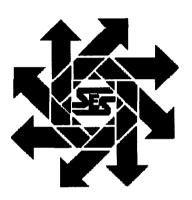
RECEIVED

SEP 29 2010

Range Operating New Mexico, Inches ARTESIA South Culebra Bluff 23 Well #7 Section 23, Township 23 South, Range 28 East Eddy County, New Mexico

Closure Report

September 3, 2010



Prepared for:

Range Operating New Mexico, Inc. 281 North New Mexico Highway 248/PO Box 1570 Eunice, New Mexico 88231

By:

Safety & Environmental Solutions, Inc. 703 East Clinton Street Hobbs, New Mexico 88240 (575) 397-0510



TABLE OF CONTENTS

١.	COMPANY CONTACTS	1
	·	
н	BACKGROUND	1
•••		
	SURFACE AND GROUND WATER	
111.	SURFACE AND GROUND WATER	••
	WORK BERTORIES	_
IV.	WORK PERFORMED	1
V.	ACTION PLAN	3
VI.	FIGURES & APPENDICES	3
	Figure 1 - Vicinity Map	3
	Figure 2 - Site Plan	4
	Appendix A– Analytical Results	5
	Appendix B– Site Photos	6

I. Company Contacts

Representative	Company	Telephone	E-mail
Steve Almager	Range Operating NM, Inc.	575-394-1485	salmager@rangeresources.com
Sergio Contreras	SESI	575-397-0510	scontreras@sesi-nm.com

II. Background

Safety and Environmental Solutions, Inc. (SESI) was engaged by Range Operating NM, Inc. to perform a site assessment at the South Culebra Bluff 23 Well #7. This is an active battery located in Unit J, Section 23, Township 23 South, and Range 28 East.

III. Surface and Ground Water

According to the temporary monitor well installed on August 18, 2009 located in the northwest corner of the location the depth to water is approximately 21.11' below ground level (bgl).

IV. Work Performed

On July 9, 2009 SESI was onsite to assess the affected area. The area was mapped using a Trimble Geo XM GPS. SESI observed an excavated area, approximately one (1) foot in depth, located north of the well head.

SESI was onsite with M& J Backhoe Services to attempt to delineate the spill area. A total of three (3) test trenches were installed within the affected area. Grab samples were collected within each of the three (3) trenches to determine the vertical extent of the contamination. Due to the limited reach of the backhoe, the affected area was unable to be fully delineated.

The first trench installed indicated a significant increase in chloride concentration at a depth of five (5) feet bgl, in which, a clay layer was encountered that contained heavy deposits of calcium sulfate. A comparative sample was collected from Test Trench #1 at a depth of nine (9) feet bgl. The sample was transported under chain of custody to Cardinal Labs of Hobbs, New Mexico to be analyzed for Chlorides (EPA Method 4500-Cl¯B).

The results of the analysis are as follows:

Lab ID	Sample ID	Cl-(mg/kg)
Analysis Date:		7/10/09
H17780-1	TT#1 9' BGL	5,040

Field grab samples were collected from the second and third test trenches and indicated a decrease in chloride concentrations.

The results of the field sampling are as follows:

Field Sample ID	Field CI-	
TT#2. 2'bgl	7,068	
TT#2. 5'bgl	1,852	
TT#2. 9'bgl	2,496	
TT#3. 2'bgl	252	
TT#3. 5'bgl	252	

At this point, it was suspected that the elevated chloride levels may be naturally occurring.

On July 18, 2009, SESI was onsite with Eco-Enviro Drilling and installed a temporary monitor well on the northwest corner of the location. SESI collected a water sample from the temporary well on July 20, 2009. The sample was transported under chain of custody to Cardinal Labs of Hobbs, New Mexico for TDS (EPA Method 600/4-79-020) and Chloride (Method SM4500-CI-B).

The results of the analysis are as follows:

Lab ID	Sample ID	Cl-(mg/L)	Total Dissolved Solids (mg/L)
Analysis Date:	-		8/24/09
H-18067-1	TMW	2,120	6,050

On September 24, 2009 SESI conducted a background sampling investigation to determine the chloride concentrations of the surrounding area. Soil samples were collected from the adjacent fields at the Range 4B, 23-11 and 23-7 locations. A water sample was also collected from and irrigation system in the adjacent field from the Range 23-6 location. The samples were transported under chain of custody to Cardinal Labs of Hobbs, New Mexico for Chloride (Method 4500-Cl¯B).

The results of the analysis are as follows:

Lab ID	Sample ID	Cl-(ppm)
Analysis Date:		7/10/09
H18344-2	4B	6,320
H18344-3	23-11	3,280
H18344-6	23-7	8,000
H18344-7	23-6	3,040

On January 14, 2010, SESI was onsite to collect background samples per Mr. Mike Bratcher, New Mexico Oil Conservation Division (NMOCD) request. Mr. Bratcher requested that the samples are collected at 25' and 50' to the North and South of the location pad. He also requested that at all four spots samples are collected at a depth of 6" and 1' below ground level.

A hand auger was utilized to collect the samples. A sandy loam soil was observed at all four points. All samples were transported under chain of custody to Cardinal Laboratories in Hobbs, New Mexico for analysis. The samples were analyzed for Chlorides (EPA Method 4500-CI-B).

The results of the analysis are as follows:

Lab ID	Sample ID	Cl (mg/kg)
Analysis Date:		1/15/10
H19065-1	Background #1 6" bgl	<16
H19065-2	Background #1 1' bgl	16
H19065-3	Background #2 6" bgl	32
H19065-4	Background #2 1' bgl	<16
H19065-5	Background #3 6" bgl	<16
H19065-6	Background #3 1' bgl	96
H19065-7	Background #4 6" bgl	32
H19065-8	Background #4 1' bgl	32

On August 17, 2010, SESI met with Mr. Mike Bratcher, New Mexico Oil Conservation Division (NMOCD) regarding plugging the temporary monitor well. Request was granted and on August 25, 2010 SESI was onsite to plug temporary monitor well.

V. Conclusion

It is requested that no further action is required.

VI. Figures & Appendices

Figure 1 – Vicinity Map

Figure 2 – Site Plan

Appendix A - Analytical Results

Appendix B –Site Photos

Figure 1
Vicinity Map

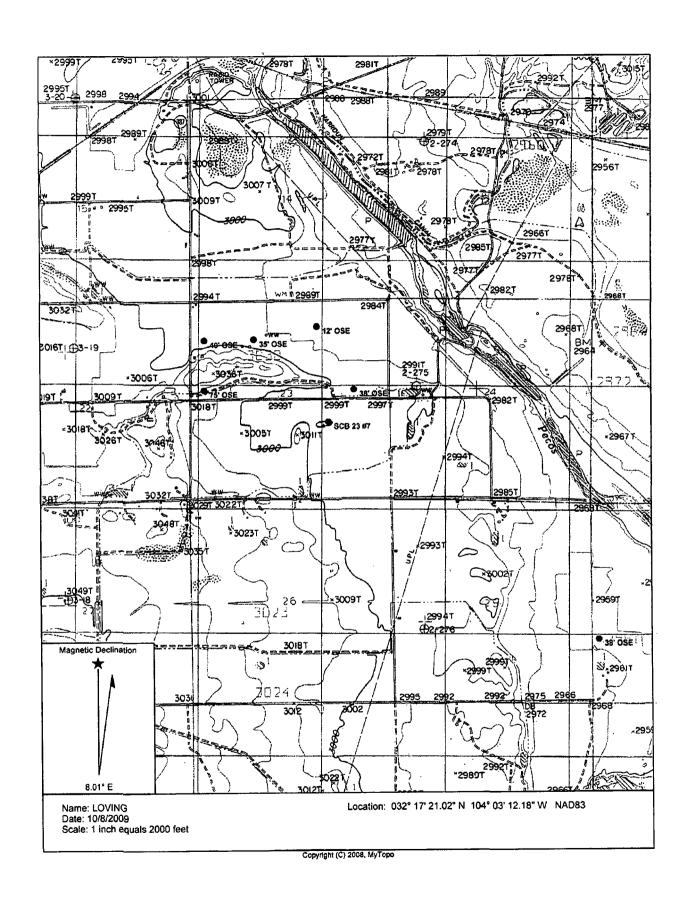
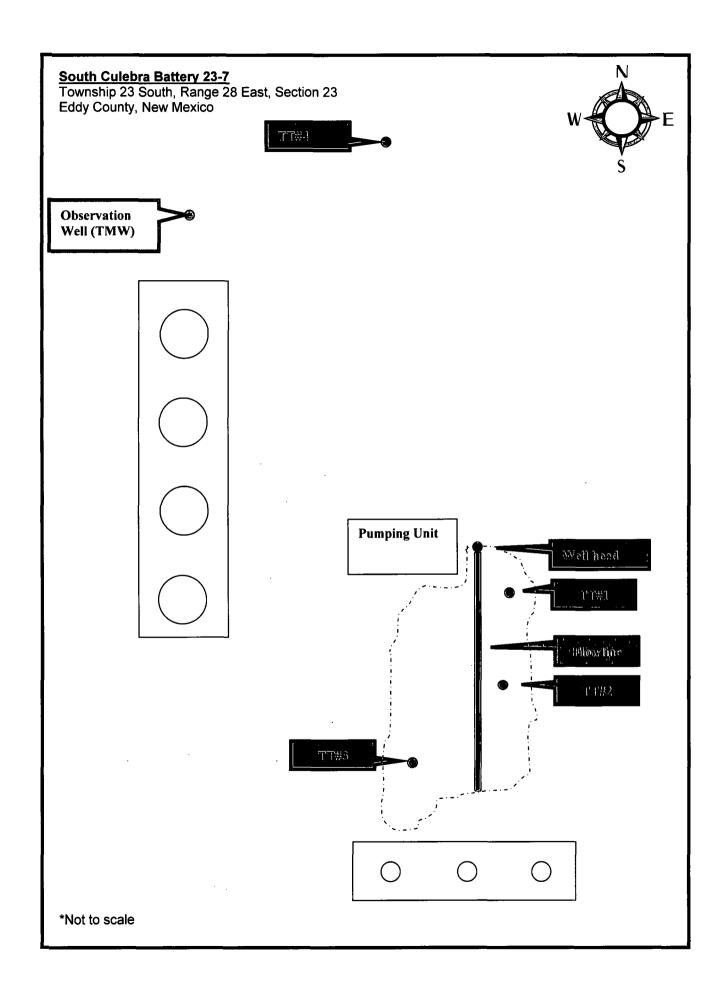
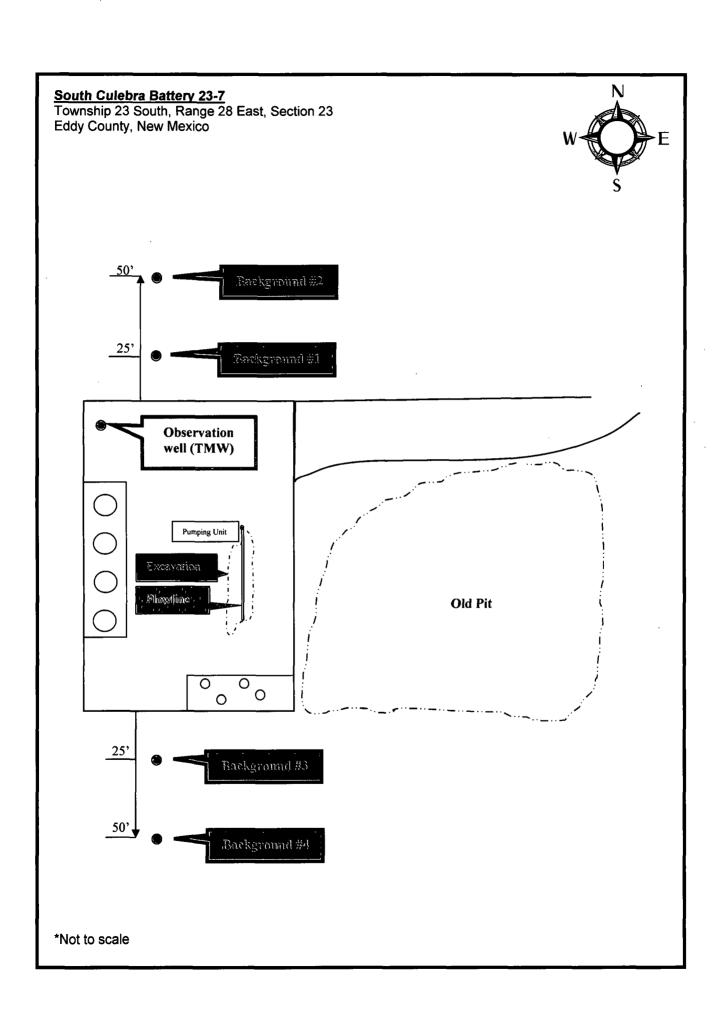


Figure 2 Site Plan





Appendix A Analytical Results



ANALYTICAL RESULTS FOR

SAFETY & ENVIRONMENTAL SOLUTIONS, INC.

ATTN: BOB ALLEN 703 EAST CLINTON #102 HOBBS, NM 88241

FAX TO: (575) 393-4388

Receiving Date: 07/10/09

Reporting Date: 07/22/09

Project Number: RAN-09-001 (RANGE OPER.)

Project Name: SOUTH CULEBRA BLUFF 23 WELL #7 Project Location: LOVING, NM

Sample ID: TT #1 9' BGL Lab Number: H17780-1

Analysis Date: 07/21/09 Sampling Date: 07/09/09

Sample Type: SOIL

Sample Condition: INTACT @ 28°C

Sample Received By: AB

Analyzed By: GO

COMPOSITION OF SOLIDS

PERCENT

Iron Oxide, as Fe ₂ O ₃	0.64
Calcium Carbonate, as CaCO ₃	6.72
Calcium Sulfate, as CaSO₄· 2H₂O	79.65
Barium Sulfate, as BaSO ₄	0.00
Organic	2.45
*Other Acid Insoluble	10.55
*Note: Microscopic examination indicated the	is to be small
size sand ranging from 30-75µ.	
Analyses subcontracted to Martin Water Lab	oratories Inc



ANALYTICAL RESULTS FOR SAFETY & ENVIRONMENTAL SOLUTIONS

ATTN: BOB ALLEN 703 E. CLINTON, #102 HOBBS, NM 88240 FAX TO: (575) 393-4388

Receiving Date: 07/10/09 Reporting Date: 07/13/09

Project Number: RAN-09-001 (RANGE OPER.)

Project Name: SOUTH CULEBRA BLUFF 23 WELL #7

Project Location: LOVING, NM

Analysis Date: 07/10/09 Sampling Date: 07/09/09

Sample Type: SOIL

Sample Condition: INTACT @ 28.0°C

CI

Sample Received By: AB

Analyzed By: AB

 LAB NO.
 SAMPLE ID
 (mg/kg)

 H17780-1
 TT #1 9' BGL
 5,040

 Quality Control
 490

 True Value QC
 500

 % Recovery
 98.0

 Relative Percent Difference
 2.0

METHOD: Standard Methods 4500-CIB

Note: Analysis performed on a 1:4 w:v aqueous extract.

Chemist

Date

07/14/09

H17780 SESI



ANALYTICAL RESULTS FOR

SAFETY & ENVIRONMENTAL SOLUTIONS

ATTN: BOB ALLEN 703 E. CLINTON, #102 HOBBS, NM 88240 FAX TO: (575) 393-4388

Receiving Date: 08/24/09

Reporting Date: 08/25/09

Project Number: RAN-09-002 (RANGE)

Project Name: S. CULEBRA BLUFF 23 WELL #7

Project Location: LOVING, NM

Sampling Date: 08/20/09

Sample Type: GROUNDWATER
Sample Condition: INTACT @ 9.5°C

Sample Received By: ML

Analyzed By: HM

LAB NUMBER SAM	TDS PLE ID (mg/L)	Ci (mg/L)
LAD NOIVIDEIX SAIVI	(Illg/L)	(IIIg/L
Analysis Date:	08/24/09	08/24/09
H18067-1 TMW	6,050	2,120
Overlike Combani	N.D.	500
Quality Control	NR NR	500
True Value QC	NR NR	500
% Recovery	NR	100
Relative Percent Difference	e 10.4	< 0.1

METHOD: EPA 600/4-79-020 160.1 SM4500-CI-B

Chemist

Date



PHONE (575) 393-2328 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR SAFETY & ENVIRONMENTAL SOLUTIONS

ATTN: BOB ALLEN 703 E. CLINTON, #102 HOBBS, NM 88240 FAX TO: (575) 393-4388

Receiving Date: 09/25/09
Reporting Date: 10/07/09**

Project Number: RANGE OPERATING Project Name: RANDOM SAMPLING

Project Location: LOVING, NM

Analysis Date: 09/27/09 Sampling Date: 09/24/09

Sample Type: SOIL & WATER

10/07/09

Sample Condition: INTACT @ 13.0°C

Sample Received By: ML

Analyzed By: HM

		G
LAB NO.	SAMPLE ID	(ppm)
H18344-2	4B	* 6320
H18344-3	23-11	* 3280
H18344-6	23-7	* 8000
H18344-7	23-6	3,040
	الاستنادات المستنادة والمستنادات والمستنادات المستنادات والمستنانات والمستنادات والمستادات والمستنادات والمستنادات والمستنادات والمستنادات والمستنادات	
)
	· · · · · · · · · · · · · · · · · · ·	
Quality Con	trol	500
Quality Con		500
Quality Con True Value % Recovery	QC	500 500 100

METHOD: Standard Methods

* Note: Analyses performed on 1:4 w;v aqueous extracts.

**Revised Report.

ChemistX

Date

H18344 SESI

PLEASE NOTE; Liability and Damagas. Cardinal's liability and client's exclusive remady for any claim arising, whether based in contract or tort, while be smitted to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatesever ability demands white unless made in writing and excelled by Cardinal within litting (30) days often completion of the applicable service. In no event shall cardinal by liable for incidental or consequential damages, include white minimum, business interruptions, loss of use, or loss of profile incurrent by client, its substitutions estimates a substitution or excensions existing out of or related to the performance of services between the client is beaded upon any of the above-attined respons or otherwise. Results mints only to the samplan identified above. This report shall not be reproduced except in full with written approved of Cardinal Laboratories.



January 15, 2010

Bob Allen Safety & Environmental Solutions, Inc. 703 East Clinton, #102 Hobbs, NM 88240

Re: South Culebra 23-7 (RAN-09-002)

Enclosed are the results of analyses for sample number H19065, received by the laboratory on 01/14/10 at 4:00 pm.

Cardinal Laboratories is accredited through Texas NELAP for:

Method SW-846 8021 Benzene, Toluene, Ethyl Benzene, and Total Xylenes
Method SW-846 8260 Benzene, Toluene, Ethyl Benzene, and Total Xylenes
Method TX 1005

Method TX 1005 Total Petroleum Hydrocarbons

Certificate number T104704398-08-TX. Accreditation applies to solid and chemical materials and non-potable water matrices.

Cardinal Laboratories is accredited though 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 524.2 Regulated VOCs (V2, V3)

Accreditation applies to public drinking water matrices.

Total Number of Pages of Report: 3 (includes Chain of Custody)

Sincerely,

Celey D. Keene Laboratory Director



ANALYTICAL RESULTS FOR

SAFETY & ENVIRONMENTAL SOLUTIONS

ATTN: BOB ALLEN 703 E. CLINTON, #102 HOBBS, NM 88240 FAX TO: (575) 393-4388

Receiving Date: 01/14/10 Reporting Date: 01/15/10

Project Number: RAN-09-002 (RANGE)
Project Name: SOUTH CULEBRA 23-7

LAB NO.

Project Location: LOVING, NM

Analysis Date: 01/15/10 Sampling Date: 01/14/10

Sample Type: SOIL

Sample Condition: COOL & INTACT @ 3°C

Sample Received By: JH

Analyzed By: HM

CI^T (mg/kg)

H19065-1	BACKGROUND #1. 6" BGL	< 16
H19065-2	BACKGROUND #1, 1' BGL	16
H19065-3	BACKGROUND #2. 6" BGL	32
H19065-4	BACKGROUND #2. 1' BGL	< 16
H19065-5	BACKGROUND #3. 6" BGL	< 16
H19065-6	BACKGROUND #3, 1' BGL	96
H19065-7	BACKGROUND #4. 6" BGL	32
H19065-8	BACKGROUND #4, 1' BGL	32
Quality Cont	rol	510
True Value C	QC .	500
% Recovery		102
Relative Per	cent Difference	< 0.1

SAMPLE ID

METHOD: Standard Methods 4500-Cl'B

Note: Analyses performed on 1:4 w:v aqueous extracts.

Chemist

Date

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

A ARDINAL LABORATORIFS

なたり こくせい しんむし とくしい	101 East Marland, Hobbs, NM 88240	(505) 393-2326 Fax (505) 393-2476
ı		

Page Lor	ANALYSIS REQUEST										_ IV) ×	· ×	X o	ς X	× ×	XX	20 X				uff: 🛘 Yes 🗘 No	□ Yes □ No			
	BILL TO	P.O. #;	Company: Same	Alfn:	Address:	City:	Stato: Zip:	Phone #:	Fax #:	PRESERV. SAMPLING	ID/8ASE:	DV VCI	2	X	X Jok	र्था ४		× × ×		with the based in conflect or test, shat be failed to the amount paid by the client for the	celend by Cardinal With 30 days after completion of use, or loss of profits incered by chent, its suit	ased upon eay of the above stated represents or of	Fax Result: REMARKS:			(siehilais)
nos, nm 88240 k (505) 393-2476	Safety & Environmental Solutions, Inc.	<u>d</u>		State: NM 21p: 88240	Fax#: 575-393-4388	Project Owner: Zer well	23-7		ii.	MATRIX	.9MP(C) PAS(C) OMP. SABINATO: SABINATO: SABINATER ABTAWETER III	2F OII OII OII OII OII OII OII	1 200	. 6ª bai G 1	11/24	1 (2) (2) (3) (4)				resclusive restely for any claim after whether bossed in confect or to	unites. At thins beform these for regignere and any eller sense whaleverer shall be dramed visited under a wellow in terms with a completion of the application. The constitution of the sense of the state of the sense of the state of the sense of the se	Sampler Religions of a rata of to the performance of stockes here acted by contact of which is such claim in based upon any of the above stands research of above stands are sent of the above stands research of above the such as the such above stands are such as the such		Date: U.C. Received By:	Terth. Sample Condition	72.0. El Yes El Yes
101 East Warland, Honos, NW 86240 (505) 393-2326 Fax (505) 393-2476	Company Name: Safety & Enviro	Project Manager: Bob Allen	Address: 703 East Clinton	City: Hobbs	7-0510	# ZAN -09 -007	alasi Suutin Pulais	Project Location:	\mathbb{A}	FOR UMD USE CHRY	Lab I.D. Sample I.D.	HINDING - I RAYE COULTH!	一世での一世		لد	-5 Backham 1#3	一位の大学	7 Parksycom 144	7	FEANE NOTE. Undany and Darougus, Cardiorly Ending and clarins and universeisely for any distributed	rs. All chims, beckefing floos for negligance and any effect and in no evenitational Confinel be liable for incidental or conserver	site for a succession setting out of or related to the performence of a		Relinquished By:	Delivered By: (Circle One)	Sampler, UPS - Bus - Other:

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

Appendix B Site Photos



