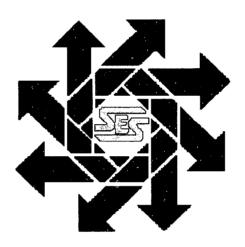
1R - 392

REPORTS

DATE: 2004

Saga Petroleum LLC FEB 06 2004 Saga Petroleum LLC Saga Petroleum LLC FEB 06 2004 State AE Battery Oil Conservation Division State AE Battery Oil Conservation Division Site Investigation Section 36, Township 16S, Range 36E Lea County, New Mexico

January 29, 2004



Prepared for:

Saga Petroleum LLC 415 W. Wall, Suite 1900 Midland, Texas 79701

By:

Safety & Environmental Solutions, Inc. 703 E. Clinton Suite 103 Hobbs, New Mexico 88240 (505) 397-0510

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I. Background

Safety & Environmental Solutions, Inc. (SESI) was contracted by Saga Petroleum LLC to perform a site investigation of the State AE Battery. The subject area is located in Section 36, Township 16S, Range 36E in Lea County, New Mexico. (See Figure 1) This site was used as a produced fluid storage area. The site has been abandoned and the storage tanks and vessels have been removed.

li. Surface and Ground Water

According to the database provided by the New Mexico State Engineer's Office there is no groundwater of record in Section 36, Township 16S, Range 36E. The nearest groundwater of record is in Section 1, Township 17S, Range 36 E, in Lea County, New Mexico the depth of water is approximately 83 feet in depth. This measurement was taken May 5, 1992. On January 28, 2004, SESI installed a groundwater monitor well at the Apollo Salt Water Disposal Facility which is located approximately ½ to ¾ of a mile to the south of this location. Groundwater was encountered in this well at approximately 95' A City of Lovington water well is located approximately 430' southeast of this location.

III. Soils

The soils in the area are predominantly sand and sandy loam.

IV. Work Performed

Drilling of Boreholes

On December 29, 2003 SESI drilled 4 boreholes at the State AE Battery Site. See Figure 2 for location of boreholes. All boreholes were drilled to a depth of 10 feet. Grab samples were retrieved from each borehole at the bottom depth. The samples were properly preserved and transported under chain of Custody to Cardinal Laboratories of Hobbs, New Mexico for analysis. All samples were analyzed for Chlorides (EPA methods 4500-Cl⁻B), TPH (EPA method 418.1), and BTEX (EPA Method SW-846 8260). The results of the analysis are as follows:

ID	Cl	TPH	Benzene	Toluene	Ethyl	Total
				L	Benzene	Xylenes
BH-1 10"	432	<10	<0.005	<0.005	<0.005	<0.015
BH-2 10'	288	<10	<0.005	<0.005	<0.005	<0.015
BH-3 10'	336	<10	<0.005	<0.005	<0.005	<0.015
BH-4 10'	336	<10	<0.005	<0.005	<0.005	<0.015

V. Conclusions and Recommendations

The results of the analysis indicate that the vertical extent of TPH or chloride contamination does not exceed 10' in depth. It is recommended that all highly contaminated and/or saturated soils be removed and transported to an approved NMOCD disposal facility. The remaining soils with TPH levels above 1000 ppm will be excavated and blended on site with clean soils from off site. In order to protect the City

of Lovington water well to the southeast, the horizontal extent of contamination will be determined by excavation and all soils with TPH levels above 100 ppm will be removed horizontally to the depth of the excavation stated above. The soils will be blended to a TPH level no greater than 1000 ppm. The excavation will be backfilled with the blended soils and returned to normal grade.

VI. Figures & Appendices

Figure 1 - Vicinity Map
Figure 2 - Site Plan
Figure 3 - Log of Boring
Appendix A - Analytical Results

Appendix B - Site Photos

Figure 1
Vicinity Map

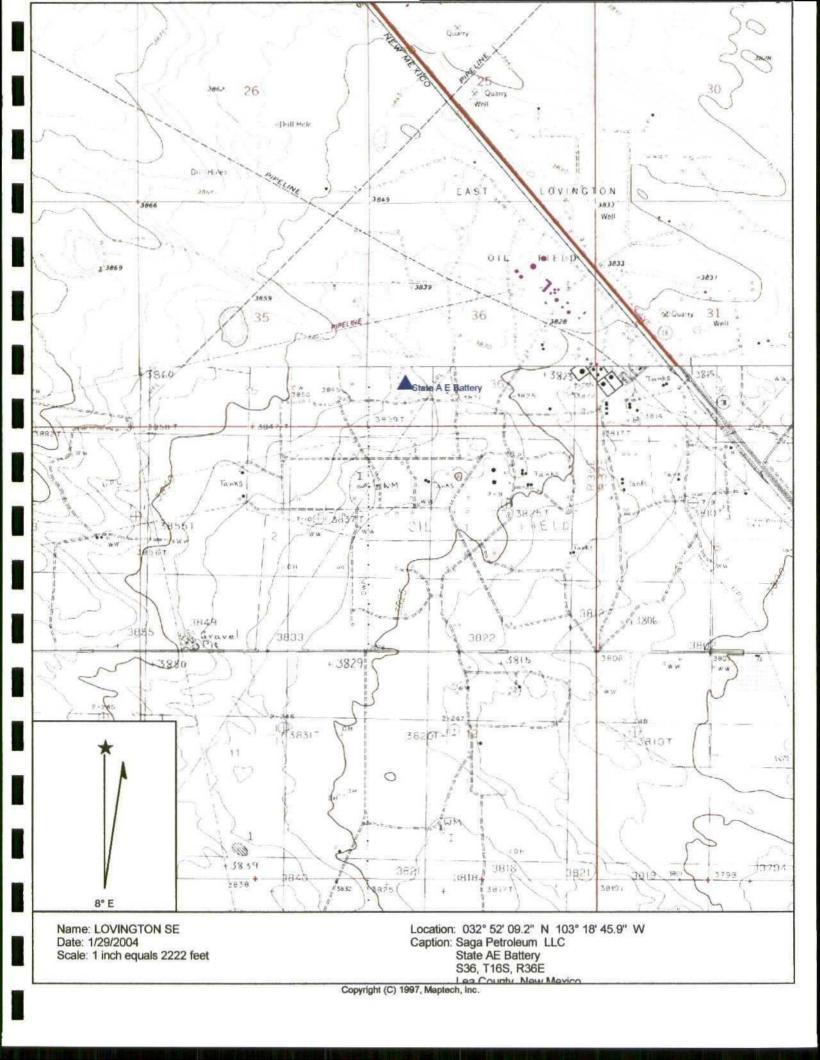
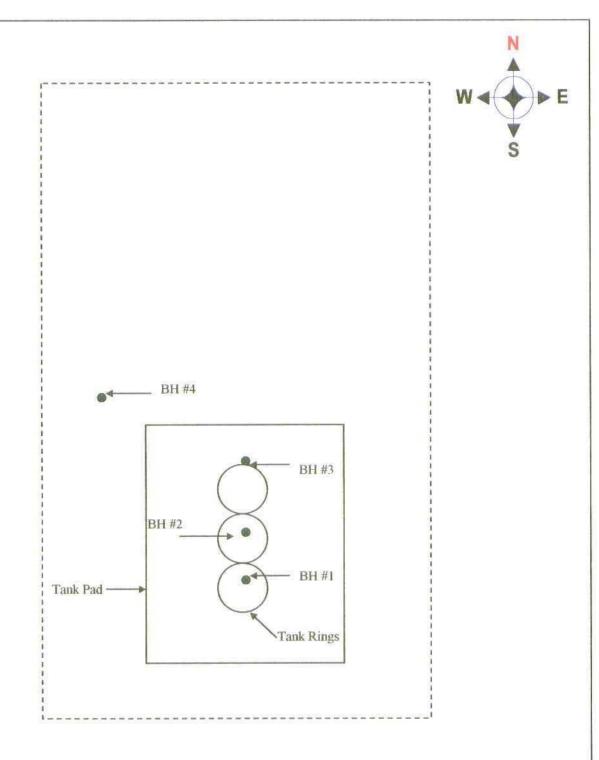


Figure 2 Site Plan



Not To Scale

Saga Petroleum LLC State AE Battery Section 36, T16S, R36E Lea County, New Mexico

Safety & Environmental Solutions, Inc.

Figure 3
Log of Boring



(Page 1 of 1)

Saga Petroluem LLC State AE Battery S36, T16S, R36E Lea County, New Mexico

Notes:

Plugged back to surface with bentonite upon completion

Date Started
Date Completed
Hole Diameter

Drilling Method

: 12/29/03 : 12/29/03

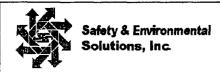
: 8 1/4 in. : Hollow Stem Auger : CME-75 Sampling Method

: Cuttings, core barrel : Eco Drilling

Drilled By Logged By Company Rep.

: Bob Allen : Bruce Woodard

	LCc	Count	y, New Mexico	Drilling Metho Drilling Equip			m Auger		Company R	.ер.	. Druce vvo	- r	
Depth in Feet	uscs	GRAPHIC	DESCRIPTIO	ON	Lab No.	Samples	TPH (mg/Kg)	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethyl Benzene (mg/Kg)	Total Xylenes (mg/Kg)	Chlorides (mg/Kg)	
0-		F:IS											
1-	SP/CA	NONCOR	Tank Pad Material Stained	Black									
		1:15						·					
3-													
4-	CA	ACKON.	Caliche Gray Streaked Bla	ck									
5	CA		Caliche										
7-													
8-	SP		Pink Sand										
9-													
10-		1: -::			H8305-1	_4_	<10	<0.005	<0.005	<0.005	<0.015	432	



(Page 1 of 1)

Saga Petroluem LLC State AE Battery S36, T16S, R36E Lea County, New Mexico Date Started

Date Completed

Hole Diameter

Drilling Method

: 12/29/03 : 12/29/03 : 8 1/4 in.

: Hollow Stem Auger

Drilled By Logged By Company Rep.

Sampling Method

: Cuttings, core barrel : Eco Drilling

: Bob Allen : Bruce Woodard

			y, 11011 Mexico	Drilling Equip	ment : CM	E-75	ge.						·
Depth in Feet	nscs	GRAPHIC	DESCRIPTIO	N	Lab No.	Samples	TPH (mg/Kg)	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethyl Benzene (mg/Kg)	Total Xylenes (mg/Kg)	Chlorides (mg/Kg)	
0-													1
1-		JOHOLO											
2-													
2	00/04		T. 1 B (M. 111)										
3-	SP/CA	NO.	Tank Pad Material Heavey S Odor	Stains &									
4-													
5-		10X0			!								
6-	CA	300	Caliche						,				
7-													
8-	SP		Pink Sand										
	GF.		i iik Sanu										
9-													
10-					H8305-2	-4-	<10	<0.005	<0.005	<0.005	<0.015	288	

Notes:

Plugged back to surface with bentonite upon completion



(Page 1 of 1)

Saga Petroluem LLC State AE Battery S36, T16S, R36E Lea County, New Mexico Date Started
Date Completed
Hole Diameter

Drilling Method

: 12/29/03 : 12/29/03

: 8 1/4 in. : Hollow Stem Auger Sampling Method

: Cuttings, core barrel : Eco Drilling

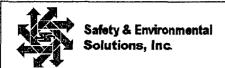
Drilled By Logged By Company Rep.

: Bob Allen : Bruce Woodard

	Lea	Coun	ty, New Mexico	Drilling Metho Drilling Equip		low Ste	m Auger	·	Company R	ep.	: Bruce Wo	odard	
Depth in Feet	nscs	GRAPHIC	DESCRIPTIO	ON	Lab No.	Samples	TPH (mg/Kg)	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethyl Benzene (mg/Kg)	Total Xylenes (mg/Kg)	Chlorides (mg/Kg)	
0-	_	I K											
1-	SP/CA	1000	Tank Pad Material Heavey Odor	Stains &									
2-		5	9										
3-		S											
		1											:
4-	CA	10	Caliche Dark Streaks & Oo	dor									
			d										
5-		1											
6	CA	70	Caliche										
7			1										
1													
	CD.		Pints Count										
8-	SP		Pink Sand										
9													
			- 		H8305-3	_4_	<10	<0.005	<0.005	<0.005	<0.015	336	
10-			,1, , , , , , , , , , , , , , , , , , ,			اا	i						-
1 .	İ												

Notes:

Plugged back to surface with bentonite upon completion



(Page 1 of 1)

Saga Petroluem LLC State AE Battery S36, T16S, R36E Lea County, New Mexico Date Started
Date Completed
Hole Diameter

Drilling Method

: 12/29/03 : 12/29/03 : 8 1/4 in.

: 8 1/4 in. Logged By : Hollow Stem Auger Company Rep.

Sampling Method Drilled By : Cuttings, core barrel : Eco Drilling

: Bob Allen : Bruce Woodard

	Lea	Count	ry, New Mexico	Drilling Metho Drilling Equip		low Ste E-75	m Auger		Company R	lep.	: Bruce Woo	odard	
Depth in Feet	nscs	GRAPHIC	DESCRIPTION	ON	Lab No.	Samples	TPH (mg/Kg)	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethyl Benzene (mg/Kg)	Total Xylenes (mg/Kg)	Chlorides (mg/Kg)	
0-]
1	SP/CA	1000	Hard Pad Top Soil Odor										
2-		R											
3-		100											
		1											
4		KQ'											
	CA	KS	Caliche Dark Stains										
5-		125											
		K											
6-		PZ											
7													
,			-										
8-	SP		Pink Sand										
0-	35		CHIK Sallu										
9													
40					H8305-4		<10	<0.005	<0.005	<0.005	<0.015	336	
10-										<u> </u>			_
i	ł												

Notes

Plugged back to surface with bentonite upon completion

Appendix A Analytical Results



PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR

SAFETY & ENVIRONMENTAL SOLUTIONS, INC.

ATTN: BOB ALLEN 703 E. CLINTON, #103 HOBBS, NM 88240 FAX TO: (505) 393-4388

Receiving Date: 12/30/03

Reporting Date: 01/05/04

Project Number: SAG-03-002 Project Name: STATE AE

Project Location: LOVINGTON, NM

Sampling Date: 12/29/03

Sample Type: SOIL

Sample Condition: COOL & INTACT

Sample Received By: AH

Analyzed By: BC

LAB NUMBER	SAMPLE ID	BENZENE (mg/Kg)	TOLUENE (mg/Kg)	ETHYL BENZENE (mg/Kg)	TOTAL XYLENES (mg/Kg)
ANALYSIS DA	TE	01/02/04	01/02/04	01/02/04	01/02/04
H8305-1	B.H. #1 10'	<0.005	<0.005	<0.005	<0.015
H8305-2	B.H. #2 10'	<0.005	<0.005	<0.005	<0.015
H8305-3	B.H. #3 10'	<0.005	<0.005	<0.005	<0.015
H8305-4	B.H. #4 10'	<0.005	<0.005	<0.005	<0.015
Quality Control		0.098	0.101	0.100	0.311
True Value QC		0.100	0.100	0.100	0.300
% Recovery		98.4	101	99.5	104.0
Relative Percei	nt Difference	5.9	2.9	4.8	2.1

METHOD: EPA SW-846 8260

Kun effe Robbi

Date

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 that 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 services hereunder by Cardinal, regardless of whether such claim is based upon any of the above-stated reasons or otherwise.



PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR

SAFETY & ENVIRONMENTAL SOLUTIONS, INC.

ATTN: BOB ALLEN 703 E. CLINTON HOBBS, NM 88240

FAX TO: (505) 393-4388

Receiving Date: 12/30/03 Reporting Date: 12/31/03

Project Number: SAG03002

Project Name: STATE AE

Project Location: LOVINGTON, NM

Sampling Date: 12/29/03

Sample Type: SOIL

Sample Condition: COOL & INTACT

Sample Received By: AH

Analyzed By: AH/HM

LAB NUMBER SAMPLE ID	TPH (ppm)	CI (ppm)
ANALYSIS DATE:	12/30/03	12/30/03
H8305-1 B.H. #1 10'	<10	432
H8305-2 B.H. #2 10'	<10	288
H8305-3 B.H. #3 10'	<10	336
H8305-4 B.H. #4 10'	<10	336
Quality Control	243	940
True Value QC	240	1000
% Recovery	101	94.0
Relative Percent Difference	4.6	1.4
METHODS: EPA 600/4-79-02	418.1	SM 4500 CI ⁻ B

Chemist

H8304

Date

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 services hereunder by Cardinal, regardless of whether such claim is based upon any of the above-stated reasons or otherwise.

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

ARDINAL LABORATORIES, INC.

(915) 673-7001 Fax (915) 673-7020	111 Beechwood, Abilene, TX 79603
120 (505) 393-2326 Fax (505) 393-2476	103 101 East Marland, Hobbs, NM 88240
05) 393-2476	bbs, NM 88240

Company Name: SET		BILL TO			ANALYSIS REQUEST
Project Manager: Sab Allem	P.	P.O. #: SAME			
1	(0)	Company:			
City: 1405625 State: 1/1/\ Zip:	0250B	Attn:			
897-0510 Fax#:	N 8954-545-505	Address:			
Project #: SAG03-002 Project Owner:	,	City:			
Project Name: STATE AE	St	State: Zip:			
9701	Ph	Phone #:			
Sampler Name: Rob Allen	F	Fax #:	-	S	
	MATRIX	PRESERV. SAMPLING	ဂ	NE-	
	RS FER			l Veio	
Lab I.D. Sample I.D.	G)RAB OR (C CONTAINER GROUNDWA' WASTEWATE GOIL CRUDE OIL SLUDGE OTHER:	ACID/BASE: CE / COOL OTHER :	BTE	TPH	
H8305-1 B. H. & 10'	<u> </u>	7	11:20p V		
-2 BH. #Z 10'	G -	1 29 Dec	1150	2	
-3 B.H. #3 (0'	G	_	7:50, V	, <u>\</u> \	
-4 7.11.44 101	93 -		2.00%	5	
PLEASE NOTE: Libbility and Duringger. Candhal's liability and elects exclusive remedy for any claim activity whether based in contract or text, what be limited to the amount peel by the claim for the analysis. At claims including those for negligence and any other cause whatevers what be deemed wines made in writing and received by Candhais within 30 days after completen of the applicable	for any claim attein; whether based in contract or tort, of be decined waived unless made in writing and received i	rall be limbed to the envoust peid by the c by Cardinal within 30 days after complete	dent for the on of the applicable		Terms and Conditions: laterest will be charged on all accounts more than 30 days peet due at the rate of 24% per arrum from the original date of twoice,
peacers arising out of or related to the performance of a	by Cerdinal, regardless of whether such claim is based to	pon any of the above stated reasons or	or otherwise.		en en come en compacción, analíza y acuminy a pres.
0000	Received by:	2 1	Fax Result:	□Yes □No	Add'l Fax #:
Repropulated By: Repropulation of the second of the secon	Received By: (Lab Staff)		XEED AND CO.		
Delivered By: (Circle One)	Sample Condition Cool Intact	CHECKED BY:			
Sampler - UPS - Bus - Other:	•	(minaso)			

[†] Cardinal cannot accept verbal changes. Please fax written changes to 505-393-2476.

Appendix B Site Photos



Storage Tanks Prior to Removal



Horizontal Water Knockout Prior to Removal



Tank Pad & Boreholes



Borehole #1 10' Core



Borehole #1 10' Core End



Borehole #2 5' Core



Borehole #2 10' Core



Borehole #3 5' Core



Borehole #3 10' Core



Borehole #4 10' Core