Silver Spike Energy Operating of NM

Knowles SWD #002

Delineation Report and Work Plan

Unit Letter P, Section 34, T16S, R38E
Lea County, New Mexico

30-025-07287

December 08, 2015

Prepared for:

Silver Spike Energy Operating of NM
203 W Wall Suite 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 Ecans	Silver Spike Energy	432-413-6483	Michael@silverspikeenergy.com
Bob Allen	SESI	575-397-0510	ballen@sesi-nm.com

II. Background

Safety and Environmental Solutions, Inc., hereinafter referred to as (SESI) was engaged by Silver Spike Energy Operating of NM, to perform an initial site assessment and delineation of the Knowles SWD #002 site. The Knowles SWD #002 site is situated in Section 34, T16S, R38E, of Lea County.

According to the C-141, a leak resulted from the failure of a High-Low switch on the water tank (Appendix A). There was an approximate loss of 22 Bbl. of produced water. The initial site assessment by SESI personnel revealed that the area of impact measured approximately 3,333.69 sq. ft., and was retained inside the bermed area.

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 B).

IV. Characterization

The target cleanup levels are determined using the *Guidelines for Remediation of Leaks, Spills and Releases* published by the NMOCD (August 13, 1993). Based on the ranking criteria presented below, the applicable Recommended Remediation Action Levels (RRAL) are 10 parts per million (ppm) Benzene, 50 ppm combined benzene, toluene, ethyl benzene, and total xylenes (BTEX), and 1,000 ppm Total Petroleum Hydrocarbons (TPH). Characterization of vertical extent of chloride concentration to a level of 250 mg/kg (PPM) is also required.

Depth to Ground Water:			
(Vertical distance from contaminants to seasonal high water elevation of groundwater)	Less than 50 feet	20 points	
	50 feet to 99 feet	10 points	**X**
	>100 feet	0 points	
Wellhead Protection Area:			
(Less than 200 feet from a private domestic water source; or less than 1000 feet from all other water sources)	Yes	20 points	
	No	0 points	**X**
Distance to Surface Water:			
(Horizontal distance to perennial lakes, ponds, rivers, streams, creeks, irrigation canals and ditches)	Less than 200 feet	20 points	
	200 feet to 1000 feet	10 points	
	>1000 feet	0 points	**X**
RANKING SCORE (TOTAL POINTS)			**10**

V. Work Performed

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

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 dug combined with simultaneous field testing for soil constituents for 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 (Append D):

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 represent a recap of the returned analytical (Appendix D).

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 of 9' to 76' respectively, at the Borehole 2 location. 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 D):

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

VI. Action Plan

Due to the results listed above and the dynamics of this site; the following action plan is proposed:

Excavate and remove 4' bgs., extracting the contaminated soils from impacted area inside the berms, as indicated (Figure 2), and transporting to an approved NMOCD facility for disposal. Composite samples will be taken from the sidewalls and bottom of the excavated area. The representative soil samples will be taken to a commercial laboratory for final analysis and confirmation. The excavated area is to be lined with a 20 mil. Liner and backfilled with a layer of topsoil in order to prevent compromising the liner. The excavation would then be capped with material similar to that removed and restored to grade according to NMOCD guidelines. Respective closure documentation, inclusive of photographs and analytical confirmation will be submitted to all parties of concern immediately following said site restoration.

VII. Figures & Appendices

Figure 1 – Vicinity Map
Figure 2 – Site Plan
Figure 3 – Soil Bore Log
Appendix A – C-141
Appendix B – Groundwater
Appendix C – Photo Documentation
Appendix D - Analytical

Figure 1
Vicinity Map

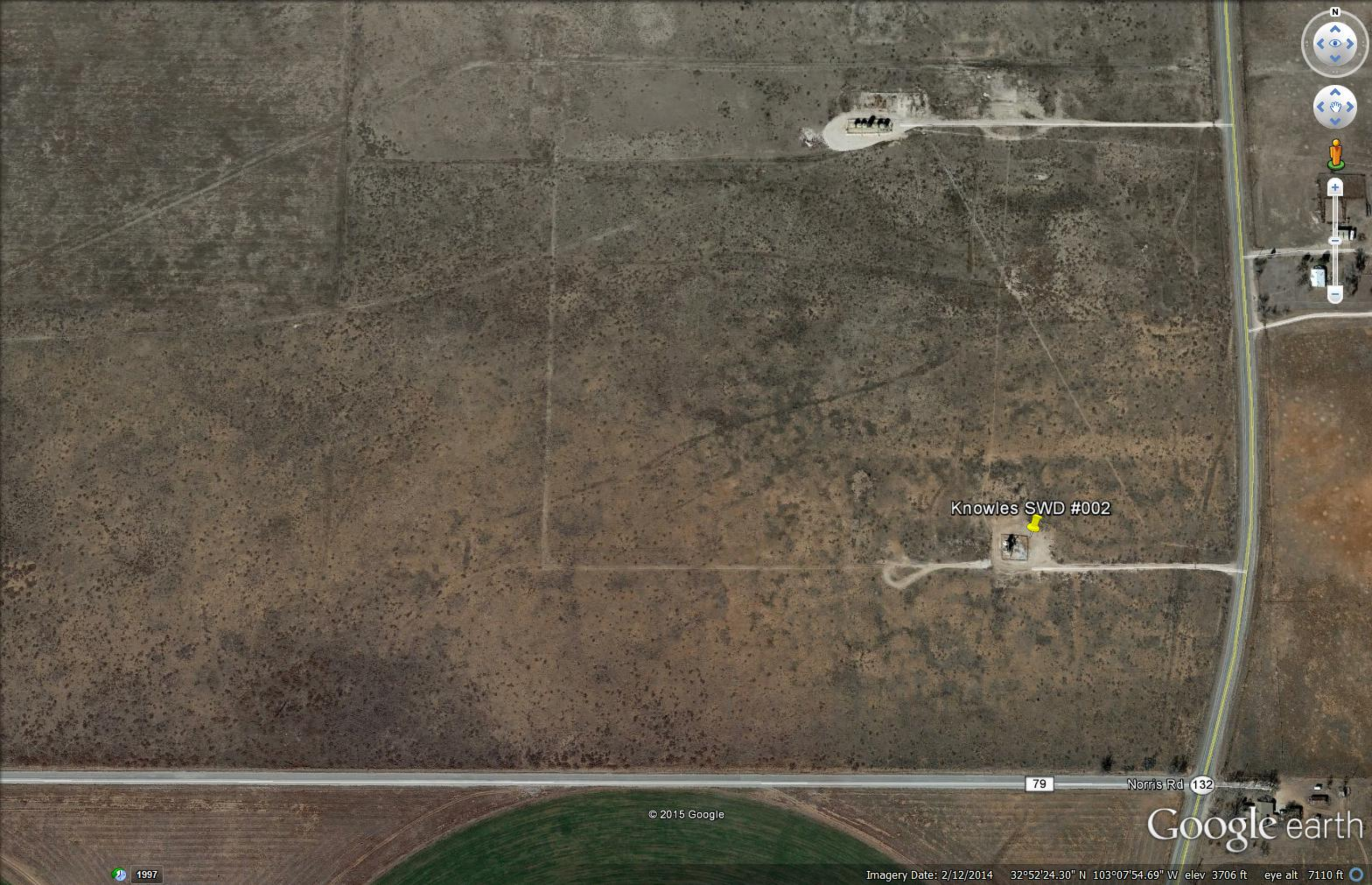
Knowles SWD #002
79
Norris Rd
132
© 2015 Google
Google earth
1997
Imagery Date: 2/12/2014 32°52'24.30" N 103°07'54.69" W elev 3706 ft eye alt 7110 ft

Figure 2
Site Plan

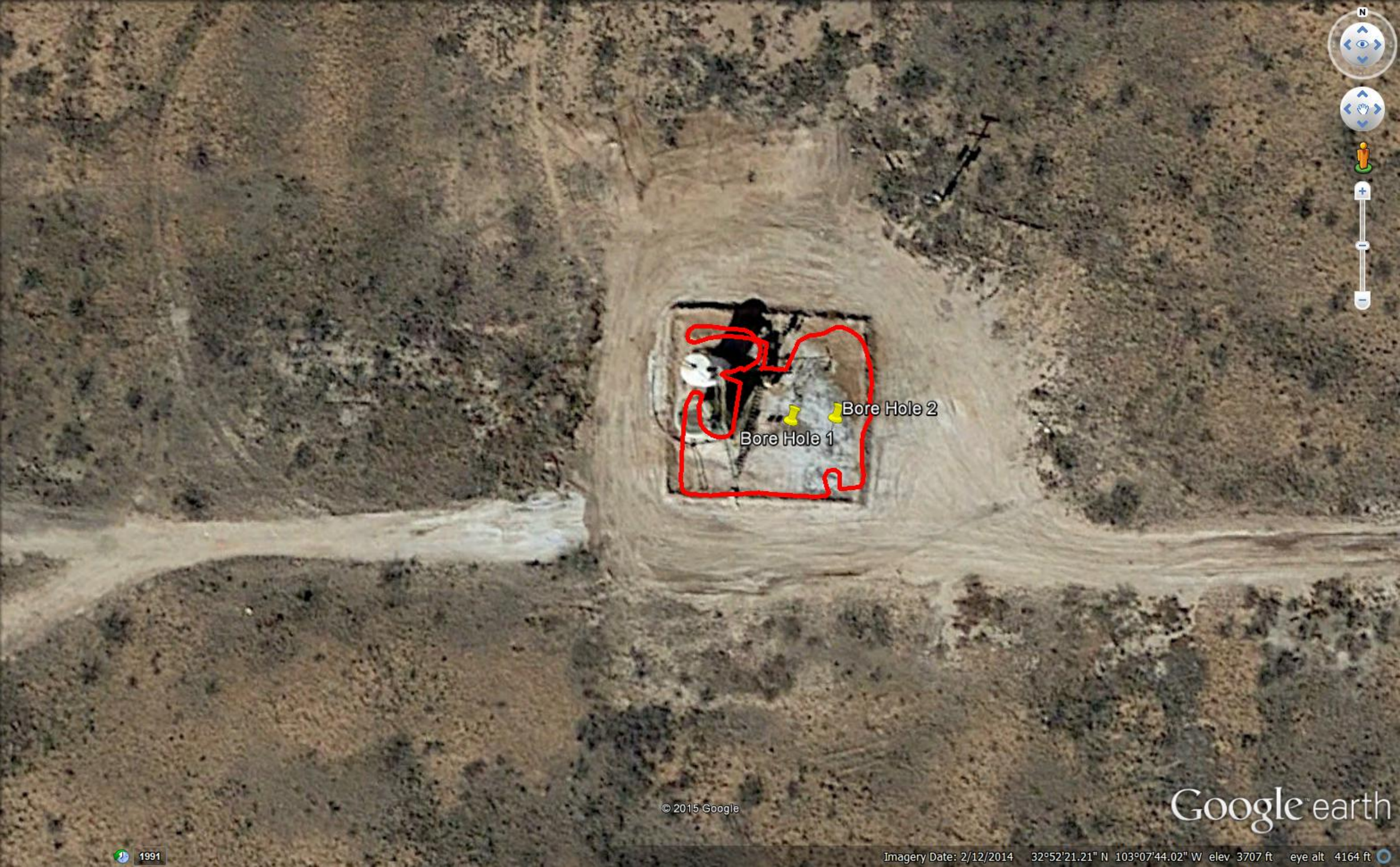
N
Bore Hole 2
Bore Hole 1
© 2015 Google
Google earth
1991
Imagery Date: 2/12/2014 32°52'21.21" N 103°07'44.02" W elev 3707 ft eye alt 4164 ft

Figure 3
Soil Bore Log

Safety & Environmental Solutions, Inc.

LOG OF BORING BH-2

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	Drilled By	: Atkins Engineering Assoc.
Date, Time Complete	: 12/03/15, 1700	Sampling Method	: 2 ft. splitspoon
Hole Diameter	: 8 1/4 in.	Logged By	: David Boyer, P.G.
Drilling Method	: Hollow Stem Auger		
Drilling Equipment	: Ingersol-Rand 300A		

Sample Condition: Remoulded; Undisturbed; Lost; Rock Core

Sample Type: SS Split Spoon (24"); CB Core Barrel (4'); CT Auger Cuttings; NR No recovery

Depth in Feet	Sample	Sample Type	Recovery (ft.)	USCS	GRAPHIC	DESCRIPTION	Lab No.	Field Chloride (PPM)	Chloride (mg/Kg)
0		CB	4.0	AR / ML		0-1.5 ft. Disturbed mixture of CALICHE, SAND, and minor CLAY (Geoprobe core recovery, 11/23)	H503116-01	NA	1,760
5		CB	3.5	SM		1.5-3.5 ft. SANDY SILT, black, H/C staining and odor (Geoprobe core) 4-8 ft. SILTY SAND, light brown, w/caliche fragments, H/C odor (Geoprobe core)	H503116-02	NA	3,240
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	H503175-01	NA	1,760
15		SS	1.6	SP/CA		Hard drilling 11 - 14 ft. 14-16 ft. SAND, light brown with more frequent caliche and/or sandstone fragments	H503175-02	2,444	2,920
20		SS	1.6	CA/SP		19-21 ft. CALICHE and some SANDSTONE with fine grained, SAND light brown	H503175-03	864	848
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.	H503175-04	936	1,100
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.	H503175-05	936	1,120
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	H503175-06	1,568	1,920
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	H503175-07	628	672
45		SS	1.5	SP/SS		40-41 ft. SAND, light brown, very fine to fine grained, dry, occasional SS frags 44.0-44.4 ft. Slough. 44.4 ft-46 ft. SAND and SANDSTONE, sand light brown, very	H503175-08	580	672
50		SS	1.4	SP		fine grained, dry, frequent consolidated sandstone	H503175-09	328	320
55		SS	1.3	SM/ML		49-51 ft.SAND, light brown, very fine to fine grained, uniform, dry, infrequent sandstone fragments	H503175-10	296	304
60		SS	1.4	SM		54-56 ft. SILTY SAND/SANDY SILT, light brown, very fine grained sand, uniform, few sandstone fragments	H503175-11	296	288
65		SS	1.2	SM		59-61 ft. SILTY SAND, light brown, very fine grained, slightly damp, 64-66 ft. SILTY SAND, light brown, very fine grained, dry, no sandstone fragments	H503175-12	364	384
70		SS	1.0	SP		69-71 ft. SAND, light brown, very fine grained, uniform, dry,	H503175-13	364	384
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.	H503175-14	364	352
80									

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

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

Appendix A
C-141

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised August 8, 2011

Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company: 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

LOCATION OF RELEASE

Unit Letter	Section:	Township:	Range	Feet from the	North/South Line	Feet from the	East/West Line	County:
P	34	16S	38E	660	South	660	East	Lea

Latitude 32.8726654 Longitude -103.1286621

NATURE OF RELEASE

Type of Release Produced water	Volume of Release 22 Bbl.	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 C-141 ☐ Yes ☒ No ☐ Not Required	If YES, To Whom	
By Whom?	Date and Hour:	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*
Failure of the High/Low switch on the water tank. Switch was repaired.

Describe Area Affected and Cleanup Action Taken.*
SESI was contacted to assess the site. A written plan to remediate the site according to NMOCD guidelines will be submitted to all parties of concern.

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 ☐
Date: 11/17/2015 Phone: 432-413-6483		

* Attach Additional Sheets If Necessary

Silver Spike Energy Operating of NM
203 W. Wall St. Ste. 920
Midland, TX 79701

November 17, 2015

Oil Conservation Division
1625 N. French Dr.
Hobbs, New Mexico, 88240:

RE: Exhibit to C-141 Knowles SWD API 30-025-07277

To Whom It May Concern:

Adam C. Cunyus as a partner and Operations Manager of Silver Spike Energy Operating of NM, LLC ("Silver Spike"), personally discussed with Kellie Jones on the morning of November 8, 2015 the following facts, circumstances and history of this lease:

- This incident was discovered and photographed by a NMOCD agent the day of the occurrence. Our contract pumper arrived on location after the agent had left, and informed us of the incident. We were notified by our pumper simultaneously with the receipt of the email from the NMOCD agent, thus we understood the NMOCD was satisfactorily aware.

- This incident was discovered and photographed after an extremely wet season throughout the region, and more specifically, a significant rain 2 days prior to the discovery. We explained this to Ms. Jones, and she asked that we document this within our C-141. The vast majority of the standing water within the berm was fresh rain water.

- This incident is a "historic incident". A vast majority area to be remediated was caused by previous operators, and was inherited by Silver Spike when it took over the lease. Again, we discussed this with Ms. Jones, and she asked that we note it in the C-141.

Your consideration of these factors when reviewing this case is greatly appreciated.

Thank you, and best wishes,

Michael Evans
Managing Member
Silver Spike Energy Operating of New Mexico, LLC
(432)-684-4522
(432)-413-6383
michael@silverspikeenergy.com

Appendix B
Groundwater

New Mexico Office of the State Engineer
Water Column/Average Depth to Water

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

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

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

(NAD83 UTM in meters)

(In feet)

POD Number	Code	POD Sub-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	Code	POD Sub-basin	County	Q 64	Q 16	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	Code	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
L 00779 POD13		L	LE	4	1	1	27	16S	38E	673641	3641347	193	115	78
L 00779 S	R	L	LE		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	LE	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	LE		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	LE	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	LE	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	LE	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	LE		4	3	33	16S	38E	672662	3638679*	130	50	80

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(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

POD Number	Code	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
L 00849		L	LE	3	1	4	33	16S	38E	672957	3638985*	140		
L 00849	R	L	LE	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	LE	3	1	4	33	16S	38E	672957	3638985*	187	115	72
L 00849 POD3	R	L	LE	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	LE	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	LE	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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(NAD83 UTM in meters)

(In feet)

POD Number	Code	POD Sub-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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(NAD83 UTM in meters)

(In feet)

POD Number	Code	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
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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(NAD83 UTM in meters)

(In feet)

POD Number	Code	POD Sub-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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(In feet)

POD Number	Code	POD Sub-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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POD Number	POD Sub-basin	County	Q 64	Q 16	Q 4	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

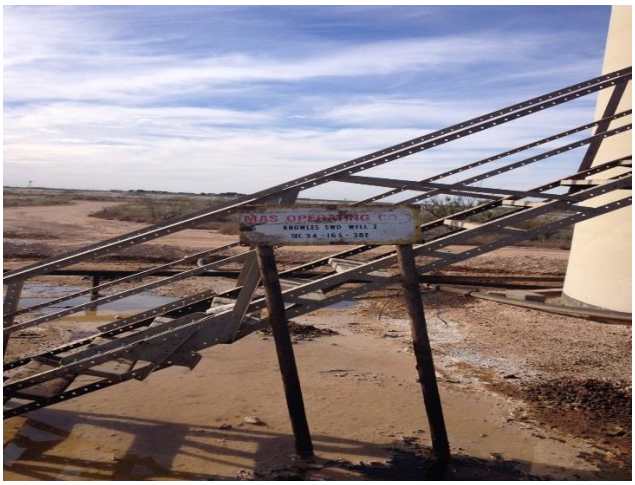
PLSS Search:

Township: 16S **Range:** 38E

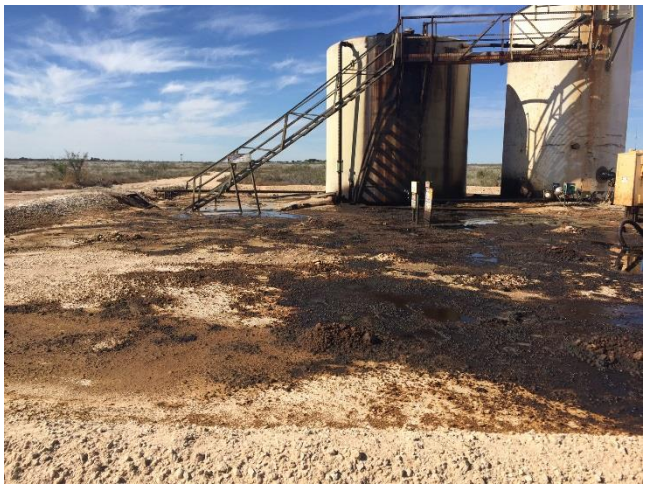
***UTM location was derived from PLSS - see Help**

Appendix C
Photo Documentation

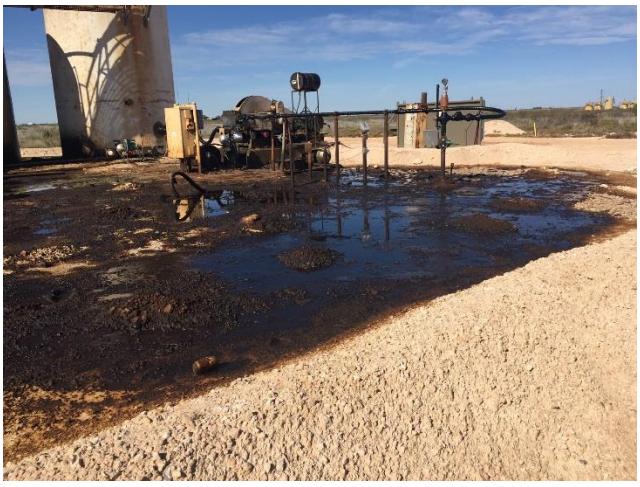
Silver Spike Energy
Knowles SWD #002
API 30-025-07287



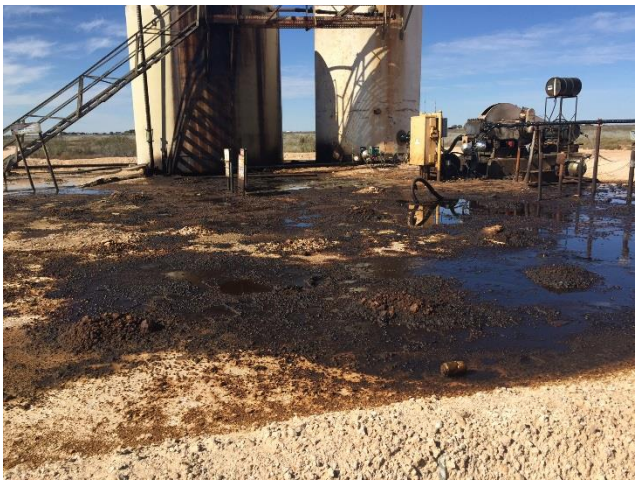
Sign marking location 11-13-15



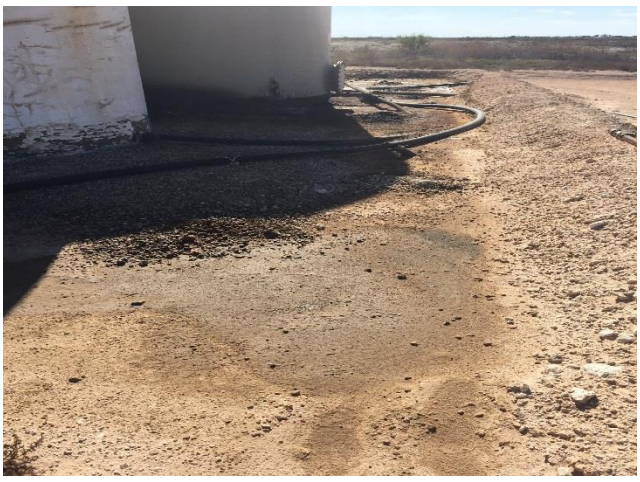
Impacted area facing west



Impacted area facing northwest



Impacted area facing northwest



Impacted area west side of tanks

Impacted area facing north

Appendix D
Analytical

CARDINAL Laboratories

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

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 accreditated 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

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

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

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, SM4500Cl-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, SM4500Cl-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

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

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, SM4500Cl-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, 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	12/01/2015	ND	416	104	400	0.00	

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

Chloride, SM4500Cl-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	

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

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, SM4500Cl-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, SM4500Cl-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	

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

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, SM4500Cl-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, SM4500Cl-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	

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

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

Celey D. Keene, Lab Director/Quality Manager

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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page 1 of 1

Company Name:	Safety & Environmental Solutions, Inc.	BILL TO	
Project Manager:	Bob Allen	P.O. #:	
Address:	703 East Clinton	Company:	Same
City:	Hobbs State: NM Zip: 88240	Attn:	
Phone #:	575-397-0510 Fax #: 575-393-4388	Address:	
Project #:	SIL 15-001 Project Owner: Silver Spike	City:	
Project Name:	Knowles SWD #002	State: Zip:	
Project Location:	Hobbs, NM	Phone #:	
Sampler Name:	Sergio Contreras	Fax #:	

ANALYSIS REQUEST: BTEX, TPH, Cl-

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	PRESERV: ACID/BASE:	ICE / COOL	OTHER :	SAMPLING: DATE	TIME
H503096														
1	Test Trench #1 2.5'	G	1			✓					✓		11-20-15	0830
2	Test Trench #1 3.5'	G	1			✓					✓			0850
3	Test Trench #1 5.5'	G	1			✓					✓			0915
4	Test Trench #1 8'	G	1			✓					✓			0950
5	Test Trench #1 10'	G	1			✓					✓			1040
6	Test Trench #2 1.5'	G	1			✓					✓			1110
7	Test Trench #2 3.5'	G	1			✓					✓			1140
8	Test Trench #2 7'	G	1			✓					✓			1235
9	Test Trench #2 9'	G	1			✓					✓			

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

Terms and Conditions: Interest will be charged on all accounts more then 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.

Sampler Relinquished:	Date: 11-24-15	Received By:	Jodi Henson
	Time: 8:30		
Relinquished By:	Date:	Received By:	
	Time:		

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

Delivered By: (Circle One)	Temp.	Sample Condition Cool	Sample Condition Intact	CHECKED BY: (Initials)
Sampler - UPS - Bus - Other:	2.6°C	☑ Yes ☐ No	☑ Yes ☐ No	

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

#54

CARDINAL Laboratories

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

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 accreditated 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

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

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

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

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

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

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

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, SM4500Cl-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, SM4500Cl-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

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

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	

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

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

Celey D. Keene, Lab Director/Quality Manager

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Page 1 of 1

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: Silver
Project Name:	Knowles SWD #2 Spike Energy
Project Location:	KNOWLES
Sampler Name:	D. Boyer

BILL TO

P.O. #:	
Company:	Same
Attn:	
Address:	
City:	
State:	Zip:
Phone #:	
Fax #:	

FOR LAB USE ONLY

Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	MATRIX: WASTEWATER	MATRIX: SOIL	MATRIX: OIL	MATRIX: SLUDGE	MATRIX: OTHER:	PRESERV.: ACID/BASE:	PRESERV.: ICE / COOL	PRESERV.: OTHER:	SAMPLING: DATE (2015)	SAMPLING: TIME	ANALYSIS REQUEST: BTEX/TPH 8015 M	ANALYSIS REQUEST: Chlorides
H503116																
1	BH-1 4'	G	1			X					X		11/23	1155	X	X
2	8'													1212	X	X
3	12'													1315	X	X
4	~~14.8~~ 14.9'													1340		X
5	BH-1, 18'	G	1			X					X		11/23	1610		X

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

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Sampler Relinquished: D. Boyer	Date: 11/24/15 Time: 4:50
Received By: [signature]	
Relinquished By:	Date: Time:
Received By:	
Delivered By: (Circle One) Sampler - UPS - Bus - Other: 1.4°C #54	Temp.
Sample Condition: Cool ☑ Yes ☐ No; Intact ☑ Yes ☐ No	CHECKED BY: (Initials) [initials]

Phone Result: ☐ Yes ☒ No Add'l Phone #:
Fax Result: ☐ Yes ☒ No Add'l Fax #:
REMARKS: Hold 14.9 & 18 FT samples for possible TPH/BTEX tests

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

CARDINAL Laboratories

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

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 accreditated 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

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

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

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	

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

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	

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

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	

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

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

Celey D. Keene, Lab Director/Quality Manager

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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page 1 of 2

Company Name:	Safety & Environmental Solutions, Inc.	BILL TO	
Project Manager:	Bob Allen	P.O. #:	
Address:	703 East Clinton	Company:	Same
City:	Hobbs State: NM Zip: 88240	Attn:	
Phone #:	575-397-0510 Fax #: 575-393-4388	Address:	
Project #:	SIL-15-001 Project Owner: SILVERSTRIKE	City:	
Project Name:	Knowles SWD #2	State: Zip:	
Project Location:	Knowles	Phone #:	
Sampler Name:	DAVID BOYER	Fax #:	

ANALYSIS REQUEST: Chlorides

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	PRESERV: ACID/BASE:	ICE / COOL	OTHER :	SAMPLING DATE	TIME	
H503175													2015		
1	BH-2 9-11	G	1			X							12/2	1040	X
2	14-16													1120	
3	19-21													1145	
4	24-26													1210	
5	29-31													1315	
6	34-36													1450	
7	39-41													1550	
8	44-46												12/2	1648	1655 DB
9	49-51												12/3	0932	
10	BH-2 54-56	G	1			X							12/3	1035	X

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Sampler Relinquished: D. Boyer	Date: 12/4/15 Time: 4:30 pm	Received By: Jodi Henson	
Relinquished By:	Date: Time:	Received By:	
Delivered By: (Circle One) Sampler - UPS - Bus - Other: 21.2°	Temp.	Sample Condition Cool ☐ Yes ☐ No Intact ☑ Yes ☐ No	CHECKED BY: (Initials)

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

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

#54

CARDINAL LABORATORIES, INC.

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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page 2 of 2

Company Name: SESI
Project Manager:
Address: 703 E. CLINTON, #103
City: HOBBS State: NM Zip: 88240
Phone #: (505) 397-0510
Fax #: (505) 393-4388
Project #: SJL-15-00 Project Owner: Silverstone
Project Name: Knowles SWD #1
Project Location: Knowles

BILL TO PO #:
Company: SAME
Attn:
Address:
City:
State: Zip:
Phone #:
Fax #:

ANALYSIS REQUEST

Chlorides

FOR LAB USE ONLY LAB I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	PRES.: ACID	ICE / COOL	OTHER:	SAMPLING DATE	SAMPLING TIME	Chlorides
H503175	~~BH-2, 64-66~~														
	~~59-61~~														
11	BH-2 59-61	G	1			X							12/3	1130	X
12	" 64-66	G	1			X							"	1240	X
13	" 69-71	G	1			X							"	1325	X
14	BH-2 74-76	G	1			X							12/3	1425	X

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Sampler Relinquished: [signature] Date: 12/4/15 Time: 4:50 PM
Received By: Jodi Henson
Relinquished By: Date: Time:
Received By: (Lab Staff)
Delivered By: (Circle One) Sampler - UPS - Bus - Other: 21.2°C
Sample Condition: Cool: Yes / No; Intact: Yes / No
CHECKED BY: (Initials)

Phone Result: ☐ Yes ☒ No Additional Fax #:
Fax Result: ☐ Yes ☒ No
REMARKS:

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