

REVIEWED

By Kellie Jones at 9:33 am, Jan 14, 2016

APPROVED

By Kellie Jones at 9:33 am, Jan 14, 2016

Silver Spike Energy Operating of NM Knowles SWD #002 Closure Report

**Section 34, T16S, R38E
Lea County, New Mexico**

**1RP-4000
January 05, 2016**



Prepared for:

***Silver Spike Energy Operating of NM
203 W. Wall Street 920
Midland, TX 79701***

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
Michael Evans	Silver Spike	432-413-6483	Michael@silverspikeenergy.com
Bob Allen	SESI	575-397-0510	ballen@sesi-nm.com

II. Background

Safety and Environmental Solutions, Inc. (SESI) was engaged by Silver Spike Energy to perform a site assessment of a release area in Section 34, T16S, R38E and Lea County.

According to the C-141: there was a high/low switch failure allowing the water tank to over flow. There was an undetermined volume of fluid released to ground surface impacting an area of approximately 3, 334 sq. ft. The NMOCD was notified of the incident on November 18, 2015 and the aforementioned C-141 was filed on November 30, 2015 with NMOCD and assigned 1RP-4000.

III. Surface and Ground Water

According to the Chevron-Texaco Lea County Groundwater Map the depth to Groundwater appears to be 80' to 100' Bgs. Further research of the New Mexico Office of the State Engineer website reveals records for Lea County, Section 34, Township 16S, and Range 38E which indicate the average depth to groundwater for the area to be 84' bgs. (Appendix D). Thereby, posing no immediate threat to groundwater or life forms.

IV. Work Performed

On November 17, 2015, SESI was onsite to photograph, assess and map the spill area (Appendix B).

On November 20, 2015, SESI personnel returned to the site with Custom Welding of Hobbs, NM. Whereby, it was determine that two (2) test trenches would be excavated combined with simultaneous field testing for soil constituents of Chlorides. The two trenches were delineated to depths of 9' and 10' bgs., respectively. The soil properties, as well as the dynamics for the interior of the bermed area made it prohibitive from a safety perspective to delineate any deeper. The representative soil samples were retrieved, packaged, preserved and transported to Cardinal Laboratories, of Hobbs New Mexico and analyzed for BTEX (Benzene, Toluene, Ethylbenzene, and Xylenes), Chloride (Cl⁻) (Method SM 4500Cl-B), and TPH (method 8015M). The results of the analysis are recapped in the table below (Appendix A):

Sample Date 11/20/15	Depth	Chloride (mg/kg)	Total BTEX	GRO C6-C10	DRO >C10-C28
Test Trench #1	2.5'	3360	<0.300	<10.0	<10.0
Test Trench #1	3.5'	3760			
Test Trench #1	5.5'	2400			
Test Trench #1	8'	1100			
Test Trench #1	10'	1600			
Test Trench #2	1.5'	4560	<0.300	<10.0	<10.0
Test Trench #2	3.5'	3080			
Test Trench #2	7'	3040			
Test Trench #2	9'	2200			

On November 23, 2015 SESI personnel returned to the site with Custom Welding of Hobbs, NM whereby One Call clearance was exchanged. Utilizing a Geo Probe SESI personnel were able to advance to depths of 18' Bgs. However, due to soil consistency "cave in" became an issue compromising the integrity of representative soil samples. A total of Five (5) samples were retrieved and delivered to Cardinal Laboratories of Hobbs, NM for analysis. The table below represents a recap of the returned analytical (Appendix A).

Sample Date 11/23/15	Depth	Chloride (mg/kg)	Total BTEX	GRO C6-C10	DRO >C10-C28
BH-1	4'	1760	<0.300	<10.0	<10.0
BH-1	8'	3240	<0.300	<10.0	<10.0
BH-1	12'	2640	<0.300	<10.0	<10.0
BH-1	14.9'	3760			
BH-1	18'	4400			

On December 02, 2015 SESI personnel together with Atkins Engineering Associates, Inc. Utilizing an Ingersoll Rand model 300A the field personnel were able to advance to depths from 9' to 76' respectively, at the Borehole 2 location (Appendix E). SESI Personnel retrieved simultaneous representative soil samples and delivered them to Cardinal Laboratories of Hobbs, NM for confirmation. The results are recapped in the following table (Appendix A):

Sample Date 12/02/2015	Depth	Chloride (mg/kg)
BH-2	9-11'	1760
BH-2	14-16'	2920
BH-2	19-21'	848
BH-2	24-26'	1100
BH-2	29-31'	1120
BH-2	34-36'	1920
BH-2	39-41'	672
BH-2	44-46'	672
BH-2	49-51'	320
BH-2	54-56'	304
BH-2	59-61'	288
BH-2	64-66'	384
BH-2	69-71'	384
BH-2	74-76'	352

Based on the aforementioned field activity and soil analytical a "Remediation Plan" was submitted to representatives of Silver Spike Energy, as well as the NMOCD with concurrence and approval from the NMOCD on December 10, 2015, withstanding condition of background sampling. SESI proposed to excavate the impacted area to depths of 4' bgs. Composite samples would be retrieved from the sidewalls and bottom of the excavated area. The excavation was to be lined with a 40 mil liner, topped with fresh topsoil in order to prevent impediment of the liner, capped with caliche and restore the site to grade.

On December 10, 2015 SESI personnel at the request of the NMOCD were on site to retrieve two background representative soil samples. The representative soil samples were retrieved, packaged, preserved and transported to Cardinal Laboratories, of Hobbs New Mexico and analyzed for BTEX (Benzene, Toluene, Ethylbenzene, and Xylenes), Chloride (Cl⁻) (Method SM 4500Cl-B), and TPH (method 8015M). The results of the analysis are recapped in the table below (Appendix A):

Sample ID	BTEX 8021B	Chloride SM4500Cl-B	TPH 8015M
East Background	<0.300	<16.0	<10.0
South Background	<0.300	<16.0	<10.0

V. Conclusion

On December 11, 2015 SESI personnel together with Custom Welding personnel returned to the site in order to commence removal and disposal of contaminated soils. A total of approximately One Thousand One Hundred and Twenty yards (1,120) were removed to Sundance Services, Inc., an NMOCD approved facility for disposal. Representative soil samples were retrieved from the sidewalls and floor of the excavation. Field testing in order to confirm the horizontal extent, revealed that further excavation of the South wall by 4' and East Wall by 2' respectively (Figure 2), were necessary in order to achieve acceptable Chloride levels, as confirmed in the table below. The representative soil samples were retrieved, packaged, preserved and transported to Cardinal Laboratories, of Hobbs New Mexico and analyzed for BTEX (Benzene, Toluene, Ethylbenzene, and Xylenes), Chloride (Cl⁻) (Method SM 4500Cl-B), and TPH (method 8015M) for confirmation. The results of the analysis are recapped in the following table (Appendix A):

Sample ID	BTEX 8021B	Chloride SM4500Cl-B	TPH-GRO 8015M	TPH DRO
South Wall	<0.300 mg/kg	320 mg/kg	<10.0 mg/kg	<10.0 mg/kg
East Wall	<0.300 mg/kg	288 mg/kg	<10.0 mg/kg	<10.0 mg/kg
North Wall	<0.300 mg/kg	832 mg/kg	<10.0 mg/kg	42.9 mg/kg
West Wall	<0.300 mg/kg	320 mg/kg	<10.0 mg/kg	<10.0 mg/kg
SP-1 Bottom 4'	<0.300 mg/kg	3920 mg/kg	<10.0 mg/kg	<10.0 mg/kg
SP-2 Bottom 4'	<0.300 mg/kg	2520 mg/kg	<10.0 mg/kg	<10.0 mg/kg
SP-3 Bottom 4'	<0.300 mg/kg	2520 mg/kg	<10.0 mg/kg	<10.0 mg/kg
SP-4 Bottom 3'	<0.300 mg/kg	1790 mg/kg	<10.0 mg/kg	<10.0 mg/kg
SP-5 Bottom 3'	<0.300 mg/kg	3200 mg/kg	<10.0 mg/kg	<10.0 mg/kg

Due to the above analytical: On December 18, 2014 the excavation was lined with a 40 mil. Liner, backfilled with fresh topsoil, caliche and returned to grade.

Based on the depth to groundwater, analytical information, and restoration of the site according to NMOCD guidelines; no further action is recommended. SESI, on behalf of Silver Spike Energy Operating of New Mexico, respectfully requests closure of the regulatory file for this incident.

VI. Figures & Appendices

- Figure 1 – Vicinity Map
- Figure 2 – Site Plan
- Appendix A – Analytical Results
- Appendix B—Site Photographs
- Appendix C – C-141
- Appendix D – Groundwater Research
- Appendix E – Boring Log

Figure 1
Vicinity Map



Knowles SWD #002

79

Norris Rd 132

© 2015 Google

Google earth

1997

Imagery Date: 2/12/2014 32°52'24.30" N 103°07'54.69" W elev 3706 ft eye alt 7110 ft

Figure 2 Site Plan

East Background SP



© 2015 Google

South Background SP

Google earth



Sample Point 9 North Wall

Sample Point 4 Bottom 3'

Sample Point 3 Bottom 4'

Sample Point 10 West Wall

Tank 12

Oil or Gas Well 13

Sample Point 2 Bottom 4'

Sample Point 8 East Wall

Sample Point 5 Bottom 3'

Sample Point 1 Bottom 4'

Sample Point 7 South Wall

© 2015 Google

Google earth

Appendix A Analytical Results



December 02, 2015

Bob Allen
Safety & Environmental Solutions
703 East Clinton
Hobbs, NM 88240

RE: KNOWLES SWD #002

Enclosed are the results of analyses for samples received by the laboratory on 11/24/15 8:30.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

A handwritten signature in black ink that reads "Celey D. Keene".

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:	11/24/2015	Sampling Date:	11/20/2015
Reported:	12/02/2015	Sampling Type:	Soil
Project Name:	KNOWLES SWD #002	Sampling Condition:	Cool & Intact
Project Number:	SIL-15-001	Sample Received By:	Jodi Henson
Project Location:	HOBBS, NM		

Sample ID: TEST TRENCH #1 2.5' (H503096-01)

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	12/01/2015	ND	1.93	96.6	2.00	0.592	
Toluene*	<0.050	0.050	12/01/2015	ND	1.92	96.2	2.00	0.359	
Ethylbenzene*	<0.050	0.050	12/01/2015	ND	1.97	98.6	2.00	0.500	
Total Xylenes*	<0.150	0.150	12/01/2015	ND	5.90	98.4	6.00	0.375	
Total BTEX	<0.300	0.300	12/01/2015	ND					

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

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	3360	16.0	12/01/2015	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	11/26/2015	ND	203	101	200	3.48	
DRO >C10-C28	<10.0	10.0	11/26/2015	ND	201	101	200	4.92	

Surrogate: 1-Chlorooctane 91.1 % 35-147
Surrogate: 1-Chlorooctadecane 99.6 % 28-171
Sample ID: TEST TRENCH #1 3.5' (H503096-02)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	3760	16.0	12/01/2015	ND	416	104	400	0.00	

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:	11/24/2015	Sampling Date:	11/20/2015
Reported:	12/02/2015	Sampling Type:	Soil
Project Name:	KNOWLES SWD #002	Sampling Condition:	Cool & Intact
Project Number:	SIL-15-001	Sample Received By:	Jodi Henson
Project Location:	HOBBS, NM		

Sample ID: TEST TRENCH #1 5.5' (H503096-03)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2400	16.0	12/01/2015	ND	416	104	400	0.00	

Sample ID: TEST TRENCH #1 8' (H503096-04)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1100	16.0	12/01/2015	ND	416	104	400	0.00	

Sample ID: TEST TRENCH #1 10' (H503096-05)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1600	16.0	12/01/2015	ND	416	104	400	3.77	

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*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Received:	11/24/2015	Sampling Date:	11/20/2015
Reported:	12/02/2015	Sampling Type:	Soil
Project Name:	KNOWLES SWD #002	Sampling Condition:	Cool & Intact
Project Number:	SIL-15-001	Sample Received By:	Jodi Henson
Project Location:	HOBBS, NM		

Sample ID: TEST TRENCH #2 1.5' (H503096-06)

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	12/01/2015	ND	1.93	96.6	2.00	0.592		
Toluene*	<0.050	0.050	12/01/2015	ND	1.92	96.2	2.00	0.359		
Ethylbenzene*	<0.050	0.050	12/01/2015	ND	1.97	98.6	2.00	0.500		
Total Xylenes*	<0.150	0.150	12/01/2015	ND	5.90	98.4	6.00	0.375		
Total BTEX	<0.300	0.300	12/01/2015	ND						

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

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	4560	16.0	12/01/2015	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	11/26/2015	ND	203	101	200	3.48		
DRO >C10-C28	<10.0	10.0	11/26/2015	ND	201	101	200	4.92		

Surrogate: 1-Chlorooctane 105 % 35-147
Surrogate: 1-Chlorooctadecane 114 % 28-171
Sample ID: TEST TRENCH #2 3.5' (H503096-07)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	3080	16.0	12/01/2015	ND	416	104	400	3.77		

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*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Received:	11/24/2015	Sampling Date:	11/20/2015
Reported:	12/02/2015	Sampling Type:	Soil
Project Name:	KNOWLES SWD #002	Sampling Condition:	Cool & Intact
Project Number:	SIL-15-001	Sample Received By:	Jodi Henson
Project Location:	HOBBS, NM		

Sample ID: TEST TRENCH #2 7' (H503096-08)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	3040	16.0	12/01/2015	ND	416	104	400	3.77	

Sample ID: TEST TRENCH #2 9' (H503096-09)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2200	16.0	12/01/2015	ND	416	104	400	3.77	

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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

December 02, 2015

Bob Allen

Safety & Environmental Solutions

703 East Clinton

Hobbs, NM 88240

RE: KNOWLES SWD #2 SPIKE ENERGY

Enclosed are the results of analyses for samples received by the laboratory on 11/24/15 16:50.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,



Celey D. Keene

Lab Director/Quality Manager

Analytical Results For:

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

Received:	11/24/2015	Sampling Date:	11/23/2015
Reported:	12/02/2015	Sampling Type:	Soil
Project Name:	KNOWLES SWD #2 SPIKE ENERGY	Sampling Condition:	Cool & Intact
Project Number:	SIL-15-001	Sample Received By:	Amanda Ponce
Project Location:	KNOWLES		

Sample ID: BH-1 @ 4' (H503116-01)

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	12/01/2015	ND	2.00	100	2.00	2.96	
Toluene*	<0.050	0.050	12/01/2015	ND	2.00	99.8	2.00	3.24	
Ethylbenzene*	<0.050	0.050	12/01/2015	ND	2.06	103	2.00	9.79	
Total Xylenes*	<0.150	0.150	12/01/2015	ND	6.11	102	6.00	2.96	
Total BTEX	<0.300	0.300	12/01/2015	ND					

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1760	16.0	12/01/2015	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	11/30/2015	ND	189	94.7	200	0.468	
DRO >C10-C28	<10.0	10.0	11/30/2015	ND	188	94.0	200	3.34	

Surrogate: 1-Chlorooctane 97.9 % 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:	11/24/2015	Sampling Date:	11/23/2015
Reported:	12/02/2015	Sampling Type:	Soil
Project Name:	KNOWLES SWD #2 SPIKE ENERGY	Sampling Condition:	Cool & Intact
Project Number:	SIL-15-001	Sample Received By:	Amanda Ponce
Project Location:	KNOWLES		

Sample ID: BH-1 @ 8' (H503116-02)

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	12/01/2015	ND	2.00	100	2.00	2.96		
Toluene*	<0.050	0.050	12/01/2015	ND	2.00	99.8	2.00	3.24		
Ethylbenzene*	<0.050	0.050	12/01/2015	ND	2.06	103	2.00	9.79		
Total Xylenes*	<0.150	0.150	12/01/2015	ND	6.11	102	6.00	2.96		
Total BTEX	<0.300	0.300	12/01/2015	ND						

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	3240	16.0	12/01/2015	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	11/30/2015	ND	189	94.7	200	0.468		
DRO >C10-C28	<10.0	10.0	11/30/2015	ND	188	94.0	200	3.34		

Surrogate: 1-Chlorooctane 102 % 35-147
Surrogate: 1-Chlorooctadecane 110 % 28-171

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

Analytical Results For:

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

Received:	11/24/2015	Sampling Date:	11/23/2015
Reported:	12/02/2015	Sampling Type:	Soil
Project Name:	KNOWLES SWD #2 SPIKE ENERGY	Sampling Condition:	Cool & Intact
Project Number:	SIL-15-001	Sample Received By:	Amanda Ponce
Project Location:	KNOWLES		

Sample ID: BH-1 @ 12' (H503116-03)

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	12/01/2015	ND	2.00	100	2.00	2.96		
Toluene*	<0.050	0.050	12/01/2015	ND	2.00	99.8	2.00	3.24		
Ethylbenzene*	<0.050	0.050	12/01/2015	ND	2.06	103	2.00	9.79		
Total Xylenes*	<0.150	0.150	12/01/2015	ND	6.11	102	6.00	2.96		
Total BTEX	<0.300	0.300	12/01/2015	ND						

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

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	2640	16.0	12/01/2015	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	11/30/2015	ND	189	94.7	200	0.468		
DRO >C10-C28	<10.0	10.0	11/30/2015	ND	188	94.0	200	3.34		

Surrogate: 1-Chlorooctane 101 % 35-147
Surrogate: 1-Chlorooctadecane 110 % 28-171
Sample ID: BH-1 @ 14.9' (H503116-04)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	3760	16.0	12/01/2015	ND	416	104	400	3.77		

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:	11/24/2015	Sampling Date:	11/23/2015
Reported:	12/02/2015	Sampling Type:	Soil
Project Name:	KNOWLES SWD #2 SPIKE ENERGY	Sampling Condition:	Cool & Intact
Project Number:	SIL-15-001	Sample Received By:	Amanda Ponce
Project Location:	KNOWLES		

Sample ID: BH-1 @ 18' (H503116-05)
Chloride, SM4500Cl-B
mg/kg
Analyzed By: AP

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	4400	16.0	12/01/2015	ND	416	104	400	3.77	

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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



December 07, 2015

Bob Allen
Safety & Environmental Solutions
703 East Clinton
Hobbs, NM 88240

RE: KNOWLES SWD #002

Enclosed are the results of analyses for samples received by the laboratory on 12/04/15 16:50.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

A handwritten signature in black ink that reads "Celey D. Keene".

Celey D. Keene
Lab Director/Quality Manager

Analytical Results For:

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

Received:	12/04/2015	Sampling Date:	12/02/2015
Reported:	12/07/2015	Sampling Type:	Soil
Project Name:	KNOWLES SWD #002	Sampling Condition:	** (See Notes)
Project Number:	SIL-15-001	Sample Received By:	Jodi Henson
Project Location:	HOBBS, NM		

Sample ID: BH-2 9-11' (H503175-01)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1760	16.0	12/07/2015	ND	384	96.0	400	11.8	

Sample ID: BH-2 14-16' (H503175-02)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2920	16.0	12/07/2015	ND	384	96.0	400	11.8	

Sample ID: BH-2 19-21' (H503175-03)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	848	16.0	12/07/2015	ND	384	96.0	400	11.8	

Sample ID: BH-2 24-26' (H503175-04)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1100	16.0	12/07/2015	ND	384	96.0	400	11.8	

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Received:	12/04/2015	Sampling Date:	12/02/2015
Reported:	12/07/2015	Sampling Type:	Soil
Project Name:	KNOWLES SWD #002	Sampling Condition:	** (See Notes)
Project Number:	SIL-15-001	Sample Received By:	Jodi Henson
Project Location:	HOBBS, NM		

Sample ID: BH-2 29-31' (H503175-05)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1120	16.0	12/07/2015	ND	384	96.0	400	11.8	

Sample ID: BH-2 34-36' (H503175-06)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1920	16.0	12/07/2015	ND	384	96.0	400	11.8	

Sample ID: BH-2 39-41' (H503175-07)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	672	16.0	12/07/2015	ND	384	96.0	400	11.8	

Sample ID: BH-2 44-46' (H503175-08)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	672	16.0	12/07/2015	ND	384	96.0	400	11.8	

Sample ID: BH-2 49-51' (H503175-09)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	320	16.0	12/07/2015	ND	384	96.0	400	11.8	

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Received:	12/04/2015	Sampling Date:	12/03/2015
Reported:	12/07/2015	Sampling Type:	Soil
Project Name:	KNOWLES SWD #002	Sampling Condition:	** (See Notes)
Project Number:	SIL-15-001	Sample Received By:	Jodi Henson
Project Location:	HOBBS, NM		

Sample ID: BH-2 54-56' (H503175-10)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	304	16.0	12/07/2015	ND	384	96.0	400	11.8	

Sample ID: BH-2 59-61' (H503175-11)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	288	16.0	12/07/2015	ND	384	96.0	400	11.8	

Sample ID: BH-2 64-66' (H503175-12)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	384	16.0	12/07/2015	ND	384	96.0	400	11.8	

Sample ID: BH-2 69-71' (H503175-13)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	384	16.0	12/07/2015	ND	384	96.0	400	11.8	

Sample ID: BH-2 74-76' (H503175-14)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	352	16.0	12/07/2015	ND	384	96.0	400	11.8	

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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

Cardinal Laboratories

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Celey D. Keene, Lab Director/Quality Manager



ARDINAL LABORATORIES

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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page 1 of 2

ANALYSIS REQUEST

BILL TO

Company Name: Safety & Environmental Solutions, Inc.
Project Manager: Bob Allen

Address: 703 East Clinton
City: Hobbs State: NM Zip: 88240

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

Project #: SIL-15-001 Project Owner: S.W. STAKE

Project Name: Knowles SUD #2

Project Location: Knowles

Sampler Name: DADDYBOYER

FOR LAB USE ONLY

Lab I.D. H503175

Sample I.D. RH-2

Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX						PRESERV.	SAMPLING DATE	TIME	ANALYSIS REQUEST
				GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :				
1	RH-2	9-11	61	X						12/2	1040	X	Chlorides
2		14-16	1							12/2	1120		
3		19-21	1							12/2	1145		
4		24-26	1							12/2	1215		
5		29-31	1							12/2	1315		
6		34-36	1							12/2	1450		
7		39-41	1							12/2	1530		
8		44-46	1							12/2	1618		
9		49-51	1							12/2	0930		
10	RH-2	54-56	51	X						12/2	1035	X	1655 AIR

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Terms and Conditions: Interest will be charged on all accounts more than 30 days past due at the rate of 2.5% per annum from the original date of invoice, and all costs of collections, including attorney's fees.

Sample Requisitioned: [Signature] Date: 12/4/15 Time: 4:30 PM Received By: [Signature]

Relinquished By: [Signature] Date: [] Time: []

Delivered By: (Circle One) Temp. [] Sample Condition [] Checked By: [Signature]

Sampler - UPS - Bus - Other: 21:22 #54

Cardinal cannot accept verbal changes. Please fax written changes to 575-393-2476.



CARDINAL LABORATORIES, INC.

2111 Beechwood, Abilene, TX 79603 101 East Marland, Hobbs, NM 88240
 (915) 673-7001 Fax (915) 673-7020 (505) 393-2326 Fax (505) 393-2476

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page 2 of 2

ANALYSIS REQUEST

Company Name: SEST
 Project Manager: SEST
 Address: 703 E. CLINTON, #103
 City: HOBBS State: NM Zip: 88240
 Phone #: (505) 397-0510
 Fax #: (505) 393-4388
 Project #: STL-15-02 Project Owner: Silver Star
 Project Name: Knowles SUD
 Project Location: Knowles
 FOR LAB USE ONLY

Company: SAME
 Address: Hobbs, NM
 City: Hobbs State: NM Zip: 88240
 Phone #: _____
 Fax #: _____

LAB I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX						DATE	TIME	REMARKS
				GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:			
H503175	BH-2-64-66		1						12/3	1150	X	Chlorides
	BH-2-59-61		1						12/3	1342	X	
	BH-2-64-66		1						12/3	1335	X	
	BH-2-74-76		1						12/3	1425	X	

PLEASE NOTE: Utility and Domestic Carder's Utility and other's records for any claim relating to this report or test, 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 analysis or successor's filing 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.

Sampler Relinquished By: [Signature]
 Date: 12/4/15
 Time: 4:50 PM

Relinquished By: [Signature]
 Date: _____
 Time: _____

Received By: [Signature]
 Date: _____
 Time: _____

Delivered By: (Circle One)
 Sampler - UPS - Bus - Other: _____

Sample Condition: Cool Intact
 Yes No

CHECKED BY: [Signature]

REMARKS: _____

Terms and Conditions: This report will be returned on all accounts more than 30 days past due at the rate of 2.5% per annum from the original date of invoice, and at cost of collection, including attorney's fees.



December 22, 2015

Bob Allen
Safety & Environmental Solutions
703 East Clinton
Hobbs, NM 88240

RE: KNOWLES SWD #002

Enclosed are the results of analyses for samples received by the laboratory on 12/18/15 11:20.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is written in a cursive style.

Celey D. Keene
Lab Director/Quality Manager

Analytical Results For:

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

Received:	12/18/2015	Sampling Date:	12/10/2015
Reported:	12/22/2015	Sampling Type:	Soil
Project Name:	KNOWLES SWD #002	Sampling Condition:	Cool & Intact
Project Number:	SIL-15-001	Sample Received By:	Jodi Henson
Project Location:	HOBBS, NM		

Sample ID: EAST BACKGROUND (H503289-01)

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	12/21/2015	ND	2.20	110	2.00	1.51		
Toluene*	<0.050	0.050	12/21/2015	ND	2.25	113	2.00	1.29		
Ethylbenzene*	<0.050	0.050	12/21/2015	ND	2.06	103	2.00	2.62		
Total Xylenes*	<0.150	0.150	12/21/2015	ND	6.56	109	6.00	1.77		
Total BTEX	<0.300	0.300	12/21/2015	ND						

Surrogate: 4-Bromofluorobenzene (PID) 102 % 73.6-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	12/21/2015	ND	432	108	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	12/19/2015	ND	173	86.5	200	7.80		
DRO >C10-C28	<10.0	10.0	12/19/2015	ND	180	90.0	200	9.08		

Surrogate: 1-Chlorooctane 101 % 35-147
Surrogate: 1-Chlorooctadecane 108 % 28-171

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Analytical Results For:

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

Received:	12/18/2015	Sampling Date:	12/10/2015
Reported:	12/22/2015	Sampling Type:	Soil
Project Name:	KNOWLES SWD #002	Sampling Condition:	Cool & Intact
Project Number:	SIL-15-001	Sample Received By:	Jodi Henson
Project Location:	HOBBS, NM		

Sample ID: SOUTH BACKGROUND (H503289-02)

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	12/21/2015	ND	2.20	110	2.00	1.51		
Toluene*	<0.050	0.050	12/21/2015	ND	2.25	113	2.00	1.29		
Ethylbenzene*	<0.050	0.050	12/21/2015	ND	2.06	103	2.00	2.62		
Total Xylenes*	<0.150	0.150	12/21/2015	ND	6.56	109	6.00	1.77		
Total BTEX	<0.300	0.300	12/21/2015	ND						

Surrogate: 4-Bromofluorobenzene (PID) 102 % 73.6-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	12/21/2015	ND	432	108	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	12/19/2015	ND	173	86.5	200	7.80		
DRO >C10-C28	<10.0	10.0	12/19/2015	ND	180	90.0	200	9.08		

Surrogate: 1-Chlorooctane 106 % 35-147

Surrogate: 1-Chlorooctadecane 111 % 28-171

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Received:	12/18/2015	Sampling Date:	12/11/2015
Reported:	12/22/2015	Sampling Type:	Soil
Project Name:	KNOWLES SWD #002	Sampling Condition:	Cool & Intact
Project Number:	SIL-15-001	Sample Received By:	Jodi Henson
Project Location:	HOBBS, NM		

Sample ID: SOUTH WALL (H503289-03)

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	12/21/2015	ND	2.20	110	2.00	1.51		
Toluene*	<0.050	0.050	12/21/2015	ND	2.25	113	2.00	1.29		
Ethylbenzene*	<0.050	0.050	12/21/2015	ND	2.06	103	2.00	2.62		
Total Xylenes*	<0.150	0.150	12/21/2015	ND	6.56	109	6.00	1.77		
Total BTEX	<0.300	0.300	12/21/2015	ND						

Surrogate: 4-Bromofluorobenzene (PID) 102 % 73.6-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	320	16.0	12/21/2015	ND	432	108	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	12/19/2015	ND	173	86.5	200	7.80		
DRO >C10-C28	<10.0	10.0	12/19/2015	ND	180	90.0	200	9.08		

Surrogate: 1-Chlorooctane 101 % 35-147

Surrogate: 1-Chlorooctadecane 102 % 28-171

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Received:	12/18/2015	Sampling Date:	12/11/2015
Reported:	12/22/2015	Sampling Type:	Soil
Project Name:	KNOWLES SWD #002	Sampling Condition:	Cool & Intact
Project Number:	SIL-15-001	Sample Received By:	Jodi Henson
Project Location:	HOBBS, NM		

Sample ID: EAST WALL (H503289-04)

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	12/21/2015	ND	2.20	110	2.00	1.51		
Toluene*	<0.050	0.050	12/21/2015	ND	2.25	113	2.00	1.29		
Ethylbenzene*	<0.050	0.050	12/21/2015	ND	2.06	103	2.00	2.62		
Total Xylenes*	<0.150	0.150	12/21/2015	ND	6.56	109	6.00	1.77		
Total BTEX	<0.300	0.300	12/21/2015	ND						

Surrogate: 4-Bromofluorobenzene (PID) 100 % 73.6-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	288	16.0	12/21/2015	ND	432	108	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	12/19/2015	ND	173	86.5	200	7.80		
DRO >C10-C28	<10.0	10.0	12/19/2015	ND	180	90.0	200	9.08		

Surrogate: 1-Chlorooctane 113 % 35-147

Surrogate: 1-Chlorooctadecane 106 % 28-171

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Received:	12/18/2015	Sampling Date:	12/17/2015
Reported:	12/22/2015	Sampling Type:	Soil
Project Name:	KNOWLES SWD #002	Sampling Condition:	Cool & Intact
Project Number:	SIL-15-001	Sample Received By:	Jodi Henson
Project Location:	HOBBS, NM		

Sample ID: NORTH WALL (H503289-05)

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/21/2015	ND	2.20	110	2.00	1.51	
Toluene*	<0.050	0.050	12/21/2015	ND	2.25	113	2.00	1.29	
Ethylbenzene*	<0.050	0.050	12/21/2015	ND	2.06	103	2.00	2.62	
Total Xylenes*	<0.150	0.150	12/21/2015	ND	6.56	109	6.00	1.77	
Total BTEX	<0.300	0.300	12/21/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID) 101 % 73.6-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	832	16.0	12/21/2015	ND	432	108	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	12/19/2015	ND	173	86.5	200	7.80	
DRO >C10-C28	42.9	10.0	12/19/2015	ND	180	90.0	200	9.08	

Surrogate: 1-Chlorooctane 96.8 % 35-147

Surrogate: 1-Chlorooctadecane 115 % 28-171

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Received:	12/18/2015	Sampling Date:	12/17/2015
Reported:	12/22/2015	Sampling Type:	Soil
Project Name:	KNOWLES SWD #002	Sampling Condition:	Cool & Intact
Project Number:	SIL-15-001	Sample Received By:	Jodi Henson
Project Location:	HOBBS, NM		

Sample ID: WEST WALL (H503289-06)

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	12/21/2015	ND	2.20	110	2.00	1.51	
Toluene*	<0.050	0.050	12/21/2015	ND	2.25	113	2.00	1.29	
Ethylbenzene*	<0.050	0.050	12/21/2015	ND	2.06	103	2.00	2.62	
Total Xylenes*	<0.150	0.150	12/21/2015	ND	6.56	109	6.00	1.77	
Total BTEX	<0.300	0.300	12/21/2015	ND					

Surrogate: 4-Bromofluorobenzene (PID) 101 % 73.6-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	320	16.0	12/21/2015	ND	432	108	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	12/19/2015	ND	173	86.5	200	7.80	
DRO >C10-C28	<10.0	10.0	12/19/2015	ND	180	90.0	200	9.08	

Surrogate: 1-Chlorooctane 101 % 35-147

Surrogate: 1-Chlorooctadecane 105 % 28-171

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Received:	12/18/2015	Sampling Date:	12/17/2015
Reported:	12/22/2015	Sampling Type:	Soil
Project Name:	KNOWLES SWD #002	Sampling Condition:	Cool & Intact
Project Number:	SIL-15-001	Sample Received By:	Jodi Henson
Project Location:	HOBBS, NM		

Sample ID: SP-1 BOTTOM 4' (H503289-07)

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	12/21/2015	ND	2.20	110	2.00	1.51		
Toluene*	<0.050	0.050	12/21/2015	ND	2.25	113	2.00	1.29		
Ethylbenzene*	<0.050	0.050	12/21/2015	ND	2.06	103	2.00	2.62		
Total Xylenes*	<0.150	0.150	12/21/2015	ND	6.56	109	6.00	1.77		
Total BTEX	<0.300	0.300	12/21/2015	ND						

Surrogate: 4-Bromofluorobenzene (PID) 101 % 73.6-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	3920	16.0	12/21/2015	ND	432	108	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	12/19/2015	ND	173	86.5	200	7.80		
DRO >C10-C28	<10.0	10.0	12/19/2015	ND	180	90.0	200	9.08		

Surrogate: 1-Chlorooctane 106 % 35-147
Surrogate: 1-Chlorooctadecane 116 % 28-171

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Received:	12/18/2015	Sampling Date:	12/17/2015
Reported:	12/22/2015	Sampling Type:	Soil
Project Name:	KNOWLES SWD #002	Sampling Condition:	Cool & Intact
Project Number:	SIL-15-001	Sample Received By:	Jodi Henson
Project Location:	HOBBS, NM		

Sample ID: SP-2 BOTTOM 4' (H503289-08)

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	12/21/2015	ND	2.20	110	2.00	1.51		
Toluene*	<0.050	0.050	12/21/2015	ND	2.25	113	2.00	1.29		
Ethylbenzene*	<0.050	0.050	12/21/2015	ND	2.06	103	2.00	2.62		
Total Xylenes*	<0.150	0.150	12/21/2015	ND	6.56	109	6.00	1.77		
Total BTEX	<0.300	0.300	12/21/2015	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.4 % 73.6-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	2520	16.0	12/21/2015	ND	400	100	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	12/19/2015	ND	173	86.5	200	7.80		
DRO >C10-C28	<10.0	10.0	12/19/2015	ND	180	90.0	200	9.08		

Surrogate: 1-Chlorooctane 99.3 % 35-147

Surrogate: 1-Chlorooctadecane 101 % 28-171

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Received:	12/18/2015	Sampling Date:	12/17/2015
Reported:	12/22/2015	Sampling Type:	Soil
Project Name:	KNOWLES SWD #002	Sampling Condition:	Cool & Intact
Project Number:	SIL-15-001	Sample Received By:	Jodi Henson
Project Location:	HOBBS, NM		

Sample ID: SP-3 BOTTOM 4' (H503289-09)

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	12/21/2015	ND	2.20	110	2.00	1.51		
Toluene*	<0.050	0.050	12/21/2015	ND	2.25	113	2.00	1.29		
Ethylbenzene*	<0.050	0.050	12/21/2015	ND	2.06	103	2.00	2.62		
Total Xylenes*	<0.150	0.150	12/21/2015	ND	6.56	109	6.00	1.77		
Total BTEX	<0.300	0.300	12/21/2015	ND						

Surrogate: 4-Bromofluorobenzene (PID) 101 % 73.6-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	2520	16.0	12/21/2015	ND	400	100	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	12/19/2015	ND	173	86.5	200	7.80		
DRO >C10-C28	<10.0	10.0	12/19/2015	ND	180	90.0	200	9.08		

Surrogate: 1-Chlorooctane 101 % 35-147

Surrogate: 1-Chlorooctadecane 112 % 28-171

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Received:	12/18/2015	Sampling Date:	12/17/2015
Reported:	12/22/2015	Sampling Type:	Soil
Project Name:	KNOWLES SWD #002	Sampling Condition:	Cool & Intact
Project Number:	SIL-15-001	Sample Received By:	Jodi Henson
Project Location:	HOBBS, NM		

Sample ID: SP-4 BOTTOM 3' (H503289-10)

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	12/21/2015	ND	2.20	110	2.00	1.51		
Toluene*	<0.050	0.050	12/21/2015	ND	2.25	113	2.00	1.29		
Ethylbenzene*	<0.050	0.050	12/21/2015	ND	2.06	103	2.00	2.62		
Total Xylenes*	<0.150	0.150	12/21/2015	ND	6.56	109	6.00	1.77		
Total BTEX	<0.300	0.300	12/21/2015	ND						

Surrogate: 4-Bromofluorobenzene (PID) 101 % 73.6-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	1790	16.0	12/21/2015	ND	400	100	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	12/19/2015	ND	173	86.5	200	7.80		
DRO >C10-C28	<10.0	10.0	12/19/2015	ND	180	90.0	200	9.08		

Surrogate: 1-Chlorooctane 88.6 % 35-147

Surrogate: 1-Chlorooctadecane 108 % 28-171

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Analytical Results For:

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

Received:	12/18/2015	Sampling Date:	12/17/2015
Reported:	12/22/2015	Sampling Type:	Soil
Project Name:	KNOWLES SWD #002	Sampling Condition:	Cool & Intact
Project Number:	SIL-15-001	Sample Received By:	Jodi Henson
Project Location:	HOBBS, NM		

Sample ID: SP-5 BOTTOM 3' (H503289-11)

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	12/21/2015	ND	2.20	110	2.00	1.51		
Toluene*	<0.050	0.050	12/21/2015	ND	2.25	113	2.00	1.29		
Ethylbenzene*	<0.050	0.050	12/21/2015	ND	2.06	103	2.00	2.62		
Total Xylenes*	<0.150	0.150	12/21/2015	ND	6.56	109	6.00	1.77		
Total BTEX	<0.300	0.300	12/21/2015	ND						

Surrogate: 4-Bromofluorobenzene (PID) 102 % 73.6-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	3200	16.0	12/21/2015	ND	400	100	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	12/19/2015	ND	173	86.5	200	7.80		
DRO >C10-C28	<10.0	10.0	12/19/2015	ND	180	90.0	200	9.08		

Surrogate: 1-Chlorooctane 95.4 % 35-147
Surrogate: 1-Chlorooctadecane 102 % 28-171

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



CARDINAL LABORATORIES

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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page ___ of ___

ANALYSIS REQUEST

BILL TO

Company Name: Safety & Environmental Solutions, Inc.

Project Manager: Bob Allen

Address: 703 East Clinton

City: Hobbs State: NM zip: 88240

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

Project #: 105-15-001 Project Owner: Steve Spitzer

Project Name: Woodles Sand #2

Project Location: Hobbs, NM

Sampler Name: Son Jerry

For USA USE ONLY

Lab I.D. Sample I.D.

Lab I.D.	Sample I.D.	Description	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX							DATE	TIME	REMARKS	
					GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:				ICE / COOL
H5032889	1	East Face Green	X	1			X					12/10	1115	X	TPH (8015) BTEX Chlorides
	2	South Face Green	X	1			X					12/10	1100	X	
	3	South Wall	X	1			X					12/11	0915	X	
	4	East Wall	X	1			X					12/11	1410	X	
	5	North Wall	X	1			X					12/17	1330	X	
	6	West Wall	X	1			X					12/17	1500	X	
	7	SP-1 Bottom	X	1			X					12/17	1400	X	
	8	SP-2 Bottom	X	1			X					12/17	1410	X	
	9	SP-3 Bottom	X	1			X					12/17	1420	X	
	10	SP-4 Bottom	X	1			X					12/17	1430	X	

PLEASE NOTE: Large and Durable Containers (Bottle and other) shall be marked with the amount paid by the client for the 30 days past due at the rate of 24% per annum from the original date of invoice, and all costs of collections, including attorney's fees.

Plastic and Durable Containers (Bottle and other) shall be marked with the amount paid by the client for the 30 days past due at the rate of 24% per annum from the original date of invoice, and all costs of collections, including attorney's fees.

Analysis: All clients including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 90 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 subcontractors arising out of or related to the performance of services hereunder. Cardinal's acceptance of a collection claim is based upon any state or federal statute or regulation.

Sampler Relinquished: [Signature] Date: 12/18/15

Received By: [Signature] Date: 12/18/15

Requisitioned By: [Signature]

Delivered By: (Circle One) [Signature]

Sampler - UPS - Bus - Other: [Signature]

Temp. Sample Condition: [Signature]

Checked By: [Signature]

Phone Result: Yes No

Fax Result: Yes No

Add'l Phone #: _____

Add'l Fax #: _____

† Cardinal cannot accept verbal changes. Please fax written changes to 575-393-2476.



CARDINAL LABORATORIES, INC.

2111 Beechwood, Abilene, TX 79603 101 East Marland, Hobbs, NM 88240
(915) 673-7001 Fax (915) 673-7020 (505) 393-2326 Fax (505) 393-2476

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page 1 of 1

ANALYSIS REQUEST

Company Name: SEST
Project Manager:

Address: 703 E. CLINTON, #103

City: HOBBS State: NM Zip: 88240

Phone #: (505) 397-0510

Fax #: (505) 393-4388

Project #: ~~15-001~~ Project Owner: Silver Spices

Project Name: Knives Sub # 2

Project Location: Son. Jerry

FOR LAB USE ONLY

LAB I.D.

Sample I.D.

H503289

11 58-S Baton STA 9

(G)RAB OR (C)OMP.

CONTAINERS

GROUNDWATER

WASTEWATER

SOIL

OIL

SLUDGE

OTHER:

ACID:

ICE / COOL

OTHER:

DATE

TIME

X TPH (8015)
X BTEX
X Chlovels

PLEASE NOTE: Utility and Damages, Cardinal liability and start's exclusively remain for any claim arising whether based in contract or tort, that is limited to the amount paid by the client for the analysis. All claims including those for negligence and any other cause whatsoever that the client waived unless made in writing and received by Cardinal within 30 days after completion of the applicable analysis. No event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruption, 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 theory stated reasons or otherwise.

Terms and Conditions herein will be deemed on all accounts more than 30 days past due at the rate of 2 1/2% per annum from the original date of invoice, and all costs of collection, including attorney's fees.

Phone Result: Yes No Additional Fax #:

REMARKS:

Retrieved By: Son Jerry

Date: 11/18/15

Received By: Lab Staff

Checked By: [Signature]

Delivered By: [Signature]

Time: 11:20

Sample Condition

CHECKED BY: [Signature]

Sampler - UPS - Bus - Other:

2.00

Cardinal cannot accept verbal changes. Please fax written changes to 915-673-7020.

Appendix B

Site Photographs

Silver Spike Energy
Knowles SWD #002
API 30-025-07287



Sign marking location 11-13-15



Impacted area facing west



Impacted area facing northwest



Impacted area facing northwest



Impacted area west side of tanks



Impacted area facing north

Silver Spike Energy
Knowles SWD #002
API 30-025-07287



Excavated area facing west



Excavated area facing northwest



Excavated area South of battery



Excavated area northwest



Excavated area west side of tanks



Excavated and lined west side of tanks

Silver Spike Energy
Knowles SWD #002
API 30-025-07287



Lined Excavation facing north



Lined area facing south



Lined west side of tanks with layered top soil



Lined north side layered topsoil



Silver Spike Energy
Knowles SWD #002
API 30-025-07287



Completion looking northeast



Completion looking east



Completion looking north

Appendix C

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

Form C-141
Revised August 8, 2011

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

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: Silver Spike Energy Operating of NM, LLC	Contact: Mike Evans
Address: 203 W Wall Suite 920 Midland, TX 79701	Telephone No. 432-413-6483
Facility Name: Knowles SWD #002	Facility Type: SWD

Surface Owner Fee	Mineral Owner Fee	API No. 30-025-07287
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LOCATION OF RELEASE

Unit Letter P	Section: 34	Township: 26S	Range 38E	Feet from the 660	North/South Line South	Feet from the 660	East/West Line East	County: Lea
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Latitude 32.8726654 Longitude -103.1286621

NATURE OF RELEASE

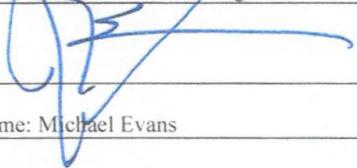
Type of Release Produced Water	Volume of Release 22 bbls	Volume Recovered 0
Source of Release Water tank overflow	Date and Hour of Occurrence Unknown	Date and Hour of Discovery Unknown
Was Immediate Notice Given? PLEASE SEE ATTACHED EXHIBIT TO C141 <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom?	
By Whom:	Date and Hour:	
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.*
Due to the failure of the High/Low switch on the water tank and overflow occurred. SESI was contacted to remediate the site according to NMOCD guidelines.

Describe Area Affected and Cleanup Action Taken.*
The spill impacted ground surface area measuring approximately 4,923 sq. ft. and was retained to the interior of the bermed area for the battery. Custom Welding of Hobbs, NM was utilized to excavate according the approved remediation plan. SESI has remediated the site in accordance with said plan and respectfully requests closure of the regulatory file for this site.

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: 	OIL CONSERVATION DIVISION	
Printed Name: Michael Evans	Approved by Environmental Specialist:	
Title: EHS Representative	Approval Date:	Expiration Date:
E-mail Address: Michael@silverspikeenergy.com	Conditions of Approval:	Attached <input type="checkbox"/>
Date: 12/29/15 Phone: 432-413-6483		

* Attach Additional Sheets If Necessary

Appendix D Groundwater Analysis



New Mexico Office of the State Engineer

Water Column/Average Depth to Water

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

(R=POD has been replaced, O=orphaned, C=the file is closed) (quarters are 1=NW 2=NE 3=SW 4=SE) (quarters are smallest to largest) (NAD83 UTM in meters)

(In feet)

POD Number	POD Sub-Code	basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
L 00078	R	L	LE	1	1	23	16S	38E	675409	3643153*		120		
L 00078 POD2		L	LE	3	1	3	23	16S	38E	675321	3642245*		160	52 108
L 00078 POD3		L	LE	1	1	4	23	16S	38E	676125	3642457*		216	90 126
L 00080		L	LE	1	1	1	35	16S	38E	675359	3640023*		130	
L 00084		L	LE	3	3	2	25	16S	38E	677753	3641070*		85	
L 00137		L	LE	1	2	3	34	16S	38E	674165	3639199*		135	
L 00189		L	LE	1	3	1	34	16S	38E	673756	3639598*		178	
L 00189 S		L	LE	1	1	1	34	16S	38E	673749	3640001*		180	95 85
L 00204		L	LE	4	4	3	28	16S	38E	672735	3640190*		140	70 70
L 00204 POD3	R	L	LE	3	1	2	33	16S	38E	672944	3639792*		165	93 72
L 00204 S		L	LE	1	2	33	16S	38E	673045	3639893*		183	110 73	
L 00204 S2		L	LE	1	4	4	28	16S	38E	673340	3640400*		125	60 65
L 00204 S3		L	LE	3	4	2	33	16S	38E	673353	3639393*		180	100 80
L 00204 S4		L	LE			3	28	16S	38E	672434	3640487*		155	
L 00204 S5		L	LE	1	2	2	33	16S	38E	673346	3639997*		150	80 70
L 00212		L	LE	3	3	4	24	16S	38E	677741	3641878*		179	
L 00347		L	LE		1	07	16S	38E	669164	3646085*		130		
L 00347 POD2		L	LE	1	4	1	07	16S	38E	669226	3645989*		135	58 77
L 00347 POD3		L	LE	1	2	1	18	16S	38E	669244	3644778*		125	41 84
L 00353		L	LE	1	1	1	19	16S	38E	668903	3643160*		185	60 125
L 00353 POD1	R	L	LE	1	1	19	16S	38E	669004	3643061*		124		
L 00353 S		L	LE	1	2	1	19	16S	38E	669266	3643166*		185	100 85
L 00353 S2		L	LE	1	2	1	19	16S	38E	669266	3643166*		202	76 126
L 00358		L	LE	3	1	3	21	16S	38E	672099	3642201*		194	84 110
L 00513		L	LE			05	16S	38E	671127	3647318*		220	90 130	
L 00514		L	LE			03	16S	38E	674345	3647366*		130		

*UTM location was derived from PLSS - see Help

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

(R=POD has been replaced, O=orphaned, C=the file is closed) (quarters are 1=NW 2=NE 3=SW 4=SE) (quarters are smallest to largest) (NAD83 UTM in meters)

(In feet)

POD Number	POD Sub-Code	basin	County	Q 64	Q 16	Q 4	Q 4	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
L 00602	L	LE		1	1	2	28	16S	38E	672917	3641605*		189	100	89
L 00602 S	L	LE		1	3	2	28	16S	38E	672924	3641202*		140	43	97
L 00602 S2	L	LE			2	28	16S	38E	673226	3641304*		178	103	75	
L 00602 S3	L	LE			2	28	16S	38E	673226	3641304*		174	98	76	
L 00727 POD12	L	LE		3	4	33	16S	38E	673065	3638683*		172	75	97	
L 00727 POD2	R	L	LE	3	4	33	16S	38E	673065	3638683*		160	50	110	
L 00727 POD4	L	LE		4	3	4	33	16S	38E	673164	3638582*		195	70	125
L 00727 POD4	R	L	LE	4	3	4	33	16S	38E	673164	3638582*		195	70	125
L 00727 POD5	L	LE		4	4	33	16S	38E	673468	3638687*		198	100	98	
L 00727 POD9	L	LE		1	3	3	34	16S	38E	673769	3638790*		200	105	95
L 00752	L	LE		3	1	4	30	16S	38E	669623	3640550		200		
L 00752 POD2	L	LE			3	30	16S	38E	669252	3640441*		177	120	57	
L 00752 POD4	L	LE			3	30	16S	38E	669646	3640304		200			
L 00753	L	LE		1	1	1	30	16S	38E	669207	3641652		214	140	74
L 00753	R	L	LE	1	1	1	30	16S	38E	669207	3641652		214	140	74
L 00753 S	L	LE			1	30	16S	38E	669239	3641248*		170	90	80	
L 00753 S2	L	LE			1	30	16S	38E	669239	3641248*		170	140	30	
L 00755	L	LE		1	1	2	30	16S	38E	669696	3641561*		182	181	1
L 00755	R	L	LE	1	1	2	30	16S	38E	669696	3641561*		182	181	1
L 00756	L	LE		1	1	3	30	16S	38E	668880	3640830		163	110	53
L 00756	R	L	LE	1	1	3	30	16S	38E	668880	3640830		163	110	53
L 00767	R	L	LE		2	4	32	16S	38E	671850	3639073*		142		
L 00767 POD2	L	LE		1	2	4	32	16S	38E	671749	3639172*		178	91	87
L 00776	L	LE		1	1	26	16S	38E	675434	3641538*		140			
L 00777	L	LE		3	1	26	16S	38E	675441	3641135*		140			
L 00778	L	LE		1	3	26	16S	38E	675447	3640731*		140			
L 00779	L	LE		1	1	27	16S	38E	673823	3641517*		191	100	91	
L 00779 POD11	L	LE		3	3	4	27	16S	38E	674547	3640216*		245	102	143
L 00779 POD12	L	LE		1	2	1	27	16S	38E	674032	3641714		196	94	102

*UTM location was derived from PLSS - see Help

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

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

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

(quarters are smallest to largest) (NAD83 UTM in meters)

(In feet)

POD Number	POD		Q Q Q						X	Y	Depth Well	Depth Water	Water Column
	Sub-Code	basin	County	64	16	4	Sec	Tws					
L 00779 POD13	L	LE	4	1	1	27	16S	38E	673641	3641347	193	115	78
L 00779 S	R	L	1	3	27	16S	38E	673836	3640710*	171	70	101	
L 00780	L	LE	3	1	1	27	16S	38E	673722	3641416*	130	58	72
L 00780	R	L	3	1	1	27	16S	38E	673722	3641416*	130	58	72
L 00781	L	LE	1	3	27	16S	38E	673836	3640710*	130	75	55	
L 00781	R	L	1	3	27	16S	38E	673836	3640710*	130	75	55	
L 00782	L	LE	1	1	2	27	16S	38E	674528	3641627*	185	100	85
L 00783	L	LE	1	3	2	27	16S	38E	674534	3641223*	180	180	0
L 00784	L	LE	4	3	27	16S	38E	674245	3640311*	130			
L 00785	L	LE	3	4	27	16S	38E	674648	3640317*	130			
L 00786	L	LE	4	3	27	16S	38E	674245	3640311*	118	67	51	
L 00787	L	LE	2	1	34	16S	38E	674252	3639908*	140	65	75	
L 00788	L	LE	1	1	2	35	16S	38E	676163	3640034*	191	100	91
L 00788 POD3	L	LE	2	3	26	16S	38E	675849	3640737*	150	47	103	
L 00789	L	LE	4	2	1	35	16S	38E	675961	3639828*	191	100	91
L 00801	L	LE	1	1	1	29	16S	38E	670500	3641574*	187	84	103
L 00801 POD4	L	LE	4	1	29	16S	38E	671192	3641070	248	110	138	
L 00801 S	L	LE	1	29	16S	38E	670809	3641273*	190	100	90		
L 00801 S2	L	LE	1	4	1	29	16S	38E	670910	3641176*	182	80	102
L 00802	L	LE	2	1	1	12	16S	38E	677068	3646503*	117	40	77
L 00802 S	L	LE	2	1	12	16S	38E	677371	3646411*	200	70	130	
L 00813	L	LE	1	2	3	28	16S	38E	672528	3640793*	130	50	80
L 00813	R	L	1	2	3	28	16S	38E	672528	3640793*	130	50	80
L 00814	L	LE	3	1	3	28	16S	38E	672125	3640588*	150	60	90
L 00814	R	L	3	1	3	28	16S	38E	672125	3640588*	150	60	90
L 00848	L	LE	1	1	3	33	16S	38E	672152	3639176*	135		
L 00848	R	L	1	1	3	33	16S	38E	672152	3639176*	135		
L 00848 POD2	L	LE	4	3	33	16S	38E	672662	3638679*	130	50	80	
L 00848 POD2	R	L	4	3	33	16S	38E	672662	3638679*	130	50	80	

*UTM location was derived from PLSS - see Help

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

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

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

(quarters are smallest to largest) (NAD83 UTM in meters)

(In feet)

POD Number	POD			Q Q Q					X	Y	Depth Well	Depth Water	Water Column	
	Sub-Code	basin	County	64	16	4	Sec	Tws						Rng
L 00849	L	LE	3	1	4	33	16S	38E	672957	3638985*	140			
L 00849	R	L	3	1	4	33	16S	38E	672957	3638985*	140			
L 00849 POD2	L	LE	3	1	4	33	16S	38E	672957	3638985*	187	115	72	
L 00849 POD2	R	L	3	1	4	33	16S	38E	672957	3638985*	187	115	72	
L 00849 POD3	R	L	4	1	4	33	16S	38E	673157	3638985*	195	70	125	
L 00874	L	LE	3	1	3	12	16S	38E	676880	3645497*	213	80	133	
L 00875	L	LE	1	3	4	12	16S	38E	677692	3645306*	213	80	133	
L 00875 POD2	L	LE			4	12	16S	38E	677994	3645408*		104		
L 00921 POD1	L	LE			3	30	16S	38E	669252	3640441*	73			
L 01052	L	LE	4	2	2	28	16S	38E	673520	3641411*	90	60	30	
L 01094	L	LE				19	16S	38E	669627	3642456*	80			
L 01131 POD1	L	LE	4	4	2	31	16S	38E	670331	3639354*	74	70	4	
L 01143 POD1	L	LE			3	4	33	16S	38E	673065	3638683*	124	60	64
L 01187	L	LE	1	2	2	21	16S	38E	673294	3643224*	150	35	115	
L 01187	R	L	1	2	2	21	16S	38E	673294	3643224*	150	35	115	
L 01187 POD2	L	LE			2	2	21	16S	38E	672997	3643381	182	100	82
L 01230	L	LE	1	3	2	22	16S	38E	674509	3642837*	150			
L 01230 POD5	L	LE			4	22	16S	38E	674823	3642132*	205			
L 01231	L	LE	1	1	4	22	16S	38E	674515	3642434*	155	64	91	
L 01232	L	LE	1	3	4	15	16S	38E	674496	3643644*	150			
L 01232	R	L	1	3	4	15	16S	38E	674496	3643644*	150			
L 01344	L	LE			2	3	22	16S	38E	674213	3642329*	100	55	45
L 01424	L	LE	3	1	2	09	16S	38E	672842	3646247*	150	52	98	
L 01424 POD2	L	LE	3	2	3	19	16S	38E	669225	3642051	175	105	70	
L 01424 POD3	L	LE			1	3	19	16S	38E	669018	3642256*	173	90	83
L 01424 POD4	L	LE	2	2	3	19	16S	38E	669480	3642361*	175			
L 01441	L	LE	1	1	1	35	16S	38E	675359	3640023*	123	50	73	
L 01446	L	LE			4	4	34	16S	38E	675077	3638707*	115		
L 01606 POD1	L	LE			2	4	34	16S	38E	675070	3639111*	115	50	65

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(R=POD has been replaced, O=orphaned, C=the file is closed) (quarters are 1=NW 2=NE 3=SW 4=SE) (quarters are smallest to largest) (NAD83 UTM in meters)

(In feet)

POD Number	POD Sub-Code	basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column		
L 01706	L	LE		1	1	1	10	16S	38E	673647	3646459*	150	25	125		
L 01707	L	LE		1	1	1	15	16S	38E	673672	3644844*	150	30	120		
L 01707 S	L	LE		1	3	1	15	16S	38E	673678	3644440*	160	47	113		
L 01708	L	LE		1	1	3	22	16S	38E	673709	3642423*	207	110	97		
L 01708 POD3	L	LE					3	22	16S	38E	674018	3642122	228	228	0	
L 01708 S	L	LE		3	1	3	22	16S	38E	673709	3642223*	150	110	40		
L 01747 POD2	L	LE		1	4	2	26	16S	38E	676546	3641251*	196	170	26		
L 01747 POD3	L	LE					1	1	25	16S	38E	676546	3641251	148	80	68
L 01765 POD2	L	LE		1	3	3	35	16S	38E	675378	3638812*	151	61	90		
L 01765 S	L	LE					2	3	35	16S	38E	675875	3639122*	160	71	89
L 01768	L	LE		1	2	2	10	16S	38E	674854	3646475*	90	35	55		
L 01768 S	L	LE					2	4	10	16S	38E	674968	3645569*	128	95	33
L 01952	R	L	LE	4	4	4	27	16S	38E	675201	3640330	100	55	45		
L 01952 POD2	L	LE		4	4	4	27	16S	38E	675200	3640329	230	123	107		
L 01999	L	LE					1	1	15	16S	38E	673773	3644745*	105	40	65
L 02110	L	LE					3	3	35	16S	38E	675479	3638713*	100	45	55
L 02446	L	LE		3	4	2	34	16S	38E	674963	3639414*	125	48	77		
L 02458	L	LE		2	2	3	30	16S	38E	669507	3640748*	148	115	33		
L 02781	L	LE		4	2	2	33	16S	38E	673546	3639797*	115	50	65		
L 02923	L	LE						04	16S	38E	672736	3647343*	125	30	95	
L 02924	L	LE		2	2	2	26	16S	38E	676740	3641655*	110				
L 03143	L	LE					2	2	05	16S	38E	671710	3647943*	120	30	90
L 03146	L	LE						01	16S	38E	677565	3647411*	128	50	78	
L 03193	L	LE		1	1	04	16S	38E	672112	3647949*	120	35	85			
L 03229	L	LE		2	2	22	16S	38E	675006	3643147*	120	40	80			
L 03255	L	LE		2	2	05	16S	38E	671710	3647943*	120	30	90			
L 03273	L	LE		4	2	2	28	16S	38E	673520	3641411*	110	65	45		
L 03291	L	LE					3	4	32	16S	38E	671452	3638666*	140	65	75
L 03464	L	LE		4	3	3	33	16S	38E	672359	3638573*	125	70	55		

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(quarters are smallest to largest) (NAD83 UTM in meters)

(In feet)

POD Number	POD			Q Q Q					X	Y	Depth Well	Depth Water	Water Column		
	Sub-Code	basin	County	64	16	4	Sec	Tws						Rng	
L 03466	L	LE		2	2	09	16S	38E	673346	3646354*		110	56	54	
L 03480	L	LE		2	2	2	32	16S	38E	671936	3639977*		120	55	65
L 04446	L	LE				01	16S	38E	677565	3647411*		130	50	80	
L 04508	L	LE		4	1	30	16S	38E	669401	3641053*		110	54	56	
L 04590	L	LE			2	07	16S	38E	669931	3646097*		150	114	36	
L 04638	L	LE		3	3	21	16S	38E	672206	3641899*		120	52	68	
L 05038	L	LE		2	4	3	02	16S	38E	675853	3646889*		120	55	65
L 05193	L	LE				20	16S	38E	671197	3642481*		126	50	76	
L 05202	L	LE		1	4	30	16S	38E	669810	3640656*		125	45	80	
L 05206	L	LE				06	16S	38E	669557	3647294*		120	87	33	
L 05234	L	LE		1	4	24	16S	38E	677836	3642383*		83	46	37	
L 05348	L	LE		4	2	08	16S	38E	671742	3645927*		106	65	41	
L 05390	L	LE		3	3	34	16S	38E	673870	3638691*		100	64	36	
L 05427	L	LE		3	3	4	33	16S	38E	672964	3638582*		163		
L 05427	R	L	LE	3	3	4	33	16S	38E	672964	3638582*		163		
L 05467	L	LE		4	2	31	16S	38E	670232	3639455*		110	65	45	
L 05691	L	LE		4	2	21	16S	38E	673401	3642722*		125	55	70	
L 05753	L	LE		3	3	3	23	16S	38E	675327	3641841*		95	70	25
L 06221	L	LE		1	4	01	16S	38E	677761	3647223*		122	44	78	
L 06330 POD2	L	LE			2	27	16S	38E	674836	3641325*		159			
L 06463	L	LE		2	4	15	16S	38E	674994	3643954*		110	60	50	
L 06502	L	LE			4	19	16S	38E	669991	3642066*		100	50	50	
L 06513	L	LE		4	4	4	21	16S	38E	673513	3641814*		115	60	55
L 06630	L	LE		1	4	15	16S	38E	674591	3643949*		120	60	60	
L 06825	L	LE		4	1	2	24	16S	38E	677922	3643089*		120	58	62
L 06834	L	LE		3	2	2	28	16S	38E	673320	3641411*		123	53	70
L 07050	L	LE		3	3	34	16S	38E	673870	3638691*		100	80	20	
L 07307	R	L	LE	1	4	11	16S	38E	676176	3645586*		94	54	40	
L 07338	R	L	LE	3	1	35	16S	38E	675466	3639520*		100	25	75	

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(quarters are smallest to largest) (NAD83 UTM in meters)

(In feet)

POD Number	POD Sub-Code	basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
L 07338 POD2	L	LE		3	1	35	16S	38E		675466	3639520*	100	73	27
L 07344	L	LE		3	1	25	16S	38E		677050	3641158*	100	25	75
L 07511	R	L	LE	4	4	1	17	16S	38E	671059	3644200*	125	58	67
L 07586	L	LE		1	1	07	16S	38E		668959	3646288*	150	80	70
L 07806	L	LE		1	17		16S	38E		670758	3644496*	70	58	12
L 07807	L	LE		4	35		16S	38E		676484	3638924*	150	68	82
L 08630	L	LE		4	3	33	16S	38E		672662	3638679*	175	75	100
L 08643	L	LE		4	3	33	16S	38E		672662	3638679*	175		
L 08723	L	LE				05	16S	38E		671127	3647318*	102	62	40
L 08754	L	LE		1	2	2	26	16S	38E	676540	3641655*	140		
L 08767	L	LE		1	1	3	34	16S	38E	673763	3639194*	130		
L 08797	L	LE		2	4	3	33	16S	38E	672761	3638778*	175	75	100
L 08798	L	LE		2	4	3	33	16S	38E	672761	3638778*	175	75	100
L 08799	L	LE		4	4	3	33	16S	38E	672761	3638578*	175	75	100
L 08800	L	LE		4	4	3	33	16S	38E	672761	3638578*	175	75	100
L 08835	L	LE		3	4	3	33	16S	38E	672561	3638578*	175	75	100
L 08836	L	LE		4	4	3	33	16S	38E	672761	3638578*	175	75	100
L 08837	L	LE		1	4	3	33	16S	38E	672561	3638778*	175	75	100
L 08838	L	LE		2	4	3	33	16S	38E	672761	3638778*	175	75	100
L 08882	L	LE		4	2	21	16S	38E		673401	3642722*	135	65	70
L 09003	L	LE		4	4	3	33	16S	38E	672761	3638578*	153	75	78
L 09008	L	LE		2	2	2	27	16S	38E	675131	3641632*	200	76	124
L 09024	L	LE		1	1	1	19	16S	38E	668903	3643160*	150	85	65
L 09047	L	LE		3	1	1	24	16S	38E	676917	3643076*	144	72	72
L 09157	L	LE		3	4	4	08	16S	38E	671653	3645019*	130	61	69
L 09209	L	LE		4	4	3	33	16S	38E	672761	3638578*	180	75	105
L 09223	L	LE		4	4	3	33	16S	38E	672761	3638578*	160	75	85
L 09268	L	LE		3	1	2	11	16S	38E	676062	3646292*	135	70	65
L 09281	L	LE		3	3	4	33	16S	38E	672964	3638599	163	70	93

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(quarters are smallest to largest) (NAD83 UTM in meters)

(In feet)

POD Number	POD Sub-Code	basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
L 09427	L	LE		2	2	16	16S	38E		673370	3644739*	150		
L 09527	L	LE		1	1	1	30	16S	38E	668930	3641549*	155	75	80
L 09647	L	LE		1	3	3	22	16S	38E	673716	3642020*	153	85	68
L 09867	L	LE		3	2	08	16S	38E		671340	3645921*	138	85	53
L 09968	R	L	LE	2	3	09	16S	38E		672553	3645535*	70		
L 09968 POD2	L	LE				09	16S	38E		672760	3645729*	160	70	90
L 10030	L	LE		3	3	2	25	16S	38E	677753	3641070*	150	79	71
L 10061	L	LE		4	1	3	31	16S	38E	669167	3638938*	210	80	130
L 10129	L	LE		3	1	3	35	16S	38E	675372	3639016*	160	90	70
L 10151	L	LE		4	1	07	16S	38E		669327	3645890*	200	85	115
L 10152	L	LE		3	3	3	34	16S	38E	673769	3638590*	150	83	67
L 10211	L	LE		3	3	3	23	16S	38E	675327	3641841*	155	83	72
L 10215	L	LE		4	2	04	16S	38E		673326	3647564*	75	60	15
L 10216	L	LE		1	1	03	16S	38E		673721	3647973*	65	50	15
L 10321	L	LE				12	16S	38E		677590	3645797*	136	50	86
L 10415	L	LE		4	13		16S	38E		678018	3643795*	195	70	125
L 10421	L	LE		1	1	4	33	16S	38E	672957	3639185*	176	64	112
L 10690	L	LE		4	4	14	16S	38E		676610	3643575*	244	65	179
L 10874	L	LE		3	16		16S	38E		672381	3643712*	105	85	20
L 10910	L	LE		4	4	27	16S	38E		675051	3640322*	158	80	78
L 11112	L	LE		4	2	4	28	16S	38E	673533	3640604*	157		
L 11243	L	LE		3	3	3	18	16S	38E	668897	3643363*	200		
L 11408	L	LE		1	1	2	30	16S	38E	669696	3641561*	155	95	60
L 11481	L	LE		4	1	3	21	16S	38E	672299	3642201*	212		
L 11484	L	LE		1	1	1	35	16S	38E	675359	3640023*	210	106	104
L 11597	L	LE		1	4	3	33	16S	38E	672561	3638778*	200	111	89
L 11757	L	LE		4	3	4	34	16S	38E	674774	3638601*	212		
L 12110 POD1	L	LE		3	3	1	07	16S	38E	668776	3645890	180		
L 12292 POD1	L	LE		4	2	1	03	16S	38E	654772	3648081	134	68	66

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(In feet)

POD Number	POD Sub-Code	basin	County	Q 6	Q 4	Q 16	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
L 12314 POD1	L	LE		4	2	2	21	16S	38E	673534	3642987	183	100	83
L 12504 POD1	L	LE		2	2	1	30	16S	38E	669541	3641559	191		
L 12757 POD1	L	LE			1	30	16S	38E	669239	3641248*		230	106	124
L 13206 POD1	L	LE		2	2	2	10	16S	38E	675090	3646533	178	76	102
L 13442 POD1	L	LE		2	3	2	34	16S	38E	674832	3639563	185	120	65
L 13616 POD1	L	LE		1	2	3	34	16S	38E	673974	3639694	210	118	92

Average Depth to Water: **76 feet**

Minimum Depth: **25 feet**

Maximum Depth: **228 feet**

Record Count: 235

PLSS Search:

Township: 16S

Range: 38E

*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 E Boring Log



Silver Spike Energy
 Knowles SWD #2
 SE/4 Sec. 34, T16S, R38E
 Lea County, New Mexico
 N32.872550°, W103.128773°

Date, Time Started : 12/02/15, 0930
 Date, Time Complete : 12/03/15, 1700
 Hole Diameter : 8 1/4 in.
 Drilling Method : Hollow Stem Auger
 Drilling Equipment : Ingersol-Rand 300A

Drilled By : Atkins Engineering Assoc.
 Sampling Method : 2 ft. splitspoon
 Logged By : David Boyer, P.G.

Depth in Feet	Sample	Sample Type	Recovery (ft.)	USCS	GRAPHIC	Sample Condition	Sample Type
						Remoulded Undisturbed Lost Rock Core	SS Split Spoon (24") CB Core Barrel (4") CT Auger Cuttings NR No recovery
DESCRIPTION							
0			4.0	AR		0-1.5 ft. Disturbed mixture of CALICHE, SAND, and minor CLAY (Geoprobe core recovery, 11/23)	
				ML		1.5-3.5 ft. SANDY SILT, black, H/C staining and odor (Geoprobe core)	
5		CB	3.5	SM		4-8 ft. SILTY SAND, light brown, w/caliche fragments, H/C odor (Geoprobe core)	
10		SS	1.6	SM		8-12 ft. SILTY SAND with caliche fragments, light brown, H/C odor (Geoprobe core)	
						9-11 ft. SAND, light brown, fine grained with caliche fragments	
						Hard drilling 11 - 14 ft.	
15		SS	1.6	SP/CA		14-16 ft. SAND, light brown with more frequent caliche and/or sandstone fragments	
20		SS	1.6	CA/SP		19-21 ft. CALICHE and some SANDSTONE with fine grained, SAND light brown	
25		SS	0.6	CA/SP		24-26 ft. CALICHE with minor SANDSTONE and fine grained SAND, light brown, no H/C staining or odor. Begin hard drilling 24.5 ft.	
30		SS	<0.5	SS		29-31 ft. Powdered cuttings in splitspoon, mostly very fine grained SANDSTONE, very light brown, cuttings may contain some slough from above.	
						Still hard drilling below 31 ft.	
35		SS	0.75	ML		34-36 ft. SANDY SILT, light brown, very fine grained, dry, some minor clay. Hammer refusal at 9 in., material most likely powder and slough from above	
40		SS	2.0	CA/SS SP		39-40 ft. CALICHE and SANDSTONE fragments, some sand, creme-colored, sand is very fine to fine grained	
						40-41 ft. SAND, light brown, very fine to fine grained, dry, occasional SS frags	
45		SS	1.5	SP/SS		44.0-44.4 ft. Slough. 44.4 ft-46 ft. SAND and SANDSTONE, sand light brown, very fine grained, dry, frequent consolidated sandstone	
50		SS	1.4	SP		49-51 ft. SAND, light brown, very fine to fine grained, uniform, dry, infrequent sandstone fragments	
55		SS	1.3	SM/ML		54-56 ft. SILTY SAND/SANDY SILT, light brown, very fine grained sand, uniform, few sandstone fragments	
60		SS	1.4	SM		59-61 ft. SILTY SAND, light brown, very fine grained, slightly damp,	
65		SS	1.2	SM		64-66 ft. SILTY SAND, light brown, very fine grained, dry, no sandstone fragments	
70		SS	1.0	SP		69-71 ft. SAND, light brown, very fine grained, uniform, dry,	
75		SS	0.5	SP/SS		74-76 ft. Spoon shoe empty except for small SAND sample and SANDSTONE fragment ("cookie" shaped). Slough above sandstone fragment.	
80							

Z:\Company Files\Silver Spike Energy\2015\SIL-15-001 Knowles SWD\BH-2 Log - lithology.bor

Notes:
 Backfilled to surface with 34 bags Holeplug 3/8" bentonite chips, hydrated with approximately 80 gallons H2O. Procedure was to pull one auger at a time, emplace chips through auger and hydrate.

Location of BH-2 is 4 ft. east of BH-1 (Geoprobe boring) and 30.5 ft. south-southwest of SWD injection well.
 H/C -- Hydrocarbon