

June 22, 2018

Olivia Yu NMOCD District 1 1625 N. French Drive Hobbs, New Mexico 88240 **APPROVED** 

By Olivia Yu at 12:22 pm, Jul 24, 2018

NMOCD approves of the proposed remediation plan for 1RP-5047, 1RP-5065, and 1RP-5066. Bottom and sidewall confirmation samples must be marked with GPS coordinates on a scaled map. Dated photo documentation, including proper emplacement of a liner, must be included.

Re: Work Plan Marshall & Winston – Slick Mesa State 27-1H NMOCD Reference #'s: 1RP-5047, 1RP-5065, 1RP-5066

Ms. Olivia Yu:

RXSoil, Inc. is pleased to submit the work plan summarizing the on-site remediation of produced water impacted soil at the Slick Mesa State 27-1H site located in Lea County, New Mexico. Remediation work plan follows in the attached report.

Sincerely,

Jace Caraway Chief Operating Officer RXSoil, Inc. (940) 210-2051

Zach Robbins Technical and Engineering Analyst RXSoil, Inc. (210) 400-7645

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# I. Introduction

On behalf of Marshall & Winston, Inc., RXSoil, Inc. ("RXSoil") has prepared this work plan that describes the assessment and action plan for remediation of the releases of 1RP-5047, 1RP-5065, 1RP-5066 at the Slick Mesa State 27-1H site with API #30-025-30587.

The site of all three spills is in Unit Letter F, Section 13, Township 21S, Range 34E (see *Figure 1* for Vicinity Map). The Release Notification and Corrective Action documents are listed in *Appendix A*.

The first release (1RP-5047) occurred on 05/06/2018 with the C-141 approved on 05/08/2018. The release was caused by a split in a pipeline. The report states 375 barrels of produced water were released, and 230 barrels were recovered, covering an area of 200 feet by 200 feet.

The second release (1RP-5065) occurred on 05/16/2018 with the C-141 approved on 05/21/2018. This release was also caused by a split in a pipeline. The report states 300 barrels of produced water were released, and 260 barrels were recovered, covering approximately the same area of 200 feet by 200 feet.

The third release (1RP-5066) occurred on 05/19/2018 with the C-141 approved on 05/21/2018. The release was caused by a fire burning up a poly line. The report states the release of an unknown amount of produced water covered approximately the same area as before.

# II. Regulatory Guidelines

The New Mexico Office of the State Engineer Water Column/Average Depth to Water lists the depth to water of the closest well (approximately 1.75 miles northeast of release) to be 165 feet (See *Appendix B*). This information results in a Depth to Ground Water score of 0 and a Wellhead Protection Area score of 0.

*Figure 2* includes a 1,000-foot radius from the site showing no surface water within 1,000 feet of the release on the NM OCD Oil and Gas Map with Hydrology Layer. The total ranking score for this site's threat to public health, ground water and environmental therefore is 0.

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

The target cleanup levels are determined using *Guidelines for Remediation of Leaks, Spills and Releases* published by the NMOCD (August 13, 1993). The Recommended Remediation Action Levels (RRAL) are **10** parts per million (ppm) benzene, **50** ppm combined benzene, toluene, ethyl benzene, and total xylenes (BTEX), **5,000** ppm total petroleum hydrocarbons (TPH) and **600** ppm chlorides.

As discussed in the later portion of **Section IV**, post-remediation discrete confirmation samples will be taken and properly packaged, preserved and transported to a third-party laboratory by chain of custody, and analyzed for chlorides (Method 300 or Method 4500, per revised Rule 29). The results will be included in the closure report along with chain of custody and quality control.

# III. Delineation Report

RXSoil received a verbal approval from Ryan Mann at the State Land Office to move forward with delineation prior to drilling.

Based on a spill map and visual evidence, six borehole locations were selected throughout the affected area. These locations, as well as an area of predicted affected material can be seen in *Figure 4*.

RXSoil contracted Atkins Engineering Associates to drill boreholes for vertical delineation. RXSoil had personnel present during the drilling of boreholes to guide delineation. Drilling occurred at each borehole until 10' of clean soil was discovered. Samples were field screened for chlorides to guide the delineation activity and then transported on ice to Cardinal Laboratories in Hobbs, NM, for confirmation.

Samples were taken at intervals no greater than 5' in depth, with one exception occurring at BH02. At this location, there were consecutive samples taken at 14' and 19.5' depth (interval of 5.5') because the material was hard and only a portion of the 2' spoon could be captured.

Samples at 1' depth at borehole locations labeled BH01, BH02, BH03 and BH05 were also tested for BTEX and TPH. Samples were transported on ice in sealed glass jars. Tests were performed within the recommended hold time for BTEX and TPH of 14 days (per SW846 Chapter 4 Organic Analytes Table 4.1). All tests for TPH and BTEX showed levels significantly below legal thresholds listed in **Section II**, providing evidence that no further action must be taken to monitor TPH and BTEX for this remediation project.

Full results from vertical delineation can be found in *Appendix C*. This includes a data summary table, the laboratory reports, and a copy of the digital field notes.

Soil boring logs are currently being compiled and will be submitted to the NMOCD.

Samples from BH01-BH04 were collected on 06/05/2018 while samples from BH05 and BH06 were collected on 06/07/2018. Vertical delineation provided evidence to excavate to a depth of 4' throughout the contaminated areas surrounding BH01, BH02, BH03, BH04 and BH06. Lab tests on BH05 showed chloride levels no higher than 32.0 ppm. This area is not in the proposed excavation area.

Further horizontal delineation will be completed during excavation and is specified in **Section IV**.

# IV. Soil Remediation Work Plan

RXSoil's core process of on-site remediation will be used to address the contamination. RXSoil will supervise all excavation with approval from area utilities owners via NM 811.

RXSoil will construct one in-ground treatment cell adjacent to the contaminated area, staying no less than 1000' away from any water bodies. Once the final location of the treatment cell has been field verified, District 1 will be notified with coordinates of the four corners. This cell will be excavated to a depth of 4'. A 30-mil poly liner will be installed on the bottom and sides of cells to contain treatment (to be demarcated on map in Closure Report). A proprietary drainage and collection system will be installed. The background material (not affected by the release) will be staged away from any contaminated material to avoid cross-contamination. The cell is planned to cover an area of 150' by 270'. Final dimensions will be included in the closure report and the area will be demarcated on a map.

Sidewall and bottom samples will be taken for the contaminated area using a stainless-steel hand shovel while remediation samples will be taken using a stainless-steel bucket auger. All tools will be decontaminated before each sample, as specified in *Field Equipment Cleaning and Decontamination* (EPA, 2015). This includes wiping the equipment clean, water-rinsing the equipment, washing the equipment in detergent and water, and rinsing the equipment in water. Samples will be temporarily transferred to a new plastic bag in the field. Once in a location safer for handling glass, the samples will be transferred to glass jars, supplied by an approved laboratory. The threads on all jars will be wiped clean to allow an air-tight seal. Samples will be placed on ice and transferred to a third-party laboratory within an appropriate time period never to exceed 28 days, as recommended in the EPA Method 300.0 handbook. RXSoil will make reasonable efforts to minimize this transfer time.

The affected material will be excavated and placed into the RXSoil treatment cell. Sidewall samples in each cardinal direction will be collected (with samples no further than 50' apart) and transferred to a third-party lab for confirmation (via approved chloride tests) that all affected material has been excavated. Excavation will continue until all sidewall samples are below 600 ppm chlorides (via approved chloride tests). In order to not disturb the old production pit (shown in *Figure 3* and *Figure 4*), all excavation will occur at least 10' away from the pit edges.

Throughout excavation one bottom sample will be taken in the vicinity of each sample point labeled **BHX** on *Figure 3* where **X** is the sample number. This will determine the bottom of the plume in each area, protecting groundwater. Excavation occurs until testing provides evidence that the chloride levels are below thresholds listed in **Section II** or until excavation depth reaches 4'.

Whenever excavation depth changes, at least one bottom sample will be taken. If the bottom sampling should lead excavation to a depth of 4', excavation in that area will halt, a sample will be collected, and a 20-mil poly liner will be placed on the subsurface before backfilling (to be demarcated in Closure Report). These samples will be appropriately transferred to a third-party lab for confirmation that excavation was to the appropriate depth.

The clean material previously staged will be used to backfill the excavated area (see *Figure 3*). A proprietary delivery system will be installed in the treatment cell to apply RXSoil chemicals for remediation of the soil. RXSoil chemicals and biological agents will go through the profile of the soil before entering the collection system. RXSoil will collect this leachate and properly dispose of all collected leachate. No subsoil will be exposed to leachate from the treatment cells during remediation. No harmful or hazardous chemicals are used in the RXSoil Process.

Final discrete soil samples will be collected and tested for every 50 cubic yards of treated material at the end of treatment to confirm impacted soil has been remediated to required chloride levels directed by NMOCD standards, as specified in **Section II**. All samples will consist of enough material for at least one (1) field screening and two (2) laboratory tests. A portion of each sample will be field screened and 50% of these samples will have a portion transferred to a third-party laboratory for confirmation that all soil passes NMOCD standards. Lab reports and a map with sample points from a GPS device will all be included in the final report.

The current proposed cell dimensions are approximately 150' by 270' by 4' depth. This cell would hold 6,000 cubic yards, requiring no fewer than 120 samples per cell (6,000 cubic yards \* 1 sample per 50 cubic yards). The planned sample grid will be an evenly spaced grid of 14 columns by 9 rows (126 samples) with samples taken at a depth of 36"-48". Due to the nature of the RXSoil Process, deeper samples tend to clean up last, since all contamination must push through the bottom of the profile. A diagram of the spacing can be seen in *Figure 4*, representing the sampling plan for one cell. A cross section view of the sampling can be seen in *Figure 5*.

Based on this cell size, 126 samples will be taken with 63 duplicates being sent to a third-party laboratory for testing. All samples that are collected for lab analysis and not submitted will be preserved for future analysis if required with the understanding that the recommended hold time of 28 days may be exceeded.

If any sample points test for a chloride concentration greater than 600 ppm, RXSoil will continue treatment in that area of the treatment cell. Following re-treatment, samples will be redrawn from any location that initially tested above regulations. This will be done until all sample locations test below threshold. All sample points throughout the project will be GPS located and demarcated on a final sampling map, provided in the closure report.

After completion of the remedial phase of the project a minimum of two composite samples (one from the treatment cell and one from the restored area) will be collected for agricultural analysis (CEC, SAR, ESP, anions and cations). These results will be provided to an agronomist so that proper soil amendments can be determined to provide for the landowner approved vegetative cover. The amendments and seed will be applied following the remediation project, at the discretion of the landowner.

A closure report summarizing all remediation activities, including scaled maps and all test results stated above, will be submitted upon completion of the project.



Figure 2. Hydrology Map

SWNE (G)	(r) NWSE	SWSE (0)	(B)	SWNE (G)	(r)	SWSE (0)	(B)	SWNE (G)	Ē	1.2 km
SENW (F)	NESW (K)	SESN (N)	NENW (C)	SENW (F)	NESW (K)	sesw (N)	NENW (C) 20	SENW (F)	0.7 mi	
SWHW (E)	(T) MSMN	(W) MSMS	( d) WNMN	K.Wat Highway, 12 (E)	(T) MSMN	( W ) WSMS	(D)	SWNW (E)	1:18,056 0.35	0.6
SENE (H)	NESE (1)	SESE (P)	NENE (A)	SENE (H)	NESE (1)	SESE (P)	NENE (A)	SENE (H)	0.17	0.3
SVINE (G)	IL) TO	SWSE (0)	MWNE (B)	SWNE (G)	(r)	swse ( o )	NWNE (B)	SWNE (G)	01	
SENW (F)	Peerson (K)	sesw (N)	Nenw (C)	SENW (F)	NESW (K)	SESW (N) Courty-Road-31	NENW (C)	SENW (F)		
12	F 1	11		215 35E L 2		L.4	/5	12		
SENE (H)	NESE (1)	SESE (P)	CHENE (PA1)	SENE (H)	NESE (1)	sese (P)	NENE ( A )	SENE (H)		
SWNE (G)	MWSE (1)	SWSE (0)	MWNE (B)	SWNE (G)	NWSE ( r )	SWSE FI EO D	NWNE (B)	SWNE (G)		
SENN (F)	NESW (K)	SESW (N)	NENW (C)	SEN	NESW (K)	WILLSON OIL FIEOD	NEWN (C)	SENW (F)		
SWNW (E)	(T) NSMN	(W)	(D)	SWNW (E)	(L)	(W) WSMS	(d)	SWNW (E)		
SENE (H)	(=)	Nr. Mar. 1986 Maray. 178	NENE (A)	21534E SENE (H)	NESE (1)	SESE (P)	NENE (A)	SENE (H)		
SMNE (G)	NWSE (1)	H C	NMNE (B)	SMNE (G)	NWSE (.)	SWSE ( 0 )	NWNE (B)	SWNE (G)		
SENW (F)	NESW (K)	SESW (N)	NEWV (C)	SENW (F)	NESW (K)	SESW (N)	NEWN (C) 23	SENW (F)		
SWNW (E)	(T) MSMN	(W) MSMS	(D)	SWNW (E)	(T)	(W) WSMS	(Q)	SWNW (E)	06:47 PM	e Area
SENE (H)	NESE (1) 10	sese (P)	NENE	SENE (H)	NESE (I)	SESE (P)	NENE (A) 22	SENE (H)	6/18/2018, 1:06:47 PM	Release Area

Texas Parks & Wildlife, Esri, HERE, Garmin, INCREMENT P, USGS, METI/NASA, EPA, USDA, OCD, BLM

New Mexico Oil Conservation Division NM OCD Oil and Gas Map. http://nm-emnrd.maps.arcgis.com/apps/webappviewer/: New Mexico Oil Conservation Division

1000' Radius

œ



# Legend

a shire and the second



Borehole Location (06/05/2018) Borehole Location (06/07/2018) Excavation Area Old Production Pit 🯉 Treatment Cell

300 ft



Figure 5. Cross-Sectional View of Cell



Section A-A

Legend X - Sample at 4'

\*diagram not to scale

# **APPENDIX A.1**

# C-141, RELEASE NOTIFICATION AND CORRECTIVE ACTION DOCUMENT

1RP-5047

State of New Mexico Energy Minerals and Natural Resources

Form C-141 Revised April 3, 2017

Oil Conservation Division 1220 South St. Francis Dr. Santa Fe, NM 87505 Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

1220 S. St. Francis Dr , Santa Fe, NM 87505 Sa	nta Fe, NM 87505
	ation and Corrective Action
	OPERATOR Initial Report Final Repo
Name of Company: Marshall & Winston, Inc.	Contact: Todd Passmore
Address: P.O. Box 50880, Midland TX 79710-0880	Telephone No: 432-684-6373 (o) or 432-894-0165 (c)
Facility Name: Slick Mesa State 27-1H	Facility Type: Well Location
Surface Owner: State of New Mexico Mineral O	Owner: State of New Mexico API No. 30-025-30587
	TION OF RELEASE
Unit Letter Section Township Range Feet from the	North/South Line   Feet from the   East/West Line   County
F 13 21-S 34-E	Lea County, NM
Latitude 32*28'47.61"	Longitude 103*25'31.63" NAD83
NAT	URE OF RELEASE
Type of Release: Produced Water	Volume of Release: 375bbls Volume Recovered: 230bbls
Source of Release: Pipeline	Date and Hour of Occurrence Date and Hour of Discovery
Was Immediate Notice Given?	equired Olivia Yu, via email 5/6/18 5/6/18 5/6/18 18:30
By Whom? Todd Passmore	Date and Hour 5/6/18 21:00
Was a Watercourse Reached?	If YES, Volume Impacting the Watercourse.
If a Watercourse was Impacted, Describe Fully.*	RECEIVED
	By Olivia Yu at 7:58 am, May 08, 2018
	By Olivia Tu at 7.50 alli, May 00, 2010
Describe Cause of Problem and Remedial Action Taken.*	
Spilt in pipeline. Repaired pipeline & back in operation. Vacuum	trucks were dispatched to pickup standing fluid, 230bbs was recovered.
Describe Area Affected and Cleanup Action Taken.*	
	ed. Estimated area of contamination is 200'x200'. BBC was contacted and will survey
the affected area and propose a plan of action. Plan of Action will	The emailed to the OCD.
	lete to the best of my knowledge and understand that pursuant to NMOCD rules and elease notifications and perform corrective actions for releases which may endanger
public health or the environment. The acceptance of a C-141 report	rt by the NMOCD marked as "Final Report" does not relieve the operator of liability
should their operations have failed to adequately investigate and re	emediate contamination that pose a threat to ground water, surface water, human health
federal, state, or local laws and/or regulations.	report does not relieve the operator of responsibility for compliance with any other
	OIL CONSERVATION DIVISION
Simotory	
Signature:	
Printed Name: Todd Passmore	Approved by Environmental Specialist:
Title: Operations Manager	Approval Date: 5/8/2018 Expiration Date:
E-mail Address: tpassmore@mar-win.com	Conditions of Approval:
Date: 5/7/19 Diana: 432 904 01/5	See attached directive
Date: 5/7/18 Phone: 432-894-0165 * Attach Additional Sheets If Necessary	
	1RP-5047 nOY1812829129

pOY1812829487

# **APPENDIX A.2**

# C-141, RELEASE NOTIFICATION AND CORRECTIVE ACTION DOCUMENT

1RP-5065

Oil Conservation Division 1220 South St. Francis Dr. Santa Fe, NM 87505 Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

1220 South St. Transis Dr., Santa Fe, NM 87505 Santa Fe, NM 87505							
Release Notification and Corrective Action							
Keicase ivoliticat							
Nome of Company, Marshall & Winston Inc.	OPERATOR       Initial Report       Final Report         Contact:       Todd Passmore       Final Report						
Name of Company:Marshall & Winston, Inc.Address:P.O. Box 50880, Midland TX 79710-0880	Telephone No: 432-684-6373 (o) or 432-894-0165 (c)						
Facility Name: Slick Mesa State 27-1H	Facility Type: Well Location						
Surface Owner: State of New Mexico Mineral Own	her: State of New Mexico API No. 30-025-30587						
LOCAT	ION OF RELEASE						
Unit LetterSectionTownshipRangeFeet from theNoF1321-S34-E	Forth/South Line Feet from the East/West Line County Lea County, NM						
Latitude32*28'47.61''	_Longitude103*25'31.63'' NAD83						
NATU	RE OF RELEASE						
Type of Release: Produced Water	Volume of Release: 300 bbls Volume Recovered: 260 bbls						
Source of Release: Pipeline Was Immediate Notice Given?	Date and Hour of Occurrence         Date and Hour of Discovery           If YES, To Whom?         5/16/18						
Yes No Not Requi							
By Whom? Todd Passmore	Date and Hour 5/16/18 15:30						
Was a Watercourse Reached?	If YES, Volume Impacting the Watercourse.						
If a Watercourse was Impacted, Describe Fully.* RECEIVED By Olivia Yu at 4:05 pm, May 21, 2018 Describe Cause of Problem and Remedial Action Taken.*							
Spilt in pipeline. Repaired pipeline & back in operation. Vacuum tru	acks were dispatched to pickup standing fluid, 260bbs was recovered.						
Describe Area Affected and Cleanup Action Taken.* Water accumulated in the pasture and standing water was recovered. will survey the newly affected area and propose a plan of action. Pla	Area of contamination is mostly in same area as 1RP-5047. BBC was contacted and an of Action will be emailed to the OCD.						
regulations all operators are required to report and/or file certain relea public health or the environment. The acceptance of a C-141 report b should their operations have failed to adequately investigate and remo	to the best of my knowledge and understand that pursuant to NMOCD rules and ase notifications and perform corrective actions for releases which may endanger by the NMOCD marked as "Final Report" does not relieve the operator of liability ediate contamination that pose a threat to ground water, surface water, human health ort does not relieve the operator of responsibility for compliance with any other						
	OIL CONSERVATION DIVISION						
Signature:	JY.						
Printed Name: Todd Passmore	Approved by Environmental Specialist:						
Title: Operations Manager	Approval Date: 5/21/2018 Expiration Date:						
E-mail Address: tpassmore@mar-win.com	Conditions of Approval:						
Date: 5/7/18 Phone: 432-894-0165	see attached directive						
<sup>5</sup> Attach Additional Sheets If Necessary							
	1RP-5065 nOY1814158094						

pOY1814158315

5

# **APPENDIX A.3**

# C-141, RELEASE NOTIFICATION AND CORRECTIVE ACTION DOCUMENT

1RP-5066

State of New Mexico Energy Minerals and Natural Resources

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

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

1220 S St. Fran	cis Dr., Sant	a Fe, NM 8750	5	S	anta I	Fe, NM 875	505					
			Rele	ease Notifi	catio	on and Co	orrective A	ction				
						<b>OPERA</b>	TOR		🛛 Initia	al Report		Final Repor
		Marshall & V	Contact: T	Contact: Todd Passmore								
Address: P.O. Box 50880, Midland TX 79710-0880 7						Telephone	No: 432-684-6	373 (o)	or 432-8	94-0165 (c	)	
Facility Na	ne: Slick	Mesa State 2	27-1H			Facility Ty	be: Well Locat	tion				
Surface Ow	ner: State	of New Me	xico	Mineral (	Owner	: State of Nev	v Mexico		APINO	. 30-025-	30587	,
						ON OF RE					20207	
Unit Letter	Section	Township	Range	Feet from the		h/South Line	Feet from the	Fast/W	est Line	County		
	13	21-S	34-E						est bille	Lea Coun	ty, NM	
		Lat	itude	32*28'47.61"	L	ongitude	_103*25'31.63"	' I	NAD83			
				NAJ	ruri	E OF REL	EASE					
Type of Rele	ase: Produc	ed Water				in a second s	Release: unknow	n	Volume F	Recovered:		
Source of Re							lour of Occurrence		Date and	Hour of Dis	covery	
Was Immedi	ate Notice (		Yes 🗌	] No 🔲 Not R	equired	d If YES, Te 19:30 Olivia Yu		/19/18				5/18/18
By Whom?						Date and I	lour 5/19/18 10:4	14 am				
Was a Water	course Rea		]Yes 🔀	No		If YES, V	olume Impacting th	he Water	rcourse.			
If a Waterco	irse was Im	pacted, Descr	ibe Fully.	F		DEC						
							EIVED					
						By Ol	ivia Yu at 4	4:27 µ	om, M	<b>ay 21,</b> 2	2018	3
Describe Cau	se of Probl	em and Reme	dial Actio	n Taken.*								
A fire spread	across the	pasture burnir	ng up a pol	y line. Fire was	extingu	ished by Euni	ce FD. Pipeline is	not in se	ervice at th	he time of th	e fire.	
		and Cleanup /										
An unknow a	mount of p	roduced wate	r was relea	sed, due to the li	ne bein	g out of servic	e less than five bar	rrels is e	stimated to	have been	release	d. Area of
		ne vicinity as t mailed to the (		RP-5047 release.	BBC	was contacted	and will survey the	e newly a	affected at	ea and prop	iose a p	lan of action.
1 141 01 / 1610												
I hereby certi	fy that the	information g	iven above	is true and com	lete to	the best of my	knowledge and un	nderstan	d that ours	uant to NM	OCD n	ules and
regulations a	l operators	are required t	to report an	nd/or file certain	release	notifications a	nd perform correct	tive actic	ons for rele	eases which	may er	ndanger
public health	or the envi	ronment. The	e acceptant	e of a C-141 rep	ort by t	he NMOCD m	arked as "Final Re	eport" do	es not reli	eve the ope	rator of	liability
							ion that pose a thre e the operator of r					
federal, state	or local la	ws and/or reg	detions.	aance of a C-141	report	ubes not reliev	e the operator of r	esponsie	onity for co	omphance v	Ain any	ouner
	1	1/					OIL CONS	SERV	ATION	DIVISIO	)N	
Signature:									AL /	1_		
						Approved by	Environmental Sp	acialist:		F		
Printed Nam	e: Todd Pa	ssmore				лррготеа бу	Environmentar 5	Acciation.	<u> </u>			
Title: Opera	ions Manaj	ger				Approval Da	te: 5/21/2018	E	xpiration 1	Date:		
E-mail Addre	<u>:ss:_tpassm</u>	ore@mar-win	1.com			Conditions o	f Approval:			A 44 1 1		
							ched directiv	е		Attached		
Date: 5/21		Phone: 432-89									-	
Attach Addi	uonal She	ets if Necess	sary			1RP-506	6]					
							nOY18	31415	9045			

pOY1814159339

# **APPENDIX B**

# WATER COLUMN/AVERAGE DEPTH TO WATER

and significant Communities												th to W		_
(A CLW##### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)	(R=POD replaced O=orpha C=the fil closed)	ned,	(1						E 3=SW argest)	/	3 UTM in mete	rs) (i	In feet)	
	cioseu)	POD	(9)	iui tei		10 5	1110411	000 10 1	argest)	(INID).		15)		
		Sub-		Q	Q	Q							V	Vater
POD Number	Code	basin	County	64	16	4	Sec	Tws	Rng	Х	Y	DepthWellDept	thWater Co	olumn
<u>CP 00939 POD1</u>		CP	LE	4	1	2	07	21S	35E	649974	3596760*	400	165	235
<u>CP 00940 POD1</u>		СР	LE	4	1	2	07	21S	35E	649974	3596760*	400	165	235
										1	Average Depth	to Water:	165 fe	et
											Minim	um Depth:	165 fe	et
											Maxim	um Depth:	165 fe	et
Record Count: 2														
PLSS Search:														
<b>Section(s):</b> 7, 18	. 19	Townshi	n: 21S	1	Rar	ige:	351	3						

6/18/18 12:14 PM

19

WATER COLUMN/ AVERAGE DEPTH TO WATER

# **APPENDIX C.1**

# **DELINEATION REPORT**

# **DELINEATION SUMMARY TABLE**

			Delineation Data	a: Slick Mesa			
Sample Date: 06/05/2018			Submittal Date	: 06/08/2018	Laboratory	: Cardinal La	boratories
<b>D</b>			Chlor	ide	Benzene	BTEX	ТРН
Borehole	Depth (ft)	Lab ID Sample	Field Screening	Method 4500	802	:1B	8015M
1	1	BH01-1'	5164	3920	<0.050	<0.300	199
1	2	BH01-2'	1272	4240	-	-	-
1	3	BH01-3'	1732	2040	-	-	-
1	4	BH01-4'	1732	1800	-	-	-
1	6	BH01-6'	1416	1620	-	-	-
1	9	BH01-9'	1136	1380	-	-	-
1	14	BH01-14'	612	896	-	-	-
1	19	BH01-19'	392	416	-	-	-
1	24	BH01-24'	288	224	-	-	-
1	29	BH01-29'	228	112	-	-	-
1		BH01-34'	176	80.0	-	-	-
1	39	BH01-39'	228	144	-	-	-
2	1	BH02-1'	4768	3920	<0.050	<0.300	<30
2	2	BH02-2'	4064	4160	-	-	-
2	3	BH02-3'	4768	3840	-	-	-
2	4	BH02-4'	3460	5440	-	-	-
2	4.5	BH02-4.5'	3460	3600	-	-	-
2	9.5	BH02-9.5'	1732	2200	-	-	-
2	14	BH02-14'	ND	160	-	-	-
2	19.5	BH02-19.5'	196	192	-	-	-
2	24	BH02-24'	172	192	-	-	-
3	1	BH03-1'	1904	2880	<0.050	<0.300	85
3	2	BH03-2'	1904	2800	-	-	-
3	3	BH03-3'	908	1120	-	-	-
3	4	BH03-4'	1056	1390	-	-	-
3	6	BH03-6'	1272	1250	-	-	-
3	10	BH03-10'	612	576	-	-	-
3	15	BH03-15'	612	448	-	-	-
3		BH03-19'	392	336	-	-	-
3		BH03-21'	228	224	-	-	-
3	26	BH03-26'	ND	80.0	-	-	-
3	31	BH03-31'	ND	32.0	-	-	-
4	1	BH04-1'	228	208	-	-	-
4	2	BH04-2'	196	144	-	-	-
4	3	BH04-3'	228	256	-	-	-
4	4	BH04-4'	472	624	-	-	-
4	6	BH04-6'	ND	80.0	-	-	-
4	11	BH04-11'	ND	32.0	-	-	-
4	16	BH04-16'	ND	48.0	-	-	-
NMOCD T	hresholds			600	10	50	5000

BOLD results indicate results above RRAL

- indicates tests were not ran

	Delineation Data: Slick Mesa							
Sam	ple Date: 06	5/07/2018	Submittal Date	: 06/08/2018	Laboratory: Cardinal Laboratories			
Barahala	Donth (ft)		Chlor	ide	Benzene	BTEX	TPH	
Богеноје	Depth (It)	Lab ID Sample	Field Screening	Method 4500	802	21B	8015M	
5	1	BH05-1'	ND	16.0	<0.050	<0.300	<30	
5	2	BH05-2'	ND	32.0	-	-	-	
5	3	BH05-3'	120	32.0	-	-	-	
5	4	BH05-4'	ND	32.0	-	-	-	
5	6	BH05-6'	ND	16.0	-	-	-	
5	9	BH05-9'	ND	16.0	-	-	-	
5	14	BH05-14'	ND	<16.0	-	-	-	
6	1	BH06-1'	556	432	-	-	-	
6	2	BH06-2'	1360	1300	-	-	-	
6	3	BH06-3'	1552	2040	-	-	-	
6	4	BH06-4'	ND	32.0	-	-	-	
6	6	BH06-6'	ND	16.0	-	-	-	
6	11	BH06-11'	ND	32.0	-	-	-	
6	14	BH06-14'	ND	16.0	-	-	-	
NMOCD T	hresholds			600	10	50	5000	

BOLD results indicate results above RRAL

- indicates tests were not ran

# **APPENDIX C.2**

# **DELINEATION REPORT**

# **DELINEATION LABORATORY REPORT**



June 20, 2018

JACE CARAWAY RX-SOIL INC. 201 MAIN STREET, SUITE 1360 FORT WORTH, TX 76102

RE: SLICK MESA

Enclosed are the results of analyses for samples received by the laboratory on 06/08/18 9:35.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-17-10. 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 <a href="https://www.tceq.texas.gov/field/ga/lab\_accred\_certif.html">www.tceq.texas.gov/field/ga/lab\_accred\_certif.html</a>.

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. Keen

Celey D. Keene Lab Director/Quality Manager



RX-SOIL INC. JACE CARAWAY 201 MAIN STREET, SUITE 1360 FORT WORTH TX, 76102 Fax To: NA

Received:	06/08/2018	Sampling Date:	06/05/2018
Reported:	06/20/2018	Sampling Type:	Soil
Project Name:	SLICK MESA	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NONE GIVEN		

#### Sample ID: BH01 - 1' (H801574-01)

BTEX 8021B	mg	′kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/19/2018	ND	1.70	85.1	2.00	1.68	
Toluene*	<0.050	0.050	06/19/2018	ND	1.69	84.4	2.00	1.34	
Ethylbenzene*	<0.050	0.050	06/19/2018	ND	1.69	84.4	2.00	2.46	
Total Xylenes*	0.226	0.150	06/19/2018	ND	5.29	88.1	6.00	2.26	
Total BTEX	<0.300	0.300	06/19/2018	ND					
Surrogate: 4-Bromofluorobenzene (PID	133	% 69.8-14	2						
Chloride, SM4500Cl-B	mg,	′kg	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	3920	16.0	06/12/2018	ND	416	104	400	0.00	
TPH 8015M	mg/	′kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<50.0	50.0	06/19/2018	ND	175	87.7	200	3.59	
DRO >C10-C28*	199	50.0	06/19/2018	ND	168	83.8	200	4.94	
EXT DRO >C28-C36	<50.0	50.0	06/19/2018	ND					
Surrogate: 1-Chlorooctane	76.8	% 41-142	2						
Surrogate: 1-Chlorooctadecane	71.3	% 37.6-14	7						

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#### \*=Accredited Analyte

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Celleg D. Kuno



RX-SOIL INC. JACE CARAWAY 201 MAIN STREET, SUITE 1360 FORT WORTH TX, 76102 Fax To: NA

Received:	06/08/2018	Sampling Date:	06/05/2018
Reported:	06/20/2018	Sampling Type:	Soil
Project Name:	SLICK MESA	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NONE GIVEN		

#### Sample ID: BH01 - 2' (H801574-02)

Chloride, SM4500Cl-B	mg	/kg	Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	4240	16.0	06/12/2018	ND	416	104	400	0.00	

## Sample ID: BH01 - 3' (H801574-03)

Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2040	16.0	06/12/2018	ND	416	104	400	0.00	

## Sample ID: BH01 - 4' (H801574-04)

Chloride, SM4500CI-B	mg	/kg	Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1800	16.0	06/12/2018	ND	416	104	400	0.00	

#### Sample ID: BH01 - 6' (H801574-05)

Chloride, SM4500CI-B	mg	/kg	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1620	16.0	06/12/2018	ND	416	104	400	0.00	

#### Sample ID: BH01 - 9' (H801574-06)

Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1380	16.0	06/12/2018	ND	432	108	400	0.00	QM-07

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RX-SOIL INC. JACE CARAWAY 201 MAIN STREET, SUITE 1360 FORT WORTH TX, 76102 Fax To: NA

Received:	06/08/2018	Sampling Date:	06/05/2018
Reported:	06/20/2018	Sampling Type:	Soil
Project Name:	SLICK MESA	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NONE GIVEN		

#### Sample ID: BH01 - 14' (H801574-07)

Chloride, SM4500Cl-B	mg	/kg	Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	896	16.0	06/12/2018	ND	432	108	400	0.00	

### Sample ID: BH01 - 19' (H801574-08)

Chloride, SM4500Cl-B	mg,	/kg	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	416	16.0	06/12/2018	ND	432	108	400	0.00	

## Sample ID: BH01 - 24' (H801574-09)

Chloride, SM4500Cl-B	mg	/kg	Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	224	16.0	06/12/2018	ND	432	108	400	0.00	

#### Sample ID: BH01 - 29' (H801574-10)

Chloride, SM4500CI-B	mg	/kg	Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	112	16.0	06/12/2018	ND	432	108	400	0.00	

#### Sample ID: BH01 - 34' (H801574-11)

Chloride, SM4500Cl-B	mg	/kg	Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	80.0	16.0	06/12/2018	ND	432	108	400	0.00	

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RX-SOIL INC. JACE CARAWAY 201 MAIN STREET, SUITE 1360 FORT WORTH TX, 76102 Fax To: NA

Received:	06/08/2018
Reported:	06/20/2018
Project Name:	SLICK MESA
Project Number:	NONE GIVEN
Project Location:	NONE GIVEN

# Sampling Date:06/05/2018Sampling Type:SoilSampling Condition:Cool & IntactSample Received By:Tamara Oldaker

#### Sample ID: BH01 - 39' (H801574-12)

Chloride, SM4500Cl-B	mg	/kg	Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	144	16.0	06/12/2018	ND	432	108	400	0.00	

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RX-SOIL INC. JACE CARAWAY 201 MAIN STREET, SUITE 1360 FORT WORTH TX, 76102 Fax To: NA

Received:	06/08/2018	Sampling Date:	06/05/2018
Reported:	06/20/2018	Sampling Type:	Soil
Project Name:	SLICK MESA	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NONE GIVEN		

#### Sample ID: BH02 - 1' (H801574-13)

BTEX 8021B	mg/	/kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/19/2018	ND	1.70	85.1	2.00	1.68	
Toluene*	<0.050	0.050	06/19/2018	ND	1.69	84.4	2.00	1.34	
Ethylbenzene*	< 0.050	0.050	06/19/2018	ND	1.69	84.4	2.00	2.46	
Total Xylenes*	<0.150	0.150	06/19/2018	ND	5.29	88.1	6.00	2.26	
Total BTEX	<0.300	0.300	06/19/2018	ND					
Surrogate: 4-Bromofluorobenzene (PID	103	% 69.8-14	2						
Chloride, SM4500Cl-B	mg/	′kg	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	3920	16.0	06/12/2018	ND	432	108	400	0.00	
TPH 8015M	mg/	/kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/19/2018	ND	175	87.7	200	3.59	
DRO >C10-C28*	<10.0	10.0	06/19/2018	ND	168	83.8	200	4.94	
EXT DRO >C28-C36	<10.0	10.0	06/19/2018	ND					
Surrogate: 1-Chlorooctane	82.0	% 41-142	,						
Surrogate: 1-Chlorooctadecane	68.8	% 37.6-14	7						

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Celleg D. Kuno



RX-SOIL INC. JACE CARAWAY 201 MAIN STREET, SUITE 1360 FORT WORTH TX, 76102 Fax To: NA

Received:	06/08/2018	Sampling Date:	06/05/2018
Reported:	06/20/2018	Sampling Type:	Soil
Project Name:	SLICK MESA	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NONE GIVEN		

#### Sample ID: BH02 - 2' (H801574-14)

Chloride, SM4500Cl-B	mg	/kg	Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	4160	16.0	06/12/2018	ND	432	108	400	0.00	

## Sample ID: BH02 - 3' (H801574-15)

Chloride, SM4500Cl-B	ide, SM4500Cl-B mg/kg				Analyzed By: AC				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	3840	16.0	06/12/2018	ND	432	108	400	0.00	

## Sample ID: BH02 - 4' (H801574-16)

Chloride, SM4500Cl-B	mg	/kg	Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	5440	16.0	06/12/2018	ND	432	108	400	0.00	

#### Sample ID: BH02 - 4.5' (H801574-17)

Chloride, SM4500Cl-B	mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	3600	16.0	06/12/2018	ND	432	108	400	0.00	

#### Sample ID: BH02 - 9.5' (H801574-18)

Chloride, SM4500Cl-B	mg	/kg	Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2200	16.0	06/12/2018	ND	432	108	400	0.00	

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RX-SOIL INC. JACE CARAWAY 201 MAIN STREET, SUITE 1360 FORT WORTH TX, 76102 Fax To: NA

Received:	06/08/2018	Sampling Date:	06/05/2018
Reported:	06/20/2018	Sampling Type:	Soil
Project Name:	SLICK MESA	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NONE GIVEN		

#### Sample ID: BH02 - 14' (H801574-19)

Chloride, SM4500Cl-B	mg	/kg	Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	160	16.0	06/12/2018	ND	432	108	400	0.00	

## Sample ID: BH02 - 19.5' (H801574-20)

Chloride, SM4500CI-B	mg	/kg	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	192	16.0	06/12/2018	ND	432	108	400	0.00	

## Sample ID: BH02 - 24' (H801574-21)

Chloride, SM4500Cl-B	mg	/kg	Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	192	16.0	06/12/2018	ND	432	108	400	0.00	

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Celeg D. trene



RX-SOIL INC. JACE CARAWAY 201 MAIN STREET, SUITE 1360 FORT WORTH TX, 76102 Fax To: NA

Received:	06/08/2018	Sampling Date:	06/05/2018
Reported:	06/20/2018	Sampling Type:	Soil
Project Name:	SLICK MESA	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NONE GIVEN		

#### Sample ID: BH03 - 1' (H801574-22)

BTEX 8021B	mg	/kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/19/2018	ND	1.70	85.1	2.00	1.68	
Toluene*	<0.050	0.050	06/19/2018	ND	1.69	84.4	2.00	1.34	
Ethylbenzene*	<0.050	0.050	06/19/2018	ND	1.69	84.4	2.00	2.46	
Total Xylenes*	<0.150	0.150	06/19/2018	ND	5.29	88.1	6.00	2.26	
Total BTEX	<0.300	0.300	06/19/2018	ND					
Surrogate: 4-Bromofluorobenzene (PID	105	% 69.8-14	2						
Chloride, SM4500Cl-B	mg/	/kg	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2880	16.0	06/12/2018	ND	432	108	400	0.00	
TPH 8015M	mg/	/kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/19/2018	ND	175	87.7	200	3.59	
DRO >C10-C28*	74.2	10.0	06/19/2018	ND	168	83.8	200	4.94	
EXT DRO >C28-C36	10.9	10.0	06/19/2018	ND					
Surrogate: 1-Chlorooctane	76.5	% 41-142							
Surrogate: 1-Chlorooctadecane	71.4	% 37.6-14	7						

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#### \*=Accredited Analyte

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RX-SOIL INC. JACE CARAWAY 201 MAIN STREET, SUITE 1360 FORT WORTH TX, 76102 Fax To: NA

Received:	06/08/2018	Sampling Date:	06/05/2018
Reported:	06/20/2018	Sampling Type:	Soil
Project Name:	SLICK MESA	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NONE GIVEN		

#### Sample ID: BH03 - 2' (H801574-23)

Chloride, SM4500Cl-B	mg	/kg	Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2800	16.0	06/12/2018	ND	432	108	400	0.00	

## Sample ID: BH03 - 3' (H801574-24)

Chloride, SM4500CI-B	mg	/kg	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1120	16.0	06/12/2018	ND	432	108	400	0.00	

## Sample ID: BH03 - 4' (H801574-25)

Chloride, SM4500Cl-B	mg	/kg	Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1390	16.0	06/12/2018	ND	432	108	400	0.00	

#### Sample ID: BH03 - 6' (H801574-26)

Chloride, SM4500CI-B	mg	/kg	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1250	16.0	06/12/2018	ND	432	108	400	3.64	QM-07

#### Sample ID: BH03 - 10' (H801574-27)

Chloride, SM4500Cl-B	mg	/kg	Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	576	16.0	06/12/2018	ND	432	108	400	3.64	

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Received:	06/08/2018	Sampling Date:	06/05/2018
Reported:	06/20/2018	Sampling Type:	Soil
Project Name:	SLICK MESA	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NONE GIVEN		

#### Sample ID: BH03 - 15' (H801574-28)

Chloride, SM4500Cl-B	mg	/kg	Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	448	16.0	06/12/2018	ND	432	108	400	3.64	

## Sample ID: BH03 - 19' (H801574-29)

Chloride, SM4500Cl-B	mg,	/kg	Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	336	16.0	06/12/2018	ND	432	108	400	3.64	

#### Sample ID: BH03 - 21' (H801574-30)

Chloride, SM4500CI-B	mg	/kg	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	224	16.0	06/12/2018	ND	432	108	400	3.64	

#### Sample ID: BH03 - 26' (H801574-31)

Chloride, SM4500Cl-B	mg	/kg	Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	80.0	16.0	06/12/2018	ND	432	108	400	3.64	

#### Sample ID: BH03 - 31' (H801574-32)

Chloride, SM4500Cl-B	mg/	/kg	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	06/12/2018	ND	432	108	400	3.64	

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Received:	06/08/2018	Sampling Date:	06/05/2018
Reported:	06/20/2018	Sampling Type:	Soil
Project Name:	SLICK MESA	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NONE GIVEN		

#### Sample ID: BH04 - 1' (H801574-33)

Chloride, SM4500Cl-B	mg	/kg	Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	208	16.0	06/12/2018	ND	432	108	400	3.64	

## Sample ID: BH04 - 2' (H801574-34)

Chloride, SM4500Cl-B	mg,	/kg	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	144	16.0	06/12/2018	ND	432	108	400	3.64	

## Sample ID: BH04 - 3' (H801574-35)

Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	256	16.0	06/12/2018	ND	432	108	400	3.64	

#### Sample ID: BH04 - 4' (H801574-36)

Chloride, SM4500Cl-B	mg,	/kg	Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	624	16.0	06/12/2018	ND	432	108	400	3.64	

#### Sample ID: BH04 - 6' (H801574-37)

Chloride, SM4500Cl-B	mg/	/kg	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	80.0	16.0	06/12/2018	ND	432	108	400	3.64	

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RX-SOIL INC. JACE CARAWAY 201 MAIN STREET, SUITE 1360 FORT WORTH TX, 76102 Fax To: NA

Received:	06/08/2018	Sampling Date:
Reported:	06/20/2018	Sampling Type:
Project Name:	SLICK MESA	Sampling Condition:
Project Number:	NONE GIVEN	Sample Received By:
Project Location:	NONE GIVEN	

## 06/05/2018 Soil Cool & Intact Tamara Oldaker

#### Sample ID: BH04 - 11' (H801574-38)

Chloride, SM4500Cl-B	mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	06/12/2018	ND	432	108	400	3.64	

## Sample ID: BH04 - 16' (H801574-39)

Chloride, SM4500Cl-B	mg	/kg	Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	48.0	16.0	06/12/2018	ND	432	108	400	3.64	

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RX-SOIL INC. JACE CARAWAY 201 MAIN STREET, SUITE 1360 FORT WORTH TX, 76102 Fax To: NA

Received:	06/08/2018	Sampling Date:	06/07/2018
Reported:	06/20/2018	Sampling Type:	Soil
Project Name:	SLICK MESA	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NONE GIVEN		

### Sample ID: BH05 - 1' (H801574-40)

BTEX 8021B	mg,	/kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/19/2018	ND	1.70	85.1	2.00	1.68	
Toluene*	<0.050	0.050	06/19/2018	ND	1.69	84.4	2.00	1.34	
Ethylbenzene*	< 0.050	0.050	06/19/2018	ND	1.69	84.4	2.00	2.46	
Total Xylenes*	<0.150	0.150	06/19/2018	ND	5.29	88.1	6.00	2.26	
Total BTEX	<0.300	0.300	06/19/2018	ND					
Surrogate: 4-Bromofluorobenzene (PID	105	% 69.8-14	2						
Chloride, SM4500Cl-B	mg/	/kg	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	16.0	16.0	06/12/2018	ND	432	108	400	3.64	
TPH 8015M	mg/	/kg	Analyze	d By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/19/2018	ND	175	87.7	200	3.59	
DRO >C10-C28*	<10.0	10.0	06/19/2018	ND	168	83.8	200	4.94	
EXT DRO >C28-C36	<10.0	10.0	06/19/2018	ND					
Surrogate: 1-Chlorooctane	66.0	% 41-142	,						
Surrogate: 1-Chlorooctadecane	55.3	% 37.6-14	7						

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Received:	06/08/2018	Sampling Date:	06/07/2018
Reported:	06/20/2018	Sampling Type:	Soil
Project Name:	SLICK MESA	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NONE GIVEN		

### Sample ID: BH05 - 2' (H801574-41)

Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	06/12/2018	ND	432	108	400	3.64	

### Sample ID: BH05 - 3' (H801574-42)

Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	06/12/2018	ND	432	108	400	3.64	

### Sample ID: BH05 - 4' (H801574-43)

Chloride, SM4500Cl-B	mg	/kg	Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	06/12/2018	ND	432	108	400	3.64	

### Sample ID: BH05 - 6' (H801574-44)

Chloride, SM4500CI-B	mg	/kg	Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	16.0	16.0	06/12/2018	ND	432	108	400	3.64	

### Sample ID: BH05 - 9' (H801574-45)

Chloride, SM4500Cl-B	mg/	/kg	Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	16.0	16.0	06/12/2018	ND	432	108	400	3.64	

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RX-SOIL INC. JACE CARAWAY 201 MAIN STREET, SUITE 1360 FORT WORTH TX, 76102 Fax To: NA

Received:	06/08/2018	Sampling Date:	06/07/2018
Reported:	06/20/2018	Sampling Type:	Soil
Project Name:	SLICK MESA	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NONE GIVEN		

### Sample ID: BH05 - 14' (H801574-46)

Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	06/12/2018	ND	400	100	400	3.92	

### Sample ID: BH06 - 1' (H801574-47)

Chloride, SM4500Cl-B	mg,	/kg	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	432	16.0	06/12/2018	ND	400	100	400	3.92	

### Sample ID: BH06 - 2' (H801574-48)

Chloride, SM4500Cl-B	mg	/kg	Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1300	16.0	06/12/2018	ND	400	100	400	3.92	

### Sample ID: BH06 - 3' (H801574-49)

Chloride, SM4500Cl-B	mg,	/kg	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2040	16.0	06/12/2018	ND	400	100	400	3.92	

### Sample ID: BH06 - 4' (H801574-50)

Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	06/12/2018	ND	400	100	400	3.92	

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RX-SOIL INC. JACE CARAWAY 201 MAIN STREET, SUITE 1360 FORT WORTH TX, 76102 Fax To: NA

08/2018	Sampling Date:	06/07/2018
20/2018	Sampling Type:	Soil
CK MESA	Sampling Condition:	Cool & Intact
NE GIVEN	Sample Received By:	Tamara Oldaker
NE GIVEN		
	20/2018 CK MESA NE GIVEN	20/2018     Sampling Type:       CK MESA     Sampling Condition:       NE GIVEN     Sample Received By:

### Sample ID: BH06 - 6' (H801574-51)

Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	16.0	16.0	06/12/2018	ND	400	100	400	3.92	

### Sample ID: BH06 - 11' (H801574-52)

Chloride, SM4500Cl-B	mg,	/kg	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	06/12/2018	ND	400	100	400	3.92	

### Sample ID: BH06 - 14' (H801574-53)

Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	16.0	16.0	06/12/2018	ND	400	100	400	3.92	

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### **Notes and Definitions**

QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
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 SM4500CI-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

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### **APPENDIX C.3**

### **DELINEATION REPORT**

### **DELINEATION DIGITAL FIELD NOTES**

### RXSOL

### Form Information

Form Name: Submitter Name: Submission Date: Server Receive Date: Reference Number: Location:

### **RXSoil Field Test**

Jacob Mickle (jacob.mickle@rxsoil.solutions) Jun 7, 2018 10:29:17 PM MDT Jun 7, 2018 10:29:26 PM MDT 20180608-1880309853 2708 Scenic Dr, Hobbs, NM 88240, USA Jun 7, 2018 10:06:26 PM MDT [<u>View Map</u>]

### **Project Overview**

Client Name Project Name Type of Form Date/Time RXSoil Sampler

### Sample 1

Type of Field Test Method of Testing Name of Sample Point Method of Sample Collecting Depth (inches) Comments Travelers Insurance Slick Mesa Field Test Jun 7, 2018 1:06:08 PM MDT Jacob Mickle

### Soil

Sample to Lab BH01-1' DRILL RIG 12" FIELD TEST: CHLORIDES (1:4) LOW: -HIGH: 5.6 = 5,164 PPM

Picture of Result or Sample Taken



Lab Name sample location

Team Leader Signature

Cardinal Labs Unnamed Road, Eunice, NM 88231, USA Jun 7, 2018 3:20:18 PM MDT [<u>View Map</u>]



### Sample 2

Type of Field Test Method of Testing Name of Sample Point Method of Sample Collecting Depth (inches) Comments

### Picture of Result or Sample Taken



Lab Name sample location

Team Leader Signature

Cardinal Labs Unnamed Road, Eunice, NM 88231, USA Jun 7, 2018 3:20:21 PM MDT [<u>View Map</u>]

Sample 3

Type of Field Test Method of Testing Name of Sample Point Soil Sample to Lab BH01-3'

Soil

24"

BH01-2'

LOW: -

DRILL RIG

Sample to Lab

FIELD TEST: CHLORIDES (1:4)

HIGH: 2.4 = 1,272 PPM

Method of Sample Collecting Depth (inches) Comments DRILL RIG 36" FIELD TEST: CHLORIDES (1:4) LOW: -HIGH: 3.0 = 1,732 PPM

### Picture of Result or Sample Taken



Lab Name sample location

Team Leader Signature

Sample 4

Type of Field Test Method of Testing Name of Sample Point Method of Sample Collecting Depth (inches) Comments

Picture of Result or Sample Taken

Cardinal Labs Unnamed Road, Eunice, NM 88231, USA Jun 7, 2018 3:20:25 PM MDT [<u>View Map</u>]

Soil Sample to Lab BH01-4' DRILL RIG 48" FIELD TEST: CHLORIDES (1:4) LOW: -HIGH: 3.0 = 1,732 PPM



Lab Name sample location

Team Leader Signature

Cardinal Labs Unnamed Road, Eunice, NM 88231, USA

Jun 7, 2018 3:20:29 PM MDT [<u>View Map</u>]



### Sample 5

Type of Field Test Method of Testing Name of Sample Point Method of Sample Collecting Depth (inches) Comments

### Picture of Result or Sample Taken



Soil Sample to Lab BH01-6' DRILL RIG 6' FIELD TEST: CHLORIDES (1:4) LOW: -HIGH: 2.6 = 1,416 PPM

Lab Name sample location

Cardinal Labs Unnamed Road, Eunice, NM 88231, USA Jun 7, 2018 3:20:33 PM MDT [<u>View Map</u>]

### Team Leader Signature



### Sample 6

Type of Field Test Method of Testing Name of Sample Point Method of Sample Collecting Depth (inches) Comments

### Picture of Result or Sample Taken

# pHol-9

Lab Name sample location

Team Leader Signature

Sample 7

Type of Field Test Method of Testing Cardinal Labs Unnamed Road, Eunice, NM 88231, USA Jun 7, 2018 3:20:36 PM MDT [ View Map ]

Soil Sample to Lab

Soil

9'

BH01-9'

LOW: -

**DRILL RIG** 

Sample to Lab

FIELD TEST: CHLORIDES (1:4)

HIGH: 2.2 = 1,136 PPM

Name of Sample Point Method of Sample Collecting Depth (inches) Comments BH01-14' DRILL RIG 14' FIELD TEST: CHLORIDES (1:4) LOW: 4.2 = 612 PPM HIGH: -

Picture of Result or Sample Taken



Lab Name sample location

Team Leader Signature

### Sample 8

Type of Field Test Method of Testing Name of Sample Point Method of Sample Collecting Depth (inches) Comments

Picture of Result or Sample Taken

Cardinal Labs Unnamed Road, Eunice, NM 88231, USA Jun 7, 2018 3:20:40 PM MDT [<u>View Map</u>]

Soil Sample to Lab BH01-19' DRILL RIG 19' FIELD TEST: CHLORIDES (1:4) LOW: 3.0 = 392 PPM HIGH: -



Lab Name sample location

Team Leader Signature

Cardinal Labs

Unnamed Road, Eunice, NM 88231, USA Jun 7, 2018 3:20:44 PM MDT [<u>View Map</u>]



### Sample 9

Type of Field Test Method of Testing Name of Sample Point Method of Sample Collecting Depth (inches) Comments

Picture of Result or Sample Taken



Lab Name sample location

Soil Sample to Lab BH01-24' DRILL RIG 24' FIELD TEST: CHLORIDES (1:4) LOW: 2.4 = 288 PPM HIGH: -

Cardinal Labs Unnamed Road, Eunice, NM 88231, USA Jun 7, 2018 3:20:47 PM MDT [<u>View Map</u>]

### Team Leader Signature



### Sample 10

Type of Field Test Method of Testing Name of Sample Point Method of Sample Collecting Depth (inches) Comments

### Picture of Result or Sample Taken

# Pierce une con recourt of ocample Taken

Lab Name sample location

Team Leader Signature

Sample 11

Type of Field Test Method of Testing Soil Sample to Lab BH01-29' DRILL RIG 29' FIELD TEST: CHLORIDES (1:4) LOW: 2.0 = 228 PPM HIGH: -

Cardinal Labs Unnamed Road, Eunice, NM 88231, USA Jun 7, 2018 3:20:51 PM MDT [<u>View Map</u>]

Soil Sample to Lab Name of Sample Point Method of Sample Collecting Depth (inches) Comments BH01-34' DRILL RIG 34' FIELD TEST: CHLORIDES (1:4) LOW: 1.6 = 176 PPM HIGH: -

Picture of Result or Sample Taken



Lab Name sample location

Team Leader Signature

Sample 12

Type of Field Test Method of Testing Name of Sample Point Method of Sample Collecting Depth (inches) Comments

Picture of Result or Sample Taken

Cardinal Labs Unnamed Road, Eunice, NM 88231, USA Jun 7, 2018 3:20:55 PM MDT [<u>View Map</u>]

Soil Sample to Lab BH01-39' DRILL RIG 39' FIELD TEST: CHLORIDES (1:4) LOW: 2.0 = 228 PPM HIGH: -



Lab Name sample location

Team Leader Signature

Cardinal Labs

Unnamed Road, Eunice, NM 88231, USA Jun 7, 2018 3:21:00 PM MDT [ View Map ]

### RXSOL

### Form Information

Form Name: Submitter Name: Submission Date: Server Receive Date: Reference Number: Location:

### **RXSoil Field Test**

Jacob Mickle (jacob.mickle@rxsoil.solutions) Jun 7, 2018 10:29:35 PM MDT Jun 7, 2018 10:29:42 PM MDT 20180608-1880309857 2708 Scenic Dr, Hobbs, NM 88240, USA Jun 7, 2018 10:06:26 PM MDT [<u>View Map</u>]

### Project Overview

Client Name Project Name Type of Form Date/Time RXSoil Sampler

### Sample 1

Type of Field Test Method of Testing Name of Sample Point Method of Sample Collecting Depth (inches) Comments Travelers Insurance Slick Mesa Field Test Jun 7, 2018 2:41:27 PM MDT Jacob Mickle

### Soil

Sample to Lab BH02-1' DRILL RIG 12" FIELD TEST: CHLORIDES (1:4) LOW: -HIGH: 5.4 = 4,768 PPM

### Picture of Result or Sample Taken



Lab Name sample location

Team Leader Signature

Cardinal Labs Unnamed Road, Eunice, NM 88231, USA Jun 7, 2018 3:22:02 PM MDT [<u>View Map</u>]



### Sample 2

Type of Field Test Method of Testing Name of Sample Point Method of Sample Collecting Depth (inches) Comments

### Picture of Result or Sample Taken



Lab Name sample location

Team Leader Signature

LOW: -HIGH: 5.0 = 4,064 PPM

FIELD TEST: CHLORIDES (1:4)

Sample to Lab

Soil

24"

BH02-2'

DRILL RIG

Cardinal Labs Unnamed Road, Eunice, NM 88231, USA Jun 7, 2018 3:22:05 PM MDT [<u>View Map</u>]

Sample 3

Type of Field Test Method of Testing Name of Sample Point Soil Sample to Lab BH02-3' Method of Sample Collecting Depth (inches) Comments

Picture of Result or Sample Taken



Lab Name sample location

Team Leader Signature

Sample 4

Type of Field Test Method of Testing Name of Sample Point Method of Sample Collecting Depth (inches) Comments

Picture of Result or Sample Taken

DRILL RIG 36" FIELD TEST: CHLORIDES (1:4) LOW: -HIGH: 5.4 = 4,768 PPM

Cardinal Labs Unnamed Road, Eunice, NM 88231, USA Jun 7, 2018 3:22:08 PM MDT [<u>View Map</u>]

Soil Sample to Lab BH02-4' DRILL RIG 48" FIELD TEST: CHLORIDES (1:4) LOW: -HIGH: 4.6 = 3,460 PPM



Lab Name sample location

Team Leader Signature

Cardinal Labs

Unnamed Road, Eunice, NM 88231, USA Jun 7, 2018 3:22:11 PM MDT [ View Map ]



### Sample 5

Type of Field Test Method of Testing Name of Sample Point Method of Sample Collecting Depth (inches) Comments

Picture of Result or Sample Taken



Lab Name sample location

Soil Sample to Lab BH02-4.5' DRILL RIG 4.5' FIELD TEST: CHLORIDES (1:4) LOW: -HIGH: 4.6 = 3,460 PPM

Cardinal Labs Unnamed Road, Eunice, NM 88231, USA Jun 7, 2018 3:22:14 PM MDT [<u>View Map</u>]

### Team Leader Signature

### Sample 6

Type of Field Test Method of Testing Name of Sample Point Method of Sample Collecting Depth (inches) Comments

### Picture of Result or Sample Taken

## (SM

### Soil Sample to Lab BH02-9.5' **DRILL RIG** 9.5' FIELD TEST: CHLORIDES (1:4) LOW: -HIGH: 3.0 = 1,732 PPM



sample location

BHUZ - 9.5

Team Leader Signature

Sample 7

Type of Field Test Method of Testing Cardinal Labs Unnamed Road, Eunice, NM 88231, USA Jun 7, 2018 3:22:17 PM MDT [ View Map ] Name of Sample Point Method of Sample Collecting Depth (inches) Comments

Picture of Result or Sample Taken



Lab Name sample location

Team Leader Signature

### Sample 8

Type of Field Test Method of Testing Name of Sample Point Method of Sample Collecting Depth (inches) Comments

Picture of Result or Sample Taken

BH02-14' DRILL RIG 14' FIELD TEST: CHLORIDES (1:4) LOW: 1.2 = ND HIGH: -

Cardinal Labs Unnamed Road, Eunice, NM 88231, USA Jun 7, 2018 3:22:20 PM MDT [<u>View Map</u>]

Soil Sample to Lab BH02-19.5' DRILL RIG 19.5' FIELD TEST: CHLORIDES (1:4) LOW: 1.8 = 196 PPM HIGH: -



Lab Name sample location

Team Leader Signature

Cardinal Labs

Unnamed Road, Eunice, NM 88231, USA Jun 7, 2018 3:22:23 PM MDT [<u>View Map</u>]



### Sample 9

Type of Field Test Method of Testing Name of Sample Point Method of Sample Collecting Depth (inches) Comments

### Picture of Result or Sample Taken



Lab Name sample location

Soil Sample to Lab BH02-24' DRILL RIG 24' FIELD TEST: CHLORIDES (1:4) LOW: 1.6 = 172 PPM HIGH: -

Cardinal Labs Unnamed Road, Eunice, NM 88231, USA Jun 7, 2018 3:22:26 PM MDT [<u>View Map</u>] Team Leader Signature

M

### RXSOL

### Form Information

Form Name: Submitter Name: Submission Date: Server Receive Date: Reference Number: Location:

### **RXSoil Field Test**

Jacob Mickle (jacob.mickle@rxsoil.solutions) Jun 7, 2018 10:29:44 PM MDT Jun 7, 2018 10:29:52 PM MDT 20180608-1880309858 2708 Scenic Dr, Hobbs, NM 88240, USA Jun 7, 2018 10:06:26 PM MDT [<u>View Map</u>]

### **Project Overview**

Client Name Project Name Type of Form Date/Time RXSoil Sampler

### Sample 1

Type of Field Test Method of Testing Name of Sample Point Method of Sample Collecting Depth (inches) Comments Travelers Insurance Slick Mesa Field Test Jun 7, 2018 2:01:45 PM MDT Jacob Mickle

### Soil

Sample to Lab BH03-1' DRILL RIG 12" FIELD TEST: CHLORIDES (1:4) LOW: -HIGH: 3.2 = 1,904 PPM

### Picture of Result or Sample Taken



Lab Name sample location

Team Leader Signature

Cardinal Labs Unnamed Road, Eunice, NM 88231, USA Jun 7, 2018 3:23:16 PM MDT [<u>View Map</u>]



### Sample 2

Type of Field Test Method of Testing Name of Sample Point Method of Sample Collecting Depth (inches) Comments

### Picture of Result or Sample Taken



Soil Sample to Lab BH03-2' DRILL RIG 24" FIELD TEST: CHLORIDES (1:4) LOW: -

HIGH: 3.2 = 1,904 PPM

Lab Name sample location

Team Leader Signature

Cardinal Labs Unnamed Road, Eunice, NM 88231, USA Jun 7, 2018 3:23:19 PM MDT [<u>View Map</u>]

Sample 3

Type of Field Test Method of Testing Name of Sample Point Soil Sample to Lab BH03-3' Method of Sample Collecting Depth (inches) Comments DRILL RIG 36" FIELD TEST: CHLORIDES (1:4) LOW: 5.0 = 908 PPM HIGH: -

### Picture of Result or Sample Taken



Lab Name sample location

Team Leader Signature

Sample 4

Type of Field Test Method of Testing Name of Sample Point Method of Sample Collecting Depth (inches) Comments

Picture of Result or Sample Taken

Cardinal Labs Unnamed Road, Eunice, NM 88231, USA Jun 7, 2018 3:23:22 PM MDT [<u>View Map</u>]

Soil Sample to Lab BH03-4' DRILL RIG 48" FIELD TEST: CHLORIDES (1:4) LOW: 5.4 = 1,056 PPM HIGH: -



Lab Name sample location

Team Leader Signature

Cardinal Labs

Unnamed Road, Eunice, NM 88231, USA Jun 7, 2018 3:23:25 PM MDT [<u>View Map</u>]



### Sample 5

Type of Field Test Method of Testing Name of Sample Point Method of Sample Collecting Depth (inches) Comments

Picture of Result or Sample Taken



Lab Name sample location

Soil Sample to Lab BH03-6' DRILL RIG 6' FIELD TEST: CHLORIDES (1:4) LOW: -HIGH: 2.4 = 1,272 PPM

Cardinal Labs Unnamed Road, Eunice, NM 88231, USA Jun 7, 2018 3:23:28 PM MDT [<u>View Map</u>]


#### Sample 6

Type of Field Test Method of Testing Name of Sample Point Method of Sample Collecting Depth (inches) Comments

#### Picture of Result or Sample Taken

### Sample to Lab BH03-10' DRILL RIG 10' FIELD TEST: CHLORIDES (1:4) LOW: 4.0 = 612 PPM HIGH: ND

Soil



Lab Name sample location

Team Leader Signature

Sample 7

Type of Field Test Method of Testing Cardinal Labs Unnamed Road, Eunice, NM 88231, USA Jun 7, 2018 3:23:31 PM MDT [<u>View Map</u>]

Picture of Result or Sample Taken



Lab Name sample location

Team Leader Signature

Sample 8

Type of Field Test Method of Testing Name of Sample Point Method of Sample Collecting Depth (inches) Comments

Picture of Result or Sample Taken

BH03-15' DRILL RIG 15' FIELD TEST: CHLORIDES (1:4) LOW: 4.0 = 612 PPM HIGH: -

Cardinal Labs Unnamed Road, Eunice, NM 88231, USA Jun 7, 2018 3:23:34 PM MDT [<u>View Map</u>]

Soil Sample to Lab BH03-19' DRILL RIG 19' FIELD TEST: CHLORIDES (1:4) LOW: 3.0 = 392 PPM HIGH: -



Lab Name sample location

Team Leader Signature

Cardinal Labs

Unnamed Road, Eunice, NM 88231, USA Jun 7, 2018 3:23:37 PM MDT [<u>View Map</u>]



#### Sample 9

Type of Field Test Method of Testing Name of Sample Point Method of Sample Collecting Depth (inches) Comments

Picture of Result or Sample Taken



Lab Name sample location

Soil Sample to Lab BH03-21' DRILL RIG 21' FIELD TEST: CHLORIDES (1:4) LOW: 2.0 = 228 PPM HIGH: -

Cardinal Labs Unnamed Road, Eunice, NM 88231, USA Jun 7, 2018 3:23:40 PM MDT [<u>View Map</u>]



#### Sample 10

Type of Field Test Method of Testing Name of Sample Point Method of Sample Collecting Depth (inches) Comments

#### Picture of Result or Sample Taken

#### BH03-2C BH03-2

Lab Name sample location

Team Leader Signature

Sample 11

Type of Field Test Method of Testing Sample to Lab BH03-26' DRILL RIG 26' FIELD TEST: CHLORIDES (1:4) LOW: 1.2 = ND HIGH: -

Soil

Cardinal Labs Unnamed Road, Eunice, NM 88231, USA Jun 7, 2018 3:23:47 PM MDT [<u>View Map</u>]

Soil Sample to Lab

Picture of Result or Sample Taken



Lab Name sample location

Team Leader Signature

BH03-31' DRILL RIG 31' FIELD TEST: CHLORIDES (1:4) LOW: 0.8 = ND HIGH:

Cardinal Labs Unnamed Road, Eunice, NM 88231, USA Jun 7, 2018 3:23:51 PM MDT [<u>View Map</u>]

# RXSOL

#### Form Information

Form Name: Submitter Name: Submission Date: Server Receive Date: Reference Number: Location:

#### **RXSoil Field Test**

Jacob Mickle (jacob.mickle@rxsoil.solutions) Jun 7, 2018 10:30:13 PM MDT Jun 7, 2018 10:30:21 PM MDT 20180608-1880309859 2708 Scenic Dr, Hobbs, NM 88240, USA Jun 7, 2018 10:06:26 PM MDT [<u>View Map</u>]

#### **Project Overview**

Client Name Project Name Type of Form Date/Time RXSoil Sampler

#### Sample 1

Type of Field Test Method of Testing Name of Sample Point Method of Sample Collecting Depth (inches) Comments Travelers Insurance Slick Mesa Field Test Jun 7, 2018 2:56:23 PM MDT Jacob Mickle

#### Soil

Sample to Lab BH04-1' DRILL RIG 12" FIELD TEST: CHLORIDES (1:4) LOW: 2.0 = 228 PPM HIGH: -

#### Picture of Result or Sample Taken



Lab Name sample location

Team Leader Signature

Cardinal Labs Unnamed Road, Eunice, NM 88231, USA Jun 7, 2018 3:25:18 PM MDT [<u>View Map</u>]



#### Sample 2

Type of Field Test Method of Testing Name of Sample Point Method of Sample Collecting Depth (inches) Comments

#### Picture of Result or Sample Taken



Lab Name sample location

Team Leader Signature

Cardinal Labs Unnamed Road, Eunice, NM 88231, USA Jun 7, 2018 3:25:21 PM MDT [<u>View Map</u>]

Sample 3

Type of Field Test Method of Testing Name of Sample Point Soil Sample to Lab BH04-3'

Soil

24"

BH04-2'

HIGH: -

DRILL RIG

Sample to Lab

FIELD TEST: CHLORIDES (1:4)

LOW: 1.8 = 196 PPM

Method of Sample Collecting Depth (inches) Comments

Picture of Result or Sample Taken



Lab Name sample location

Team Leader Signature

Cardinal Labs Unnamed Road, Eunice, NM 88231, USA Jun 7, 2018 3:25:24 PM MDT [ <u>View Map</u> ]

**DRILL RIG** 

FIELD TEST: CHLORIDES (1:4)

LOW: 2.0 = 228 PPM

36"

HIGH: -

Sample 4

Type of Field Test Method of Testing Name of Sample Point Method of Sample Collecting Depth (inches) Comments

Picture of Result or Sample Taken

Soil Sample to Lab BH04-4' DRILL RIG 48" FIELD TEST: CHLORIDES (1:4) LOW: 3.4 = 472 PPM HIGH: -



Lab Name sample location

Team Leader Signature

Cardinal Labs

Unnamed Road, Eunice, NM 88231, USA Jun 7, 2018 3:25:27 PM MDT [ View Map ]



#### Sample 5

Type of Field Test Method of Testing Name of Sample Point Method of Sample Collecting Depth (inches) Comments

Picture of Result or Sample Taken



Lab Name sample location

Soil Sample to Lab BH04-6' DRILL RIG 6' FIELD TEST: CHLORIDES (1:4) LOW: 1.0 = ND HIGH: -

Cardinal Labs Unnamed Road, Eunice, NM 88231, USA Jun 7, 2018 3:25:34 PM MDT [<u>View Map</u>]



#### Sample 6

Type of Field Test Method of Testing Name of Sample Point Method of Sample Collecting Depth (inches) Comments

#### Picture of Result or Sample Taken

#### Soil Sample to Lab BH04-11' DRILL RIG 11' FIELD TEST: CHLORIDES (1:4) LOW: 0.8 = ND HIGH: -



Lab Name sample location

Team Leader Signature

Cardinal Labs Unnamed Road, Eunice, NM 88231, USA Jun 7, 2018 3:25:37 PM MDT [<u>View Map</u>]

Sample 7

Type of Field Test Method of Testing Soil Sample to Lab

Picture of Result or Sample Taken



Lab Name sample location

Team Leader Signature

BH04-16' DRILL RIG 16' FIELD TEST: CHLORIDES (1:4) LOW: 0.8 = ND HIGH: -

Cardinal Labs Unnamed Road, Eunice, NM 88231, USA Jun 7, 2018 3:25:41 PM MDT [<u>View Map</u>]

# RXSOL

#### Form Information

Form Name: Submitter Name: Submission Date: Server Receive Date: Reference Number: Location:

#### **RXSoil Field Test**

Jacob Mickle (jacob.mickle@rxsoil.solutions) Jun 7, 2018 10:30:25 PM MDT Jun 7, 2018 10:30:33 PM MDT 20180608-1880309862 2708 Scenic Dr, Hobbs, NM 88240, USA Jun 7, 2018 10:06:26 PM MDT [<u>View Map</u>]

#### **Project Overview**

Client Name Project Name Type of Form Date/Time RXSoil Sampler

#### Sample 1

Type of Field Test Method of Testing Name of Sample Point Method of Sample Collecting Depth (inches) Comments Travelers Insurance Slick Mesa Field Test Jun 7, 2018 5:40:00 PM MDT Jacob Mickle

#### Soil

Sample to Lab BH05-1' DRILL RIG 12" FIELD TEST: CHLORIDES (1:4) LOW: 1.0 = ND HIGH: -

#### Picture of Result or Sample Taken



Lab Name sample location

Team Leader Signature

Cardinal Labs Unnamed Road, Eunice, NM 88231, USA Jun 7, 2018 6:06:40 PM MDT [<u>View Map</u>]



#### Sample 2

Type of Field Test Method of Testing Name of Sample Point Method of Sample Collecting Depth (inches) Comments

#### Picture of Result or Sample Taken



Soil Sample

Sample to Lab BH05-2' DRILL RIG 24" FIELD TEST: CHLORIDES (1:4) LOW: 1.0 = ND HIGH: -

Lab Name sample location

Team Leader Signature



Cardinal Labs Unnamed Road, Eunice, NM 88231, USA Jun 7, 2018 6:06:45 PM MDT [<u>View Map</u>]

Sample 3

Type of Field Test Method of Testing Name of Sample Point Soil Sample to Lab BH05-3' Method of Sample Collecting Depth (inches) Comments DRILL RIG 36" FIELD TEST: CHLORIDES (1:4) LOW: 1.6 = 120 HIGH: -

#### Picture of Result or Sample Taken



Lab Name sample location

Team Leader Signature

Sample 4

Type of Field Test Method of Testing Name of Sample Point Method of Sample Collecting Depth (inches) Comments

Picture of Result or Sample Taken

Cardinal Labs Unnamed Road, Eunice, NM 88231, USA Jun 7, 2018 6:06:48 PM MDT [<u>View Map</u>]

Soil Sample to Lab BH05-4' DRILL RIG 48" FIELD TEST: CHLORIDES (1:4) LOW: 0.8 = ND HIGH: -



Lab Name sample location

Team Leader Signature

Cardinal Labs

Unnamed Road, Eunice, NM 88231, USA Jun 7, 2018 6:06:51 PM MDT [<u>View Map</u>]



#### Sample 5

Type of Field Test Method of Testing Name of Sample Point Method of Sample Collecting Depth (inches) Comments

Picture of Result or Sample Taken



Lab Name sample location

Soil Sample to Lab BH05-6' DRILL RIG 6' FIELD TEST: CHLORIDES (1:4) LOW: 0.8 = ND HIGH: -

Cardinal Labs Unnamed Road, Eunice, NM 88231, USA Jun 7, 2018 6:06:54 PM MDT [<u>View Map</u>]



#### Sample 6

Type of Field Test Method of Testing Name of Sample Point Method of Sample Collecting Depth (inches) Comments

#### Picture of Result or Sample Taken

### Soil Sample to Lab BH05-9' DRILL RIG 9' FIELD TEST: CHLORIDES (1:4) LOW: 0.8 = ND HIGH: -



Lab Name sample location

Team Leader Signature

Sample 7

Type of Field Test Method of Testing Cardinal Labs Unnamed Road, Eunice, NM 88231, USA Jun 7, 2018 6:06:57 PM MDT [<u>View Map</u>]

Picture of Result or Sample Taken



Lab Name sample location

Team Leader Signature

BH05-14' DRILL RIG 14' FIELD TEST: CHLORIDES (1:4) LOW: 1.0 = ND HIGH: -

DRILL RIG Unnamed Road, Eunice, NM 88231, USA Jun 7, 2018 6:07:02 PM MDT [<u>View Map</u>]

# RXSOL

#### Form Information

Form Name: Submitter Name: Submission Date: Server Receive Date: Reference Number: Location:

#### **RXSoil Field Test**

Jacob Mickle (jacob.mickle@rxsoil.solutions) Jun 7, 2018 10:30:39 PM MDT Jun 7, 2018 10:30:46 PM MDT 20180608-1880309863 2708 Scenic Dr, Hobbs, NM 88240, USA Jun 7, 2018 10:06:26 PM MDT [<u>View Map</u>]

#### **Project Overview**

Client Name Project Name Type of Form Date/Time RXSoil Sampler

#### Sample 1

Type of Field Test Method of Testing Name of Sample Point Method of Sample Collecting Depth (inches) Comments Travelers Insurance Slick Mesa Field Test Jun 7, 2018 7:18:27 PM MDT Jacob Mickle

#### Soil

Sample to Lab BH06-1' DRILL RIG 12" FIELD TEST: CHLORIDES (1:4) LOW: 4.0 = 556 PPM HIGH: -

#### Picture of Result or Sample Taken



Lab Name sample location

Team Leader Signature

Cardinal Labs Unnamed Road, Eunice, NM 88231, USA Jun 7, 2018 7:18:45 PM MDT [<u>View Map</u>]



#### Sample 2

Type of Field Test Method of Testing Name of Sample Point Method of Sample Collecting Depth (inches) Comments

#### Picture of Result or Sample Taken



Lab Name sample location

Team Leader Signature

Cardinal Labs Unnamed Road, Eunice, NM 88231, USA Jun 7, 2018 7:18:48 PM MDT [<u>View Map</u>]

Sample 3

Type of Field Test Method of Testing Name of Sample Point Soil Sample to Lab BH06-3'

Soil

24"

BH06-2'

HIGH: -

DRILL RIG

Sample to Lab

FIELD TEST: CHLORIDES (1:4)

LOW: 6.4 = 1,360 PPM

Method of Sample Collecting Depth (inches) Comments

Picture of Result or Sample Taken

BHOGE - 3' BHOGE - 3'

Lab Name sample location

Team Leader Signature

Sample 4

Type of Field Test Method of Testing Name of Sample Point Method of Sample Collecting Depth (inches) Comments

Picture of Result or Sample Taken

DRILL RIG 36" FIELD TEST: CHLORIDES (1:4) LOW: 6.8 = 1,552 PPM HIGH: -

Cardinal Labs Unnamed Road, Eunice, NM 88231, USA Jun 7, 2018 7:18:51 PM MDT [<u>View Map</u>]

Soil Sample to Lab BH06-4' DRILL RIG 48" FIELD TEST: CHLORIDES (1:4) LOW: 1.0 = ND HIGH: -



Lab Name sample location

Team Leader Signature

Cardinal Labs

Unnamed Road, Eunice, NM 88231, USA Jun 7, 2018 7:18:54 PM MDT [<u>View Map</u>]



#### Sample 5

Type of Field Test Method of Testing Name of Sample Point Method of Sample Collecting Depth (inches) Comments

Picture of Result or Sample Taken



Lab Name sample location

Soil Sample to Lab BH06-6' DRILL RIG 6' FIELD TEST: CHLORIDES (1:4) LOW: 0.8 = ND HIGH: -

Cardinal Labs Unnamed Road, Eunice, NM 88231, USA Jun 7, 2018 7:18:57 PM MDT [<u>View Map</u>]

#### Sample 6

Type of Field Test Method of Testing Name of Sample Point Method of Sample Collecting Depth (inches) Comments

#### Picture of Result or Sample Taken

#### Soil Sample to Lab BH06-11' DRILL RIG 11' FIELD TEST: CHLORIDES (1:4) LOW: 0.8 = ND HIGH: -



Lab Name sample location

Team Leader Signature

Sample 7

Type of Field Test Method of Testing Cardinal Labs Unnamed Road, Eunice, NM 88231, USA Jun 7, 2018 7:19:05 PM MDT [<u>View Map</u>]

Picture of Result or Sample Taken



Lab Name sample location

Team Leader Signature

M

BH06-14' DRILL RIG 14' FIELD TEST: CHLORIDES (1:4) LOW: 0.8 = ND HIGH: -

Cardinal Labs Unnamed Road, Eunice, NM 88231, USA Jun 7, 2018 7:19:08 PM MDT [<u>View Map</u>] **APPENDIX D** 

## **DELINEATION REPORT**

### SITE PICTURES



Figure 1: This drone image was captured from the east of the spill area (06/04/2018).



Figure 2: Image taken from east side of the spill area (06/05/18)



Figure 3: The spoon used for vertical delineation is shown (06/05/18).