	<b>Date Received:</b>	04/22/16
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	95.7
<b>Project:</b>	State# S Brine Station		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride <sup>a</sup>	< 21	21	mg/kg	1	05/03/16 05:10	ANJ	EPA 300/SW846 9056A
Solids, Percent	95.7		%	1	04/26/16	DS	SM 2540 G

(a) Analysis performed at Accutest Laboratories, Dayton, NJ.

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	L11-1	<b>Date Sampled:</b>	04/11/16
<b>Lab Sample ID:</b>	TC84237-16	<b>Date Received:</b>	04/22/16
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	93.2
<b>Project:</b>	State# S Brine Station		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride <sup>a</sup>	< 21	21	mg/kg	1	05/03/16 06:22	ANJ	EPA 300/SW846 9056A
Solids, Percent	93.2		%	1	04/26/16	DS	SM 2540 G

(a) Analysis performed at Accutest Laboratories, Dayton, NJ.

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	L12-1	<b>Date Sampled:</b>	04/11/16
<b>Lab Sample ID:</b>	TC84237-17	<b>Date Received:</b>	04/22/16
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	91.5
<b>Project:</b>	State# S Brine Station		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride <sup>a</sup>	5140	65	mg/kg	3	05/03/16 14:09	ANJ	EPA 300/SW846 9056A
Solids, Percent	91.5		%	1	04/26/16	DS	SM 2540 G

(a) Analysis performed at Accutest Laboratories, Dayton, NJ.

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	B6	<b>Date Sampled:</b>	04/11/16
<b>Lab Sample ID:</b>	TC84237-18	<b>Date Received:</b>	04/22/16
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	94.3
<b>Project:</b>	State# S Brine Station		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride <sup>a</sup>	38.2	21	mg/kg	1	05/03/16 07:10	ANJ	EPA 300/SW846 9056A
Solids, Percent	94.3		%	1	04/26/16	DS	SM 2540 G

(a) Analysis performed at Accutest Laboratories, Dayton, NJ.

RL = Reporting Limit

## Misc. Forms

### Custody Documents and Other Forms

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Includes the following where applicable:

- Chain of Custody



10165 Harwin Dr, Ste 150 Houston, TX 77036  
TEL: 713-271-4700 FAX: 713-271-4770  
[www.accutest.com](http://www.accutest.com)

FED-EX Tracking #		Bottle Order Control #	
SGS Accutest: Quote #		SGS Accutest Job # TC 84237	
Requested Analyses			Matrix Codes
Choludex (EPA 300)			DW - Drinking Water
			GW - Ground Water
			WW - Water
			SW - Surface Water
			SO - Soil
			SL - Sludge
			SED - Sediment
			OI - Oil
			LIQ - Other Liquid
			AIR - Air
		SOL - Other Solid	
		WP - Wipe	
		FB - Field Blank	
			LAB USE ONLY
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
	X		
Comments / Special Instructions			
Send results also to lucas.middleton@southernmiller.com			
Date Time: Received By: 2 9/20/20			
Date Time: Received By: 4			
Preserved where applicable		On Ice	Cooler Temp: 5.9

## 4.4.1

## TC84237: Chain of Custody

Page 1 of 3

10165 Harwin Dr, Ste 150 Houston, TX 77036  
TEL: 713-271-4700 FAX: 713-271-4770  
[www.accutest.com](http://www.accutest.com)

FED-EX Tracking #	Bottle Order Control #
SGS Accutest Quote #	SGS Accutest Job #

1C84237

[illegible]

## TC84237: Chain of Custody

Page 2 of 3

## SGS Accutest Sample Receipt Summary

**Job Number:** TC84237      **Client:** KEY ENERGY SERVICE      **Project:** STATE S  
**Date / Time Received:** \_\_\_\_\_ **Delivery Method:** \_\_\_\_\_ **Airbill #s:** 782887709606  
**No. Coolers:** 1      **Therm ID:** IR-4;      **Temp Adjustment Factor:** 0;  
**Cooler Temps (Initial/Adjusted):** #1: (5.9/5.9);

<b>Cooler Security</b>	<u>Y or N</u>		<u>Y or N</u>	
1. Custody Seals Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3. COC Present:	<input checked="" type="checkbox"/> <input type="checkbox"/>
2. Custody Seals Intact:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	4. Smpl Dates/Time OK	<input checked="" type="checkbox"/> <input type="checkbox"/>

**Cooler Temperature**      Y or N  
 1. Temp criteria achieved:      ☒ ☐  
 2. Cooler temp verification: \_\_\_\_\_  
 3. Cooler media:      Ice (Bag)

<b>Quality Control Preservation</b>	<u>Y or N</u>	<u>N/A</u>	<u>WTB</u>	<u>STB</u>
1. Trip Blank present / cooler:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Trip Blank listed on COC:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Samples preserved properly:	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
4. VOCs headspace free:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

**Sample Integrity - Documentation**      Y or N  
 1. Sample labels present on bottles:      ☒ ☐  
 2. Container labeling complete:      ☒ ☐  
 3. Sample container label / COC agree:      ☒ ☐

**Sample Integrity - Condition**      Y or N  
 1. Sample recvd within HT:      ☒ ☐  
 2. All containers accounted for:      ☒ ☐  
 3. Condition of sample:      Intact

<b>Sample Integrity - Instructions</b>	<u>Y or N</u>	<u>N/A</u>
1. Analysis requested is clear:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Bottles received for unspecified tests	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3. Sufficient volume recvd for analysis:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4. Compositing instructions clear:	<input type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/>
5. Filtering instructions clear:	<input type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/>

Comments    Sample #8 L6-1 was received broken.

TC84237: Chain of Custody

Page 3 of 3

## Misc. Forms

5

## Custody Documents and Other Forms

(Accutest New Jersey)

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Includes the following where applicable:

- Chain of Custody

10165 Harwin Drive, Houston, TX 77036  
TEL: 713-271-4700 FAX: 713-271-4770  
[www.sgs.com](http://www.sgs.com)

6746 8792 7865

Bottle Order Control #	
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SGS Accutest Job

TC84237

Client / Reporting Information				Project Information				Requested Analysis ( see TEST CODE sheet)												Matrix Codes																																																																																																																																																																																																																																																	
Company Name: <b>SGS Accutest</b>				Project Name: <b>State# S Brine Station</b>																	DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge SED-Sediment OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe FB-Field Blank EB-Equipment Blank RB- Rinse Blank TB-Trip Blank																																																																																																																																																																																																																																																
Street Address <b>10165 Harwin Drive</b>				Street																																																																																																																																																																																																																																																																	
City State Zip <b>Houston TX 77036</b>				City State																																																																																																																																																																																																																																																																	
Project Contact E-mail <b>electab@accutest.com</b>				Project #																																																																																																																																																																																																																																																																	
Phone # Fax # <b>713-271-4700</b>				Client Purchase Order #																																																																																																																																																																																																																																																																	
Sampler(s) Name(s)				Project Manager <b>Electa Brown</b>		Attention:																																																																																																																																																																																																																																																															
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2">Accutest Sample #</th> <th rowspan="2">Field ID / Point of Collection</th> <th rowspan="2">MECH/DI Val #</th> <th colspan="3">Collection</th> <th rowspan="2">Matrix</th> <th rowspan="2"># of bottles</th> <th colspan="8">Number of preserved Bottles</th> <th rowspan="2">Chl.</th> </tr> <tr> <th>Date</th> <th>Time</th> <th>Sampled by</th> <th>HCl</th> <th>NaOH</th> <th>HNO3</th> <th>H2SO4</th> <th>NOBr</th> <th>DI Mem</th> <th>MECH</th> <th>ENCODE</th> </tr> </thead> <tbody> <tr><td>1</td><td>L1-1</td><td></td><td>4/11/16</td><td>10:00:00 AM</td><td></td><td>SO</td><td>1</td><td></td><td></td><td></td><td></td><td></td><td></td><td>x</td><td></td><td></td><td>X</td></tr> <tr><td>2</td><td>L1-3</td><td></td><td>4/11/16</td><td>10:00:00 AM</td><td></td><td>SO</td><td>1</td><td></td><td></td><td></td><td></td><td></td><td></td><td>x</td><td></td><td></td><td>X</td></tr> <tr><td>3</td><td>L2-1</td><td></td><td>4/11/16</td><td>10:00:00 AM</td><td></td><td>SO</td><td>1</td><td></td><td></td><td></td><td></td><td></td><td></td><td>x</td><td></td><td></td><td>X</td></tr> <tr><td>4</td><td>L3-1</td><td></td><td>4/11/16</td><td>10:00:00 AM</td><td></td><td>SO</td><td>1</td><td></td><td></td><td></td><td></td><td></td><td></td><td>x</td><td></td><td></td><td>X</td></tr> <tr><td>5</td><td>L4-1.5</td><td></td><td>4/11/16</td><td>10:00:00 AM</td><td></td><td>SO</td><td>1</td><td></td><td></td><td></td><td></td><td></td><td></td><td>x</td><td></td><td></td><td>X</td></tr> <tr><td>6</td><td>L5-0.5</td><td></td><td>4/11/16</td><td>10:00:00 AM</td><td></td><td>SO</td><td>1</td><td></td><td></td><td></td><td></td><td></td><td></td><td>x</td><td></td><td></td><td>X</td></tr> <tr><td>7</td><td>L6-0.5</td><td></td><td>4/11/16</td><td>10:00:00 AM</td><td></td><td>SO</td><td>1</td><td></td><td></td><td></td><td></td><td></td><td></td><td>x</td><td></td><td></td><td>X</td></tr> <tr><td>8</td><td>L6-1</td><td></td><td>4/11/16</td><td>10:00:00 AM</td><td></td><td>SO</td><td>1</td><td></td><td></td><td></td><td></td><td></td><td></td><td>x</td><td></td><td></td><td>X</td></tr> <tr><td>9</td><td>L6-2</td><td></td><td>4/11/16</td><td>10:00:00 AM</td><td></td><td>SO</td><td>1</td><td></td><td></td><td></td><td></td><td></td><td></td><td>x</td><td></td><td></td><td>X</td></tr> <tr><td>10</td><td>L7-1</td><td></td><td>4/11/16</td><td>10:00:00 AM</td><td></td><td>SO</td><td>1</td><td></td><td></td><td></td><td></td><td></td><td></td><td>x</td><td></td><td></td><td>X</td></tr> <tr><td>11</td><td>L8-1</td><td></td><td>4/11/16</td><td>10:00:00 AM</td><td></td><td>SO</td><td>1</td><td></td><td></td><td></td><td></td><td></td><td></td><td>x</td><td></td><td></td><td>X</td></tr> <tr><td>12</td><td>L9-1</td><td></td><td>4/11/16</td><td>10:00:00 AM</td><td></td><td>SO</td><td>1</td><td></td><td></td><td></td><td></td><td></td><td></td><td>x</td><td></td><td></td><td>X</td></tr> </tbody> </table>				Accutest Sample #	Field ID / Point of Collection	MECH/DI Val #	Collection			Matrix	# of bottles	Number of preserved Bottles								Chl.	Date	Time	Sampled by	HCl	NaOH	HNO3	H2SO4	NOBr	DI Mem	MECH	ENCODE	1	L1-1		4/11/16	10:00:00 AM		SO	1							x			X	2	L1-3		4/11/16	10:00:00 AM		SO	1							x			X	3	L2-1		4/11/16	10:00:00 AM		SO	1							x			X	4	L3-1		4/11/16	10:00:00 AM		SO	1							x			X	5	L4-1.5		4/11/16	10:00:00 AM		SO	1							x			X	6	L5-0.5		4/11/16	10:00:00 AM		SO	1							x			X	7	L6-0.5		4/11/16	10:00:00 AM		SO	1							x			X	8	L6-1		4/11/16	10:00:00 AM		SO	1							x			X	9	L6-2		4/11/16	10:00:00 AM		SO	1							x			X	10	L7-1		4/11/16	10:00:00 AM		SO	1							x			X	11	L8-1		4/11/16	10:00:00 AM		SO	1							x			X	12	L9-1		4/11/16	10:00:00 AM		SO	1							x			X	Turnaround Time ( Business days)													
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<input type="checkbox"/> Std. 10 Business Days <input type="checkbox"/> 5 Day RUSH <input type="checkbox"/> 3 Day EMERGENCY <input type="checkbox"/> 2 Day EMERGENCY <input type="checkbox"/> 1 Day EMERGENCY <input checked="" type="checkbox"/> other Due 5/2/2016 Emergency & Rush T/A data available VOA tablink				Approved By (SGS Accutest PM): / Date: _____ _____ _____ _____ _____				Data Deliverable Information <input type="checkbox"/> Commercial "A" ( Level 1) <input type="checkbox"/> Commercial "B" ( Level 2) <input type="checkbox"/> FULLT1 ( Level 3+4) <input type="checkbox"/> NJ Reduced <input type="checkbox"/> Commercial "C"  Commercial "A" = Results Only Commercial "B" = Results + QC Summary NJ Reduced = Results + QC Summary + Partial Raw data				<input type="checkbox"/> NYASP Category A <input type="checkbox"/> NYASP Category B <input checked="" type="checkbox"/> State / CUMMIS <input type="checkbox"/> EDD Format <input type="checkbox"/> Other _____  Split off into a 4oz container				Comments / Special Instructions INITIAL ASSESSMENT 25/04 LABEL VERIFICATION 4/20/16 [Signatures]																																																																																																																																																																																																																																																					
Sample Custody must be documented below each time samples change possession, including courier delivery.																																																																																																																																																																																																																																																																					
Relinquished by: [Signature] Date Time: 4/27/16 10:15		Received By: [Signature] Date Time: 4/27/16 10:15		Relinquished by: [Signature] Date Time: 4/27/16 10:15		Received By: [Signature] Date Time: 4/27/16 10:15		Relinquished by: [Signature] Date Time: 4/27/16 10:15		Received By: [Signature] Date Time: 4/27/16 10:15		Relinquished by: [Signature] Date Time: 4/27/16 10:15		Received By: [Signature] Date Time: 4/27/16 10:15		Relinquished by: [Signature] Date Time: 4/27/16 10:15		Received By: [Signature] Date Time: 4/27/16 10:15																																																																																																																																																																																																																																																			
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## TC84237: Chain of Custody

Page 1 of 3

## Accutest New Jersey



ACCUTEST

## CHAIN OF CUSTODY

Page 2 of 2

10165 Harwin Drive, Houston, TX 77036  
TEL: 713-271-4700 FAX: 713-271-4770  
www.sgs.com

FED. Reg. # 6742 5792 7865		Bottle Order Control #	
SGS Accutest Quote #		SGS Accutest Job TC84237	
Client / Reporting Information		Project Information	
Company Name: SGS Accutest		Project Name: State# S Brine Station	
Street Address: 10165 Harwin Drive		Billing Information (if different from Report to)	
City: Houston State: TX Zip: 77036		Company Name:	
Project Contact: electab Email: electab@accutest.com		Project #:	
Phone #: 713-271-4700		Street Address:	
Fax #:		City: State: Zip:	
Sampler(s) Name(s):		Attention:	
Project Manager:			
Collection		Number of preserved Bottles	
MEOHDI Vial #		CHL	
Date		Time	
Sampled by		Matrix	
# of bottles		SO	
1		1	
13 L10-1.5		4/11/16 10:00:00 AM	
14 L10-3		4/11/16 10:00:00 AM	
15 L11-5		4/11/16 10:00:00 AM	
16 L11-1		4/11/16 10:00:00 AM	
17 L12-1		4/11/16 10:00:00 AM	
18 B6		4/11/16 10:00:00 AM	
Turnaround Time (Business days)		Data Deliverable Information	
Approved By (SGS Accutest PM): / Date:		Comments / Special Instructions	
<input type="checkbox"/> Std. 10 Business Days		Split off into a 4oz container	
<input type="checkbox"/> 5 Day RUSH		<input type="checkbox"/> Commercial "A" (Level 1)	
<input type="checkbox"/> 3 Day EMERGENCY		<input type="checkbox"/> Commercial "B" (Level 2)	
<input type="checkbox"/> 2 Day EMERGENCY		<input type="checkbox"/> FULLT1 (Level 3+4)	
<input type="checkbox"/> 1 Day EMERGENCY		<input type="checkbox"/> NYASP Category A	
<input checked="" type="checkbox"/> Other Due 5/2/2016		<input type="checkbox"/> NYASP Category B	
Emergency & Rush T/A data available via Lablink		<input checked="" type="checkbox"/> State I/CUMMTs	
		<input type="checkbox"/> EDO Format	
		<input type="checkbox"/> Other	
		Commercial "A" = Results Only	
		Commercial "B" = Results + QC Summary	
		NJ Reduced = Results + QC Summary + Partial Raw data	
Relinquished by Sampler: 1		Received By: 2	
Date Time: 4/16/16		Date Time: 4/15 10:15	
Relinquished by Sampler: 3		Received By: 4	
Date Time:		Date Time:	
Relinquished by: 5		Received By:	
Date Time:		Date Time:	
Custody Seal: Intact		Preserved where applicable	
Not Intact		On Ice	
		Cooler Temp. 3.3	

TC84237: Chain of Custody

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## SGS Accutest Sample Receipt Summary

Job Number: TC84237

Client: \_\_\_\_\_

Project: \_\_\_\_\_

Date / Time Received: 4/27/2016 10:15:00 AM

Delivery Method: \_\_\_\_\_

Airbill #s: \_\_\_\_\_

Cooler Temps (Raw Measured) °C: Cooler 1: (3.3);

Cooler Temps (Corrected) °C: Cooler 1: (3.7);

### Cooler Security

Y or N

- |                           |                                     |                          |                       |                                     |                          |
|---------------------------|-------------------------------------|--------------------------|-----------------------|-------------------------------------|--------------------------|
| 1. Custody Seals Present: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 3. COC Present:       | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Custody Seals Intact:  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 4. Smpl Dates/Time OK | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

### Cooler Temperature

Y or N

- |                              |                                     |                          |
|------------------------------|-------------------------------------|--------------------------|
| 1. Temp criteria achieved:   | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Cooler temp verification: | IR Gun                              |                          |
| 3. Cooler media:             | Ice (Bag)                           |                          |
| 4. No. Coolers:              | 1                                   |                          |

### Quality Control Preservation

Y or N

N/A

- |                                 |                                     |                                     |                                     |
|---------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| 1. Trip Blank present / cooler: | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| 2. Trip Blank listed on COC:    | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| 3. Samples preserved properly:  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |                                     |
| 4. VOCs headspace free:         | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |

### Sample Integrity - Documentation

Y or N

- |  |                                     |                          |
|--|-------------------------------------|--------------------------|
| 1. Sample labels present on bottles:   | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Container labeling complete:        | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 3. Sample container label / COC agree: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

### Sample Integrity - Condition

Y or N

- |                                  |                                     |                          |
|----------------------------------|-------------------------------------|--------------------------|
| 1. Sample recvd within HT:       | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. All containers accounted for: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 3. Condition of sample:          | Intact                              |                          |

### Sample Integrity - Instructions

Y or N N/A

- |   |                                     |                                     |                                     |
|---|-------------------------------------|-------------------------------------|-------------------------------------|
| 1. Analysis requested is clear:           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |                                     |
| 2. Bottles received for unspecified tests | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |                                     |
| 3. Sufficient volume recvd for analysis:  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |                                     |
| 4. Compositing instructions clear:        | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 5. Filtering instructions clear:          | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |

Comments

TC84237: Chain of Custody

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## General Chemistry

### QC Data Summaries

(Accutest New Jersey)

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Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries



METHOD BLANK AND SPIKE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: TC84237  
Account: ALGC - Accutest Laboratories Gulf Coast, Inc.  
Project: KEYETXM: State# S Brine Station

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chloride	GP97276/GN45014	20	0.0	mg/kg	800	794	99.3	90-110%

Associated Samples:  
Batch GP97276: TC84237-1, TC84237-2, TC84237-3, TC84237-4, TC84237-5, TC84237-6, TC84237-7, TC84237-8, TC84237-9, TC84237-10, TC84237-11, TC84237-12, TC84237-13, TC84237-14, TC84237-15, TC84237-16, TC84237-17, TC84237-18  
(\*) Outside of QC limits

6.1  
6

DUPLICATE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: TC84237  
Account: ALGC - Accutest Laboratories Gulf Coast, Inc.  
Project: KEYETXM: State# S Brine Station

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chloride	GP97276/GN45014	TC84237-1	mg/kg	440	434	1.4	0-20%

Associated Samples:

Batch GP97276: TC84237-1, TC84237-2, TC84237-3, TC84237-4, TC84237-5, TC84237-6, TC84237-7, TC84237-8, TC84237-9, TC84237-10, TC84237-11, TC84237-12, TC84237-13, TC84237-14, TC84237-15, TC84237-16, TC84237-17, TC84237-18  
(\*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: TC84237  
Account: ALGC - Accutest Laboratories Gulf Coast, Inc.  
Project: KEYETXM: State# S Brine Station

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chloride	GP97276/GN45014	TC84237-1	mg/kg	440	880	1370	105.7	80-120%
Chloride	GP97276/GN45014	TC84237-2	mg/kg	116	888	1280	131.1N(a)	80-120%

Associated Samples:

Batch GP97276: TC84237-1, TC84237-2, TC84237-3, TC84237-4, TC84237-5, TC84237-6, TC84237-7, TC84237-8, TC84237-9, TC84237-10, TC84237-11, TC84237-12, TC84237-13, TC84237-14, TC84237-15, TC84237-16, TC84237-17, TC84237-18

(\*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

(a) Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.

# APPENDIX B

## FORM C141 INITIAL

**RECEIVED****By JKeyes at 2:43 pm, Mar 03, 2016**

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

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	Key Energy Services, LLC	Contact	Maren Coligan
Address:	1301 McKinney St. Suite 1800. Houston TX 77010	Telephone No.	713-651-4825
Facility Name:	Key Energy Services State "S" Brine and Water Station (BW-028)	Facility Type:	Brine and Fresh Water Station

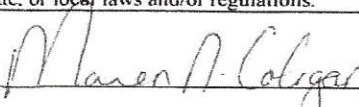

Surface Owner:	Millard Deck Trust	Mineral Owner:	State Of New Mexico	API No.	30-025-33547
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**LOCATION OF RELEASE**

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
D	15	21S	37E	1340	North Line	330	West Line	Lea

Latitude N 32° 29' 02.2" Longitude W 103° 09' 28.8"

**NATURE OF RELEASE**

Type of Release	Brine Water	Volume of Release	80 bbls	Volume Recovered	Approx. 0 bbls
Source of Release	Vacuum Truck	Date and Hour of Occurrence	03/02/2016 08:30 PM.	Date and Hour of Discovery	03/02/2016 08:30 PM.
Was Immediate Notice Given?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Not Required	If YES, To Whom?	Maxey Brown		
By Whom?	Ana Ramirez	Date and Hour:	03/03/2015 8:52AM		
Was a Watercourse Reached?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse.	NA		
If a Watercourse was Impacted, Describe Fully.* NA					
Describe Cause of Problem and Remedial Action Taken.* After loading 80 bbls brine water at the Key Energy Station S Brine, the Key Energy Driver was attempting to leave the station and got stuck due to muddy road conditions. In an attempt to lighten his load the Key Energy Driver connected his hoses to the trailer and released 80 bbls.					
Describe Area Affected and Cleanup Action Taken.* Release of brine water onto the ground and into a pasture next to the brine station, fluids soaked into the ground, excavation of contaminated soils and confirmation sampling is in progress.					
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: 		<b>OIL CONSERVATION DIVISION</b>			
Printed Name: Maren Coligan		Approved by Environmental Specialist: 			
Title: Environmental Director		Approval Date: 03/03/2016		Expiration Date: 05/03/2016	
E-mail Address: mcoligan@keyenergy.com		Conditions of Approval: Discrete site samples only.		Attached <input type="checkbox"/>	
Date: 03/03/2016 Phone: 713-651-4825		Delineate and remediate per NMOCD guidelines.		IRP 4197	

\* Attach Additional Sheets If Necessary

n\XK1606352748  
p\XK1606352905