APPROVED
By Olivia Yu at 3:03 pm, Jun 11, 2018

May 30, 2018

NMOCD approves of the proposed remediation plan for 1RP-4723.

Olivia Yu

NMOCD District 1

1625 N. French Drive

Hobbs, New Mexico 88240

Re: Work Plan

Pogo – East Caprock SWD No. 005

NMOCD Reference #'s: 1RP-4723

Ms. Olivia Yu:

RXSoil, Inc. is pleased to submit the work plan summarizing the on-site remediation of produced water impacted soil at the East Caprock SWD No. 005 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

Table of Contents

Figures

Appendix

I. Introduction

On behalf of Pogo Resources, LLC ("Pogo"), RXSoil, Inc. ("RXSoil") has prepared this work plan that describes the assessment and action plan for remediation of the release of 1RP-4723 at the East Caprock SWD #005 site with API #30-025-40335.

The site is located in Unit Letter "B", Section 14, Township 12S, Range 32E (see *Figure 1* for Vicinity Map). The Release Notification and Corrective Action document (C-141, *Appendix A*), approved June 15, 2017, indicates a poly injection line parted at a valve near the well on June 11, causing a produced water release. It was reported that 1,700 barrels of produced water were released, and 1,020 barrels were recovered during the initial response. This was reported to have affected approximately 33,928 square feet on location and approximately 90,000 square feet east of location.

II. Regulatory Guidelines

Larson & Associates, Inc. ("Larson") reported no groundwater observed in all deep borings (SB-1, SB-10, SB-12 and SB-14) at approximately 50 feet below ground surface ("bgs"). The New Mexico Office of the State Engineer Water Column/Average Depth to Water lists the depth to water of wells in the range to be between 35 feet and 85 feet (See *Appendix B*). This information together results in a Depth to Ground Water score of 10.

The spill is within 1,000 feet but greater than 200 feet from surface water. *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, but a Google Earth image shows a playa lake approximately 700 feet from the eastern edge of the spill. The total ranking score for this site's threat to public health, ground water and environmental therefore is 20.

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

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), **100** 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 BTEX (Method 8260 or 8021), TPH (Method 8015 extended range) and chlorides (Method 300) where appropriate. The results will be included in the closure report along with chain of custody and quality control.

III. Delineation Report

An initial delineation was performed by Larson on August 30, 2017. OCD requested further delineation on October 31, 2017. This request was fulfilled on January 3, 2018.

The full report confirmed chlorides below 600 mg/kg in a sufficient number of borings plus an additional five (5) feet below 600 mg/kg chlorides. This is attached as *Appendix C*.

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 two in-ground treatment cells adjacent to the contaminated area, staying no less than 1000' away from any water bodies (specifically the playa lake southeast of the spill area). Once the final location of the treatment cells has been field verified, District 1 will be notified. These cells 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 cells are planned to cover an area of 150' by 300' each. 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 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 to be tested for TPH/BTEX will be carefully transferred directly to glass jars. Samples to be tested for chlorides 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. Samples to be tested for TPH or BTEX will be transferred within 48 hours (per ASTM *Standard Guide for Sampling Waste and Soils for Volatile Organic Compounds*) while samples to be tested for chlorides will be transferred to be tested within 28 days (as recommended in the EPA Method 300.0 handbook).

To prevent cross-contamination of TPH, RXBiotics (RXSoil's bioremediation solution) will be topically applied to the areas determined to be above threshold of TPH. These areas are **S-1**, **S-3** and **S-5**. Following this treatment, samples will be sent to a third-party laboratory with one sample representing no more than 50 cubic yards of material. Once confirmed below threshold, this material

then may be added to the treatment cells where treatment for the produced water contamination will take place.

The affected material (as reported by Larson) will be excavated and placed into the RXSoil treatment cells. For safety concerns, no excavation will occur within 10' of the disposal well in the center of the pad. 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 Method 300.0 chloride tests) that all affected material has been excavated. Excavation will continue until all sidewall samples are below 600 ppm chlorides.

Based on the delineation table produced by Larson (map *Figure* 3, data *Appendix C*), there is evidence that the areas surrounding the following sample points must be excavated to at least the following depths to reach clean material:

S-1 (SB-1): 4'	**S-5**: 4'	**S-9**: Surface	**S-13 (SB-9)**: Surface
S-2: 4'	**S-6 (SB-2) (SB-12)**: 4'	**S-10(SB-5)(SB-13)**: 2'	**S-14 (SB-7)**: >1'
S-3 (SB-11): 4'	**S-7 (SB-4)**: 2'	**S-11 (SB-6)**: >3'	
S-4: 4'	**S-8 (SB-3)**: N/A	**S-12 (SB-8)**: 2'	

The above depths will be used as guidelines for excavation, while the bottom samples will be used for confirmation.

Throughout excavation one bottom sample will be taken in the vicinity of each sample point labeled **S-*X*** 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 in case a second laboratory test is required. 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

utilizing EPA Method 300.0. 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 300' by 4' depth each. This cell would hold 6,667 cubic yards, requiring no fewer than 134 samples per cell (6,667 cubic yards * 1 sample per 50 cubic yards). The planned sample grid will be an evenly spaced grid of 17 columns by 8 rows (136 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 5*, representing the sampling plan for one cell. A cross section view of the sampling can be seen in *Figure* 6.

Based on this cell size, 136 samples will be taken with 68 duplicates being sent to a third-party laboratory for EPA Method 300.0 testing. If the data indicates that there is sufficient correlation of precision between the lab analysis and field screenings, the lab analysis of samples can be reduced from 50% of all samples to 25% of all samples. This reduction will only take place with written approval from District 1 after review and analysis of the data from the first cell. Field screenings will continue to represent no more than 50 cubic yards unless District 1 determines that density of samples is not required. All samples that are collected 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 three five-point composite samples (one from each remedial 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 or reclamation specialist so that proper soil amendments can be determined to provide for the landowner approved vegetative cover. The amendments and seed will be applied in the following growing season.

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

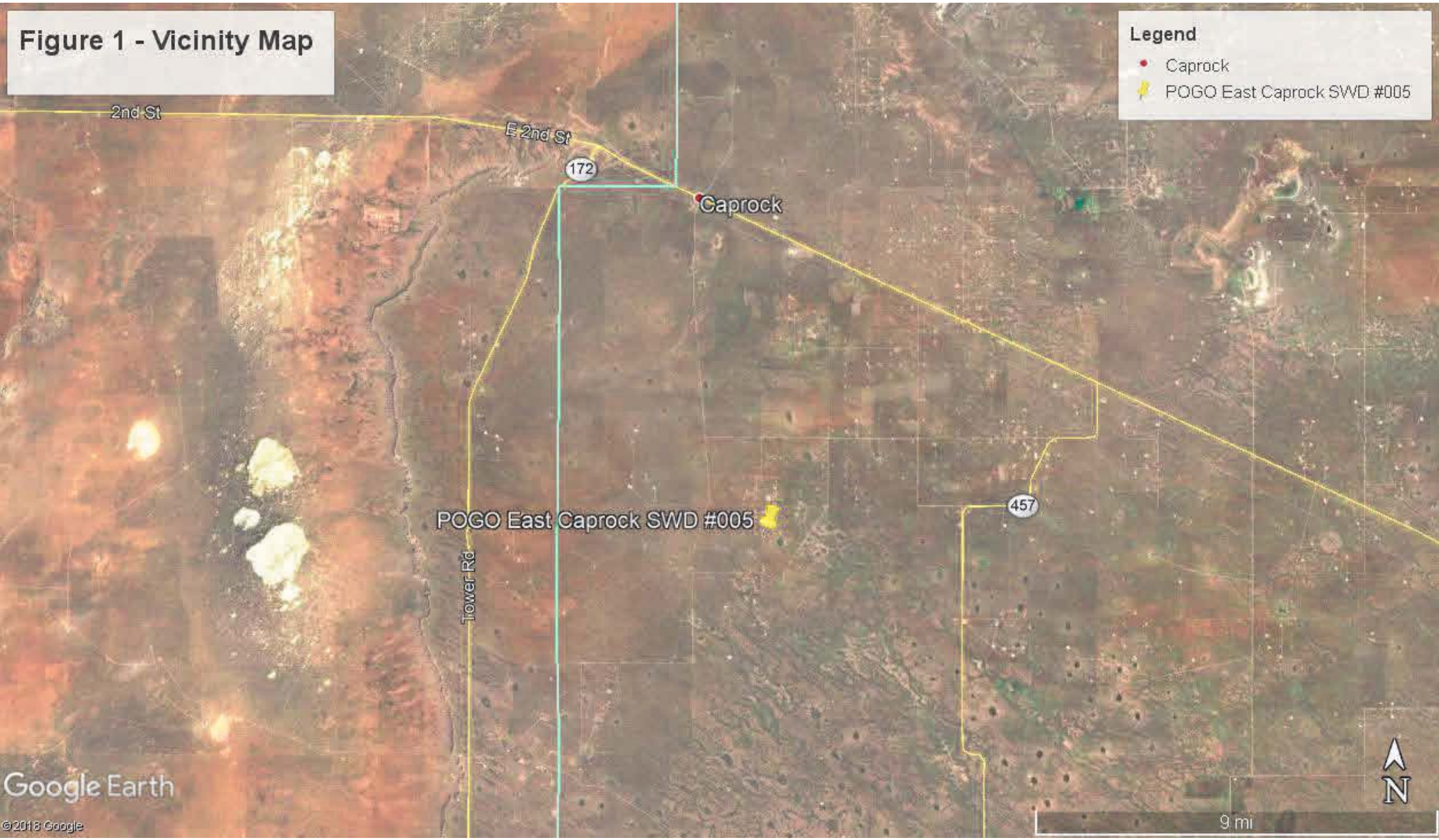
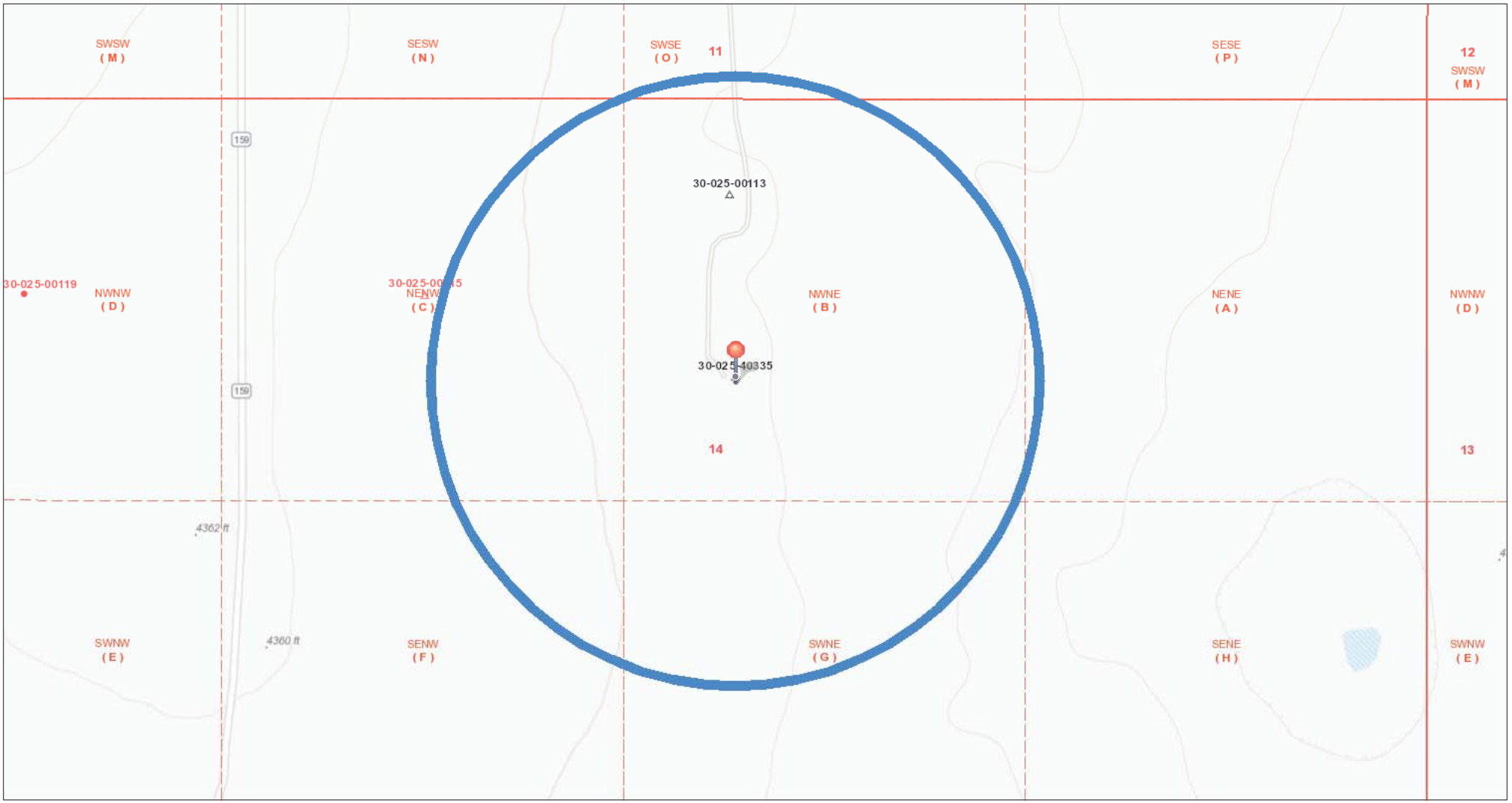


Figure 1 - Vicinity Map
Legend
Caprock
POGO East Caprock SWD #005
2nd St
E 2nd St
172
Caprock
POGO East Caprock SWD #005
Tower Rd
457
Google Earth
©2018 Google
N
9 mi

Figure 2 - Hydrology Map



2/16/2018, 1:22:25 PM

1:4,514

0 0.0425 0.085 0.17 mi

0 0.075 0.15 0.3 km

Points

East Caprock SWD 5

Areas

Override 1

Well Locations - Large Scale

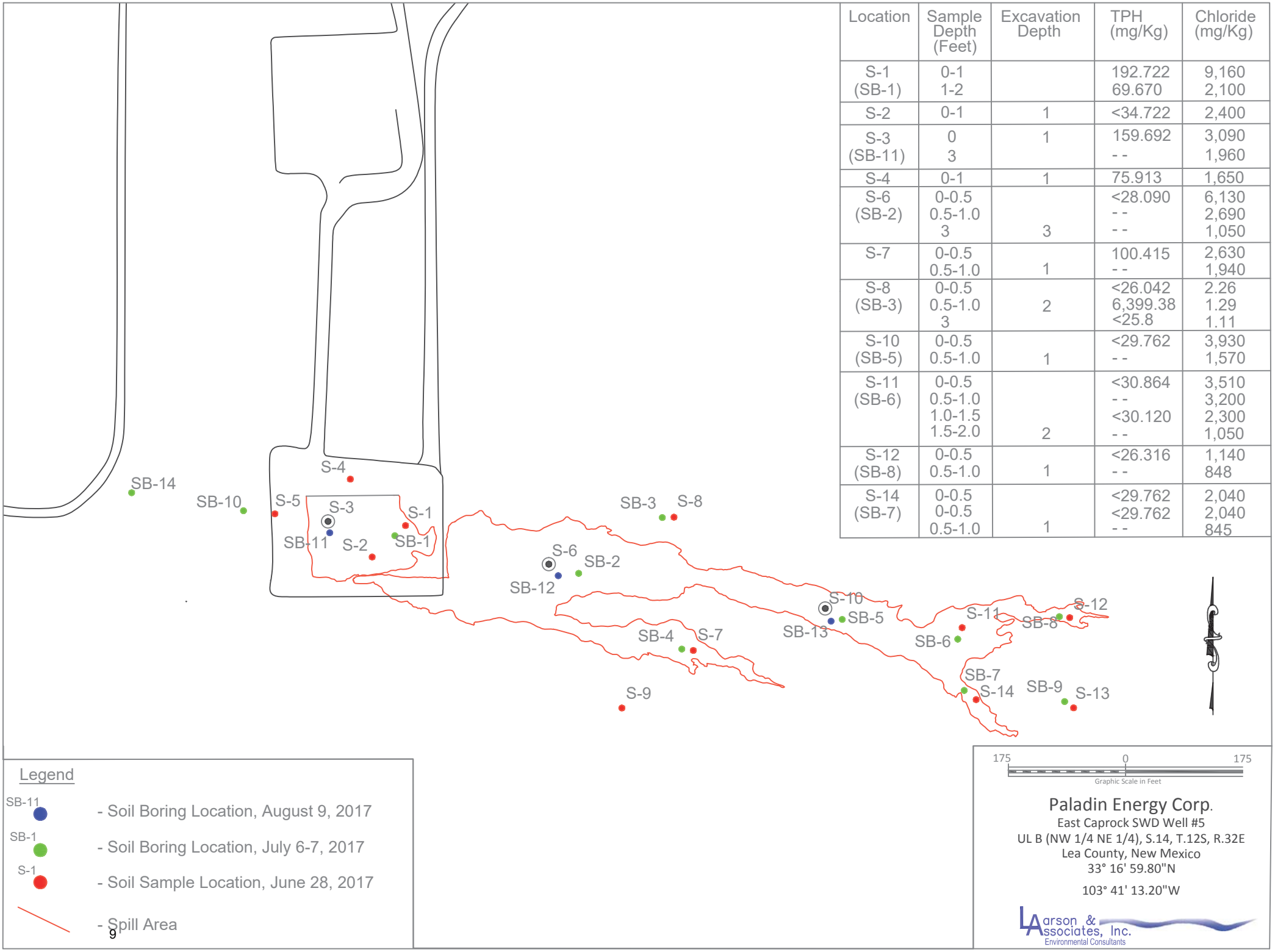
Miscellaneous

CO2 Active

Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS

New Mexico Oil Conservation Division

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



Location	Sample Depth (Feet)	Excavation Depth	TPH (mg/Kg)	Chloride (mg/Kg)
S-1	0-1		192.722	9,160
(SB-1)	1-2		69.670	2,100
S-2	0-1	1	<34.722	2,400
S-3	0	1	159.692	3,090
(SB-11)	3		- -	1,960
S-4	0-1	1	75.913	1,650
S-6	0-0.5		<28.090	6,130
(SB-2)	0.5-1.0		- -	2,690
	3	3	- -	1,050
S-7	0-0.5		100.415	2,630
	0.5-1.0	1	- -	1,940
S-8	0-0.5		<26.042	2.26
(SB-3)	0.5-1.0	2	6,399.38	1.29
	3		<25.8	1.11
S-10	0-0.5		<29.762	3,930
(SB-5)	0.5-1.0	1	- -	1,570
S-11	0-0.5		<30.864	3,510
(SB-6)	0.5-1.0		- -	3,200
	1.0-1.5		<30.120	2,300
	1.5-2.0	2	- -	1,050
S-12	0-0.5		<26.316	1,140
(SB-8)	0.5-1.0	1	- -	848
S-14	0-0.5		<29.762	2,040
(SB-7)	0-0.5		<29.762	2,040
	0.5-1.0	1	- -	845

Figure 3 - Site Map Showing Soil Sample and Boring Locations


Figure 4. Treatment Cells Map
Legend
1000' Path from Playa Lake
Playa Lake
Rough Outline of Spill
Treatment Cells
Google Earth
©2018 Google
N
500 ft

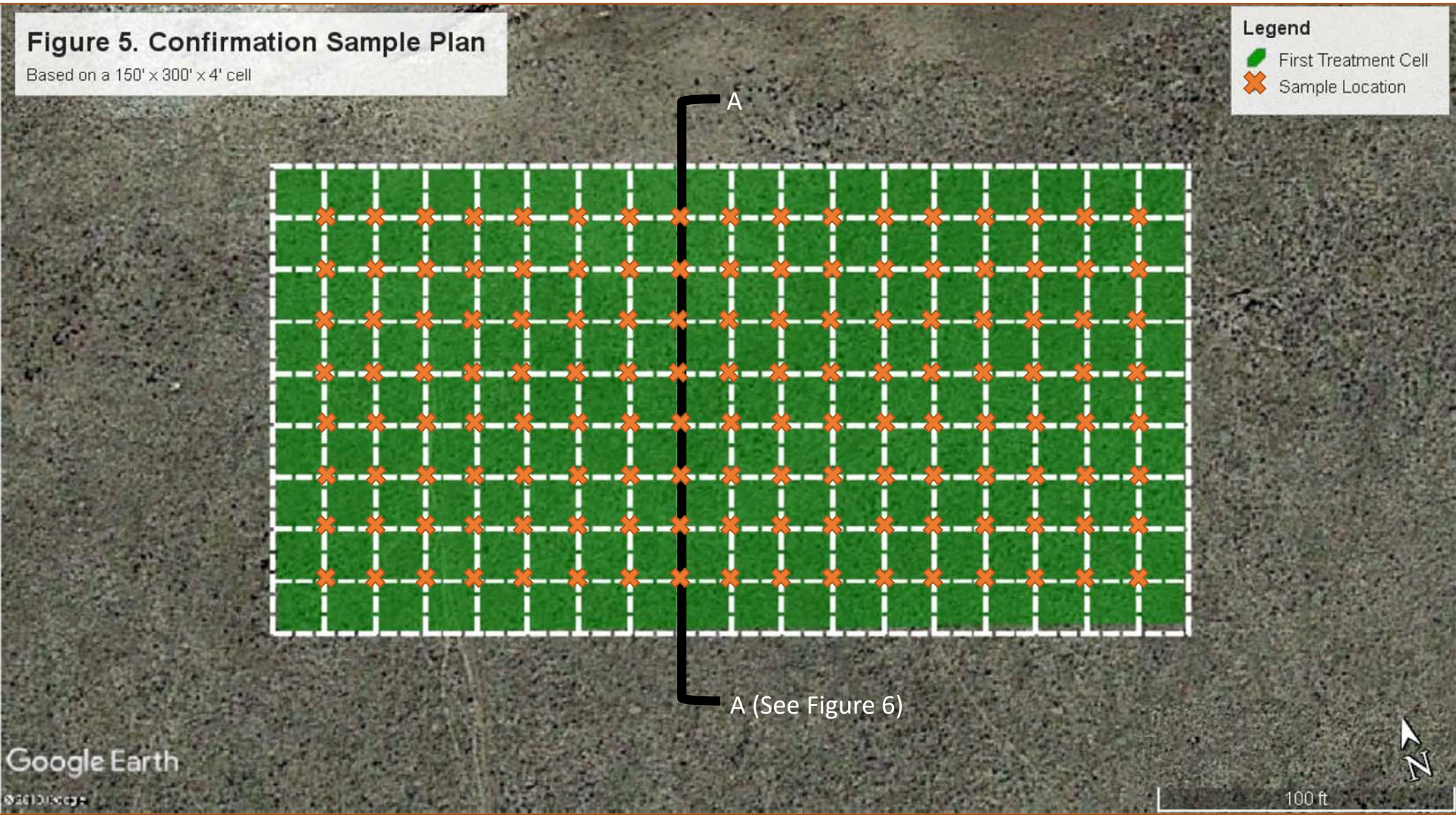
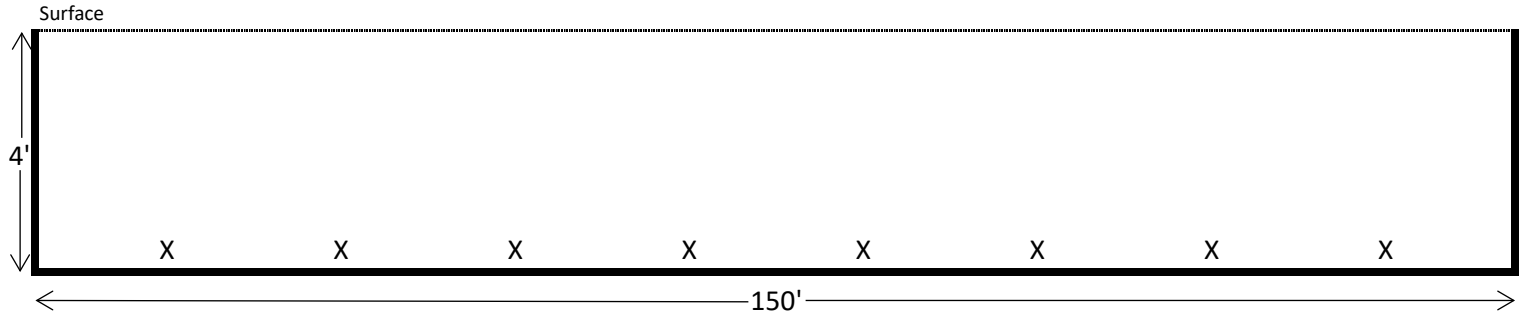


Figure 5. Confirmation Sample Plan
Based on a 150' x 300' x 4' cell
Legend
First Treatment Cell
Sample Location
A
A (See Figure 6)
Google Earth
N
100 ft

Figure 6. Cross-Sectional View of Cell



Section A-A

Legend
X - Sample at 36"- 48"

*diagram not to scale

APPENDIX A

C-141, RELEASE NOTIFICATION AND CORRECTIVE ACTION DOCUMENT

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised October 10, 2003

Submit 2 Copies to appropriate District Office in accordance with Rule 116 on back side of form

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company: Paladin Energy Corporation	Contact: Mickey Horn
Address: 10290 Monroe Drive Suite 301, Dallas, TX 75229	Telephone No.: (214) 352-7273
Facility Name: East Caprock SWD No. 005	Facility Type: SWD Well

Surface Owner: Ricky Pierce	Mineral Owner	Lease No. API No. 3002540335

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
B	14	12S	32E	930	North	2290	East	Lea

Latitude: N33° 16" 59.80" **Longitude: W103° 41' 13.20"**

NATURE OF RELEASE

Type of Release: Produced Water	Volume of Release: 1,700 bbl	Volume Recovered: 1,020 bbl
Source of Release: Poly line parted at valve near well	Date and Hour of Occurrence: 06-11-2017	Date and Hour of Discovery: 06-12-2017; 08:00AM
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Olivia Yu, Environmental Specialist, OCD District 1	
By Whom? Mickey Horn	Date and Hour 6/13/2017; 09:30AM	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	
If a Watercourse was Impacted, Describe Fully.*		

RECEIVED
By Olivia Yu at 9:02 am, Jun 15, 2017

Describe Cause of Problem and Remedial Action Taken.* Poly injection line parted at valve near well causing produced water released onto location. Spill breached berm near southeast corner of location allowing produced water to flow east into pasture approximately 950 feet. Injection pump was shut-in and berm repaired to contain fluid to location. Vacuum truck was dispatched to recover standing fluid on location.

Describe Area Affected and Cleanup Action Taken.* Affected area on location is approximately 33,928 square feet. Affected area east of location is approximately 90,000 square feet for a total of approximately 122,928 square feet. Approximately 1,020 bbl of produced water was recovered and returned to tanks. Affected area will be delineated to determine remediation.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature:	OIL CONSERVATION DIVISION
Printed Name: George G. Fenton	Approved by District Supervisor:
Title: President	Approval Date: 6/15/2017 Expiration Date:
E-mail Address:	Conditions of Approval: see attached directive ☑ Attached
Date: 06-13-2017 Phone: (214) 654-0132	

* Attach Additional Sheets If Necessary

1RP-4723 nOY1716632697 pOY1716633006

Operator/Responsible Party,

The OCD has received the form C-141 you provided on _6/13/2017_ regarding an unauthorized release. The information contained on that form has been entered into our incident database and remediation case number _1RP-4723__ has been assigned. **Please refer to this case number in all future correspondence.**

It is the Division's obligation under both the Oil & Gas Act and Water Quality Act to provide for the protection of public health and the environment. Our regulations (19.15.29.11 NMAC) state the following,

> *The responsible person shall complete division-approved corrective action for releases that endanger public health or the environment. The responsible person shall address releases in accordance with a remediation plan submitted to and approved by the division or with an abatement plan submitted in accordance with 19.15.30 NMAC.* [emphasis added]

Release characterization is the first phase of corrective action unless the release is ongoing or is of limited volume and all impacts can be immediately addressed. Proper and cost-effective remediation typically cannot occur without adequate characterization of the impacts of any release. Furthermore, the Division has the ability to impose reasonable conditions upon the efforts it oversees. **As such, the Division is requiring a workplan for the characterization of impacts associated with this release be submitted to the OCD District _1_ office in __Hobbs____ on or before _7/15/2017_. If and when the release characterization workplan is approved, there will be an associated deadline for submittal of the resultant investigation report. Modest extensions of time to these deadlines may be granted, but only with acceptable justification.**

The goals of a characterization effort are: 1) determination of the lateral and vertical extents along with the magnitude of soil contamination. 2) determine if groundwater or surface waters have been impacted. 3) If groundwater or surface waters have been impacted, what are the extents and magnitude of that impact. 4) The characterization of any other adverse impacts that may have occurred (examples: impacts on vegetation, impacts on wildlife, air quality, loss of use of property, etc.). To meet these goals as quickly as possible, the following items must, at a minimum, be addressed in the release characterization workplan and subsequent reporting:

● Horizontal delineation of soil impacts in each of the four cardinal compass directions. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C_6 thru C_{36}), and for chloride by Method 300. This is not an exclusive list of potential contaminants. Analyzed parameters should be modified based on the nature of the released substance(s). Soil sampling must be both within the impacted area and beyond.

● Vertical delineation of soil impacts. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C_6 thru C_{36}), and for chloride by Method 300. As above, this is not an exclusive list of potential contaminants and can be modified. Vertical characterization samples should be taken at depth intervals no greater than five feet apart. Lithologic description of encountered soils must also be provided. At least ten vertical feet of soils with contaminant concentrations at or below these values must be demonstrated as existing above the water table.

● Nominal detection limits for field and laboratory analyses must be provided.

● Composite sampling is not generally allowed.

● Field screening and assessment techniques are acceptable (headspace, titration, EC [include algorithm for validation purposes], EM, etc.), but the sampling and assay procedures must be clearly defined. Copies of field notes are highly desirable. A statistically significant set of split samples must be submitted for confirmatory laboratory analysis, including the laterally farthest and vertically deepest sets of soil samples. Make sure there are at least two soil samples submitted

for laboratory analysis from each borehole or test pit (highest observed contamination and deepest depth investigated). Copies of the actual laboratory results must be provided including chain of custody documentation.

●Probable depth to shallowest protectable groundwater and lateral distance to nearest surface water. If there is an estimate of groundwater depth, the information used to arrive at that estimate must be provided. If there is a reasonable assumption that the depth to protectable water is 50 feet or less, the responsible party should anticipate the need for at least one groundwater monitoring well to be installed in the area of likely maximum contamination.

● If groundwater contamination is encountered, an additional investigation workplan may be required to determine the extents of that contamination. Groundwater and/or surface water samples, if any, must be analyzed by a competent laboratory for volatile organic hydrocarbons (typically Method 8260 full list), total dissolved solids, pH, major anions and cations including chloride and sulfate, dissolved iron, and dissolved manganese. The investigation workplan must provide the groundwater sampling method(s) and sample handling protocols. To the fullest extent possible, aqueous analyses must be undertaken using nominal method detection limits. As with the soil analyses, copies of the actual laboratory results must be provided including chain of custody documentation.

● Accurately scaled and well-drafted site maps must be provided providing the location of borings, test pits, monitoring wells, potentially impacted areas, and significant surface features including roads and site infrastructure that might limit either the release characterization or remedial efforts. Field sketches may be included in subsequent reporting, but should not be considered stand-alone documentation of the site's layout. Digital photographic documentation of the location and fieldwork is recommended, especially if unusual circumstances are encountered.

Nothing herein should be interpreted to preclude emergency response actions or to imply immediate remediation by removal cannot proceed as warranted. Nonetheless, characterization of impacts and confirmation of the effectiveness of remedial efforts must still be provided to the OCD before any release incident will be closed.

Jim Griswold
OCD Environmental Bureau Chief
1220 South St. Francis Drive
Santa Fe, New Mexico 87505
505-476-3465
jim.griswold@state.nm.us

APPENDIX B

WATER COLUMN/AVERAGE DEPTH TO WATER

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

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

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

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters) (In feet)

POD Number	Code	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
L 02000		L	LE	2	3	14	12S	32E	621945	3682756*		125	85	40
L 02023		L	LE	2	3	14	12S	32E	621945	3682756*		96	35	61
L 09539		L	LE	2	3	14	12S	32E	621945	3682756*		95		

Average Depth to Water: **60 feet**

Minimum Depth: **35 feet**

Maximum Depth: **85 feet**

Record Count: 3

PLSS Search:

Section(s): 14 **Township:** 12S **Range:** 32E

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

APPENDIX C.1

DELINEATION SUMMARY TABLE

Table 1
Delineatio Soil Sample Analytical Data Summary
Paladin Energy Corporation, East Caprock SWD Well #5
Lea County, New Mexico
1RP-4723

Sample	Depth (Feet)	Collection Date	Status	C6 - C12 (mg/Kg)	C12 - C28 (mg/Kg)	C28 - C35 (mg/Kg)	TPH (mg/Kg)	Chloride (mg/Kg)
RRAL:							**100**	***600**
S-1	0 - 1	06/28/2017	In-Situ	<26.596	141.02	51.702	**192.722**	9,160
(SB-1)	1 - 2	06/28/2017	In-Situ	<28.409	69.670	<28.409	69.670	2,100
	3	07/06/2017	In-Situ	<31.6	<31.6	<31.6	<31.6	2,710
	5	07/06/2017	In-Situ	--	--	--	--	1,090
	7	07/06/2017	In-Situ	--	--	--	--	1,040
	10	07/06/2017	In-Situ	--	--	--	--	42.1
	15	07/06/2017	In-Situ	--	--	--	--	155
	20	07/06/2017	In-Situ	--	--	--	--	839
	25	07/06/2017	In-Situ	--	--	--	--	803
	30	01/03/2018	In-Situ	--	--	--	--	1,150
	35	01/03/2018	In-Situ	--	--	--	--	845
	40	01/03/2018	In-Situ	--	--	--	--	613
	45	01/03/2018	In-Situ	--	--	--	--	34.4
	50	01/03/2018	In-Situ	--	--	--	--	<1.14
S-2	0 - 1	06/28/2017	In-Situ	<34.722	<34.722	<34.722	<34.722	2,400
S-3	0 - 1	06/28/2017	In-Situ	<27.473	117.78	41.912	**159.692**	3,090
(SB-11)	0	08/09/2017	In-Situ	--	--	--	--	2,560
	3	08/09/2017	In-Situ	--	--	--	--	1,960
	5	08/09/2017	In-Situ	--	--	--	--	30.8
	7	08/09/2017	In-Situ	--	--	--	--	46.8
	10	08/09/2017	In-Situ	--	--	--	--	23.7
	15	08/09/2017	In-Situ	--	--	--	--	28.9
	20	08/09/2017	In-Situ	--	--	--	--	30.1
S-4	0 - 1	06/28/2017	In-Situ	<27.174	46.337	29.576	75.913	1,650
S-5	0 - 1	06/28/2017	In-Situ	<32.468	67.455	48.481	**115.936**	<1.30
		08/09/2017	In-Situ	<27.5	<27.	<27.5	<27.5	--

Table 1
Delineatio Soil Sample Analytical Data Summary
Paladin Energy Corporation, East Caprock SWD Well #5
Lea County, New Mexico
1RP-4723

Sample	Depth (Feet)	Collection Date	Status	C6 - C12 (mg/Kg)	C12 - C28 (mg/Kg)	C28 - C35 (mg/Kg)	TPH (mg/Kg)	Chloride (mg/Kg)
RRAL:							**100**	***600**
S-6	0 - 0.5	06/28/2017	In-Situ	<28.090	<28.090	<28.090	<28.090	6,130
(SB-2)	0.5 - 1.0	06/28/2017	In-Situ	--	--	--	--	2,690
(SB-12)	3	07/06/2017	In-Situ	--	--	--	--	1,050
	5	07/06/2017	In-Situ	--	--	--	--	11.3
	7	07/06/2017	In-Situ	--	--	--	--	<1.11
	10	07/06/2017	In-Situ	--	--	--	--	<1.06
	15	07/06/2017	In-Situ	--	--	--	--	49
	20	08/09/2017	In-Situ	--	--	--	--	29.9
	25	08/09/2017	In-Situ	--	--	--	--	942
	30	01/03/2018	In-Situ	--	--	--	--	1,080
	35	01/03/2018	In-Situ	--	--	--	--	828
	40	01/03/2018	In-Situ	--	--	--	--	345
	45	01/03/2018	In-Situ	--	--	--	--	52.4
	50	01/03/2018	In-Situ	--	--	--	--	18.0
S-7	0 - 0.5	06/28/2017	In-Situ	<28.736	56.839	43.276	100.415	2,630
(SB-4)	0.5 - 1.0	06/28/2017	In-Situ	--	--	--	--	1,940
	3	07/06/2017	In-Situ	--	--	--	--	61.4
	5	07/06/2017	In-Situ	--	--	--	--	<1.04
	7	07/06/2017	In-Situ	--	--	--	--	<1.03
	10	07/06/2017	In-Situ	--	--	--	--	<1.06
	15	07/06/2017	In-Situ	--	--	--	--	17.4
S-8	0 - 0.5	06/28/2017	In-Situ	<26.042	<26.042	<26.042	<26.042	2.26
(SB-3)	0.5 - 1.0	06/28/2017	In-Situ	1,445.3	4,413.3	540.78	**6,399.38**	1.29
	3	07/06/2017	In-Situ	<25.8	<25.8	<25.8	<25.8	1.11
	5	07/06/2017	In-Situ	<25.8	<25.8	<25.8	<25.8	<1.03
	7	07/06/2017	In-Situ	--	--	--	--	<1.04
	10	07/06/2017	In-Situ					45.9

Table 1
Delineatio Soil Sample Analytical Data Summary
Paladin Energy Corporation, East Caprock SWD Well #5
Lea County, New Mexico
1RP-4723

Sample	Depth (Feet)	Collection Date	Status	C6 - C12 (mg/Kg)	C12 - C28 (mg/Kg)	C28 - C35 (mg/Kg)	TPH (mg/Kg)	Chloride (mg/Kg)
RRAL:							**100**	***600**
S-9	0 - 0.5	06/28/2017	In-Situ	<26.042	<26.042	<26.042	<26.042	<1.04
	0.5 - 1.0	06/28/2017	In-Situ	--	--	--	--	<1.09
	7	07/07/2017	In-Situ	--	--	--	--	<1.02
	10	07/07/2017	In-Situ	--	--	--	--	<1.08
	15	07/07/2017	In-Situ	--	--	--	--	140
S-10	0 - 0.5	06/28/2017	In-Situ	<29.762	<29.762	<29.762	<29.762	3,930
(SB-5)	0.5 - 1.0	06/28/2017	In-Situ	--	--	--	--	1,570
(SB-13)	3	07/07/2017	In-Situ	--	--	--	--	22.4
	5	07/07/2017	In-Situ	--	--	--	--	<1.02
	7	07/07/2017	In-Situ	--	--	--	--	<1.02
	10	07/07/2017	In-Situ	--	--	--	--	<1.08
	15	07/07/2017	In-Situ	--	--	--	--	140
	20	08/09/2017	In-Situ	--	--	--	--	452
	25	08/09/2017	In-Situ	--	--	--	--	760
	30	01/03/2018	In-Situ	--	--	--	--	853
	35	01/03/2018	In-Situ	--	--	--	--	648
	40	01/03/2018	In-Situ	--	--	--	--	705
	45	01/03/2018	In-Situ	--	--	--	--	46.6
	50	01/03/2018	In-Situ	--	--	--	--	<1.12
S-11	0 - 0.5	06/28/2017	In-Situ	<30.864	<30.864	<30.864	<30.864	3,510
	7	07/07/2017	In-Situ	--	--	--	--	<1.02
	10	07/07/2017	In-Situ	--	--	--	--	<1.08
	15	07/07/2017	In-Situ	--	--	--	--	140
	20	08/09/2017	In-Situ	--	--	--	--	452
	25	08/09/2017	In-Situ	--	--	--	--	760
	30	01/03/2018	In-Situ	--	--	--	--	853
	35	01/03/2018	In-Situ	--	--	--	--	648
	40	01/03/2018	In-Situ	--	--	--	--	705

Table 1
Delineatio Soil Sample Analytical Data Summary
Paladin Energy Corporation, East Caprock SWD Well #5
Lea County, New Mexico
1RP-4723

Sample	Depth (Feet)	Collection Date	Status	C6 - C12 (mg/Kg)	C12 - C28 (mg/Kg)	C28 - C35 (mg/Kg)	TPH (mg/Kg)	Chloride (mg/Kg)
RRAL:							**100**	***600**
	45	01/03/2018	In-Situ	--	--	--	--	46.6
	50	01/03/2018	In-Situ	--	--	--	--	<1.12
S-11	0 - 0.5	06/28/2017	In-Situ	<30.864	<30.864	<30.864	<30.864	3,510
(SB-6)	0.5 - 1.0	06/28/2017	In-Situ	--	--	--	--	3,200
	1.0 - 1.5	06/28/2017	In-Situ	<30.120	<30.120	<30.120	<30.120	2,300
	1.5 - 2.0	06/28/2017	In-Situ	--	--	--	--	1,050
	3	07/07/2017	In-Situ	--	--	--	--	387
	5	07/07/2017	In-Situ	--	--	--	--	2.76
	7	07/07/2017	In-Situ	--	--	--	--	9.23
	10	07/07/2017	In-Situ	--	--	--	--	<1.05
	15	07/07/2017	In-Situ	--	--	--	--	<1.06
S-12	0 - 0.5	06/28/2017	In-Situ	<26.316	<26.316	<26.316	<26.316	1,140
(SB-8)	0.5 - 1.0	06/28/2017	In-Situ	--	--	--	--	848
	3	07/07/2017	In-Situ	--	--	--	--	75.0
	5	07/07/2017	In-Situ	--	--	--	--	<1.03
	7	07/07/2017	In-Situ	--	--	--	--	<1.05
	10	07/07/2017	In-Situ	--	--	--	--	2.82
	15	07/07/2017	In-Situ					98.5
S-13	0 - 0.5	06/28/2017	In-Situ	<26.596	<26.596	<26.596	<26.596	<1.06
(SB-9)	0.5 - 1.0	06/28/2017	In-Situ	--	--	--	--	<1.11
	3	07/07/2017	In-Situ	--	--	--	--	6.07
	5	07/07/2017	In-Situ	--	--	--	--	2.03
	7	07/07/2017	In-Situ	--	--	--	--	<1.02
	10	07/07/2017	In-Situ					<1.04
S-14	0 - 0.5	06/28/2017	In-Situ	<29.762	<29.762	<29.762	<29.762	2,040
(SB-7)	0 - 0.5	06/28/2017	In-Situ	<29.762	<29.762	<29.762	<29.762	2,040

Table 1
Delineatio Soil Sample Analytical Data Summary
Paladin Energy Corporation, East Caprock SWD Well #5
Lea County, New Mexico
1RP-4723

Sample	Depth (Feet)	Collection Date	Status	C6 - C12 (mg/Kg)	C12 - C28 (mg/Kg)	C28 - C35 (mg/Kg)	TPH (mg/Kg)	Chloride (mg/Kg)
RRAL:							**100**	***600**
	0.5 - 1.0	06/28/2017	In-Situ	--	--	--	--	845
	3	07/07/2017	In-Situ	--	--	--	--	83.6
	5	07/07/2017	In-Situ	--	--	--	--	<1.04
	7	07/07/2017	In-Situ	--	--	--	--	26.1
	10	07/07/2017	In-Situ	--	--	--	--	80.6
	15	07/07/2017	In-Situ					<1.18
SB-10	0-1	07/06/2017	In-Situ	<27.2	<27.2	<27.2	<27.2	<1.09
	3	07/06/2017	In-Situ	<25.5	<25.5	<25.5	<25.5	4.43
	5	07/06/2017	In-Situ	--	--	--	--	6.19
	7	07/06/2017	In-Situ	--	--	--	--	4.07
	10	07/06/2017	In-Situ	--	--	--	--	2.34
	20	08/09/2017	In-Situ	--	--	--	--	1,190
	25	08/09/2017	In-Situ	--	--	--	--	1,100
	30	01/03/2018	In-Situ	--	--	--	--	1,120
	35	01/03/2018	In-Situ	--	--	--	--	630
	40	01/03/2018	In-Situ	--	--	--	--	126
	45	01/03/2018	In-Situ	--	--	--	--	446
	50	01/03/2018	In-Situ	--	--	--	--	10.3
SB-14	0	01/03/2018	In-Situ	--	--	--	--	12.6
	5	01/03/2018	In-Situ	--	--	--	--	19.5
	10	01/03/2018	In-Situ	--	--	--	--	181
	15	01/03/2018	In-Situ	--	--	--	--	1,090
	20	01/03/2018	In-Situ	--	--	--	--	2,200
	25	01/03/2018	In-Situ	--	--	--	--	1,610
	30	01/03/2018	In-Situ	--	--	--	--	1,330
	35	01/03/2018	In-Situ	--	--	--	--	1,140
	40	01/03/2018	In-Situ	--	--	--	--	999
	45	01/03/2018	In-Situ	--	--	--	--	859

Table 1
Delineatio Soil Sample Analytical Data Summary
Paladin Energy Corporation, East Caprock SWD Well #5
Lea County, New Mexico
1RP-4723

Sample	Depth (Feet)	Collection Date	Status	C6 - C12 (mg/Kg)	C12 - C28 (mg/Kg)	C28 - C35 (mg/Kg)	TPH (mg/Kg)	Chloride (mg/Kg)
RRAL:							**100**	***600**
	50	01/03/2018	In-Situ	--	--	--	--	106

Notes: Laboratory analysis performed by Permian Basin Environmental Lab, Midland, Texas by EPA SW-846 Method 8015M (TPH) and 300 (chloride)
Depth in feet below ground surface (bgs)
mg/Kg: milligrams per kilogram equivalent to parts per million (ppm)
*: OCD delineation level
Exceeds OCD Recommended Remediation Action Level (RRAL)

APPENDIX C.2

DELINEATION LABORATORY REPORTS

PERMIAN BASIN
ENVIRONMENTAL LAB, LP
1400 Rankin Hwy
Midland, TX 79701

PBELAB

Analytical Report

Prepared for:

Mark Larson
Larson & Associates, Inc.
P.O. Box 50685
Midland, TX 79710

Project: Pogo Fast Caprock 5
Project Number: 17-0158-01
Location: New Mexico

Lab Order Number: 8A05004

NELAP/TCEQ # T104704516-16-7

Report Date: 01/08/18

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: Pogo Fast Caprock 5
Project Number: 17-0158-01
Project Manager: Mark Larson

Fax: (432) 687-0456

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SB-13 30'-31'	8A05004-01	Soil	01/03/18 11:25	01-05-2018 09:10
SB-13 35'-36'	8A05004-02	Soil	01/03/18 11:27	01-05-2018 09:10
SB-13 40'-41'	8A05004-03	Soil	01/03/18 11:28	01-05-2018 09:10
SB-13 45'-46'	8A05004-04	Soil	01/03/18 11:32	01-05-2018 09:10
SB-13 50'-51'	8A05004-05	Soil	01/03/18 11:34	01-05-2018 09:10
SB-12 30'-31'	8A05004-06	Soil	01/03/18 12:29	01-05-2018 09:10
SB-12 35'-36'	8A05004-07	Soil	01/03/18 12:30	01-05-2018 09:10
SB-12 40'-41'	8A05004-08	Soil	01/03/18 12:31	01-05-2018 09:10
SB-12 45'-46'	8A05004-09	Soil	01/03/18 12:34	01-05-2018 09:10
SB-12 50'-51'	8A05004-10	Soil	01/03/18 12:36	01-05-2018 09:10
SB-1 30'-31'	8A05004-11	Soil	01/03/18 13:38	01-05-2018 09:10
SB-1 35'-36'	8A05004-12	Soil	01/03/18 13:30	01-05-2018 09:10
SB-1 40'-41'	8A05004-13	Soil	01/03/18 13:31	01-05-2018 09:10
SB-1 45'-46'	8A05004-14	Soil	01/03/18 13:35	01-05-2018 09:10
SB-1 50'-51'	8A05004-15	Soil	01/03/18 13:37	01-05-2018 09:10
SB-10 30'-31'	8A05004-16	Soil	01/03/18 14:10	01-05-2018 09:10
SB-10 35'-36'	8A05004-17	Soil	01/03/18 14:14	01-05-2018 09:10
SB-10 40'-41'	8A05004-18	Soil	01/03/18 14:16	01-05-2018 09:10
SB-10 45'-46'	8A05004-19	Soil	01/03/18 14:19	01-05-2018 09:10
SB-10 50'-51'	8A05004-20	Soil	01/03/18 14:22	01-05-2018 09:10
SB-14 0-1'	8A05004-21	Soil	01/03/18 14:55	01-05-2018 09:10
SB-14 5'-6'	8A05004-22	Soil	01/03/18 15:03	01-05-2018 09:10
SB-14 10'-11'	8A05004-23	Soil	01/03/18 15:05	01-05-2018 09:10
SB-14 15'-16'	8A05004-24	Soil	01/03/18 15:07	01-05-2018 09:10
SB-14 20'-21'	8A05004-25	Soil	01/03/18 15:08	01-05-2018 09:10
SB-14 25'-26'	8A05004-26	Soil	01/03/18 15:11	01-05-2018 09:10
SB-14 30'-31'	8A05004-27	Soil	01/03/18 15:13	01-05-2018 09:10
SB-14 35'-36'	8A05004-28	Soil	01/03/18 15:14	01-05-2018 09:10
SB-14 40'-41'	8A05004-29	Soil	01/03/18 15:15	01-05-2018 09:10
SB-14 45'-46'	8A05004-30	Soil	01/03/18 15:18	01-05-2018 09:10
SB-14 50'-51'	8A05004-31	Soil	01/03/18 15:20	01-05-2018 09:10

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: Pogo Fast Caprock 5
Project Number: 17-0158-01
Project Manager: Mark Larson

Fax: (432) 687-0456

SB-13 30'-31'

8A05004-01 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**853**	1.12	mg/kg dry	1	P8A0507	01/05/18	01/06/18	EPA 300.0	
% Moisture	**11.0**	0.1	%	1	P8A0801	01/08/18	01/08/18	ASTM D2216	

Larson & Associates, Inc.	Project: Pogo Fast Caprock 5	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0158-01	
Midland TX, 79710	Project Manager: Mark Larson	

SB-13 35'-36'

8A05004-02 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**648**	1.15	mg/kg dry	1	P8A0507	01/05/18	01/06/18	EPA 300.0	
% Moisture	**13.0**	0.1	%	1	P8A0801	01/08/18	01/08/18	ASTM D2216	

Larson & Associates, Inc.	Project: Pogo Fast Caprock 5	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0158-01	
Midland TX, 79710	Project Manager: Mark Larson	

SB-13 40'-41'

8A05004-03 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**705**	1.15	mg/kg dry	1	P8A0507	01/05/18	01/06/18	EPA 300.0	
% Moisture	**13.0**	0.1	%	1	P8A0801	01/08/18	01/08/18	ASTM D2216	

Larson & Associates, Inc.	Project: Pogo Fast Caprock 5	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0158-01	
Midland TX, 79710	Project Manager: Mark Larson	

SB-13 45'-46'

8A05004-04 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**46.6**	1.11	mg/kg dry	1	P8A0507	01/05/18	01/06/18	EPA 300.0	
% Moisture	**10.0**	0.1	%	1	P8A0801	01/08/18	01/08/18	ASTM D2216	

Larson & Associates, Inc.	Project: Pogo Fast Caprock 5	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0158-01	
Midland TX, 79710	Project Manager: Mark Larson	

SB-13 50'-51'

8A05004-05 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.12	mg/kg dry	1	P8A0507	01/05/18	01/06/18	EPA 300.0	
% Moisture	**11.0**	0.1	%	1	P8A0801	01/08/18	01/08/18	ASTM D2216	

Larson & Associates, Inc.	Project: Pogo Fast Caprock 5	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0158-01	
Midland TX, 79710	Project Manager: Mark Larson	

SB-12 30'-31'

8A05004-06 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**1080**	1.15	mg/kg dry	1	P8A0507	01/05/18	01/06/18	EPA 300.0	
% Moisture	**13.0**	0.1	%	1	P8A0801	01/08/18	01/08/18	ASTM D2216	

Larson & Associates, Inc.	Project: Pogo Fast Caprock 5	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0158-01	
Midland TX, 79710	Project Manager: Mark Larson	

SB-12 35'-36'

8A05004-07 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**828**	1.12	mg/kg dry	1	P8A0507	01/05/18	01/06/18	EPA 300.0	
% Moisture	**11.0**	0.1	%	1	P8A0801	01/08/18	01/08/18	ASTM D2216	

Larson & Associates, Inc.	Project: Pogo Fast Caprock 5	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0158-01	
Midland TX, 79710	Project Manager: Mark Larson	

SB-12 40'-41'

8A05004-08 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**345**	1.12	mg/kg dry	1	P8A0507	01/05/18	01/06/18	EPA 300.0	
% Moisture	**11.0**	0.1	%	1	P8A0801	01/08/18	01/08/18	ASTM D2216	

Larson & Associates, Inc.	Project: Pogo Fast Caprock 5	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0158-01	
Midland TX, 79710	Project Manager: Mark Larson	

SB-12 45'-46'

8A05004-09 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**52.4**	1.12	mg/kg dry	1	P8A0507	01/05/18	01/06/18	EPA 300.0	
% Moisture	**11.0**	0.1	%	1	P8A0801	01/08/18	01/08/18	ASTM D2216	

Larson & Associates, Inc.	Project: Pogo Fast Caprock 5	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0158-01	
Midland TX, 79710	Project Manager: Mark Larson	

SB-12 50'-51'

8A05004-10 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**18.0**	1.15	mg/kg dry	1	P8A0507	01/05/18	01/06/18	EPA 300.0	
% Moisture	**13.0**	0.1	%	1	P8A0801	01/08/18	01/08/18	ASTM D2216	

Larson & Associates, Inc.	Project: Pogo Fast Caprock 5	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0158-01	
Midland TX, 79710	Project Manager: Mark Larson	

SB-1 30'-31'

8A05004-11 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**1150**	5.95	mg/kg dry	5	P8A0507	01/05/18	01/06/18	EPA 300.0	
% Moisture	**16.0**	0.1	%	1	P8A0801	01/08/18	01/08/18	ASTM D2216	

Larson & Associates, Inc.	Project: Pogo Fast Caprock 5	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0158-01	
Midland TX, 79710	Project Manager: Mark Larson	

SB-1 35'-36'

8A05004-12 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**845**	1.14	mg/kg dry	1	P8A0507	01/05/18	01/06/18	EPA 300.0	
% Moisture	**12.0**	0.1	%	1	P8A0801	01/08/18	01/08/18	ASTM D2216	

Larson & Associates, Inc.	Project: Pogo Fast Caprock 5	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0158-01	
Midland TX, 79710	Project Manager: Mark Larson	

SB-1 40'-41'

8A05004-13 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**613**	1.14	mg/kg dry	1	P8A0507	01/05/18	01/06/18	EPA 300.0	
% Moisture	**12.0**	0.1	%	1	P8A0801	01/08/18	01/08/18	ASTM D2216	

Larson & Associates, Inc.	Project: Pogo Fast Caprock 5	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0158-01	
Midland TX, 79710	Project Manager: Mark Larson	

SB-1 45'-46'

8A05004-14 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**34.4**	1.15	mg/kg dry	1	P8A0507	01/05/18	01/06/18	EPA 300.0	
% Moisture	**13.0**	0.1	%	1	P8A0801	01/08/18	01/08/18	ASTM D2216	

Larson & Associates, Inc.	Project: Pogo Fast Caprock 5	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0158-01	
Midland TX, 79710	Project Manager: Mark Larson	

SB-1 50'-51'

8A05004-15 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.14	mg/kg dry	1	P8A0507	01/05/18	01/06/18	EPA 300.0	
% Moisture	**12.0**	0.1	%	1	P8A0801	01/08/18	01/08/18	ASTM D2216	

Larson & Associates, Inc.	Project: Pogo Fast Caprock 5	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0158-01	
Midland TX, 79710	Project Manager: Mark Larson	

SB-10 30'-31'

8A05004-16 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**1120**	1.18	mg/kg dry	1	P8A0507	01/05/18	01/06/18	EPA 300.0	
% Moisture	**15.0**	0.1	%	1	P8A0801	01/08/18	01/08/18	ASTM D2216	

Larson & Associates, Inc.	Project: Pogo Fast Caprock 5	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0158-01	
Midland TX, 79710	Project Manager: Mark Larson	

SB-10 35'-36'

8A05004-17 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**630**	1.16	mg/kg dry	1	P8A0507	01/05/18	01/06/18	EPA 300.0	
% Moisture	**14.0**	0.1	%	1	P8A0801	01/08/18	01/08/18	ASTM D2216	

Larson & Associates, Inc.	Project: Pogo Fast Caprock 5	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0158-01	
Midland TX, 79710	Project Manager: Mark Larson	

SB-10 40'-41'

8A05004-18 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**126**	1.15	mg/kg dry	1	P8A0507	01/05/18	01/06/18	EPA 300.0	
% Moisture	**13.0**	0.1	%	1	P8A0801	01/08/18	01/08/18	ASTM D2216	

Larson & Associates, Inc.	Project: Pogo Fast Caprock 5	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0158-01	
Midland TX, 79710	Project Manager: Mark Larson	

SB-10 45'-46'

8A05004-19 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**446**	1.18	mg/kg dry	1	P8A0507	01/05/18	01/06/18	EPA 300.0	
% Moisture	**15.0**	0.1	%	1	P8A0801	01/08/18	01/08/18	ASTM D2216	

Larson & Associates, Inc.	Project: Pogo Fast Caprock 5	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0158-01	
Midland TX, 79710	Project Manager: Mark Larson	

SB-10 50'-51'

8A05004-20 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**10.3**	1.14	mg/kg dry	1	P8A0507	01/05/18	01/06/18	EPA 300.0	
% Moisture	**12.0**	0.1	%	1	P8A0801	01/08/18	01/08/18	ASTM D2216	

Larson & Associates, Inc.	Project: Pogo Fast Caprock 5	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0158-01	
Midland TX, 79710	Project Manager: Mark Larson	

SB-14 0-1'

8A05004-21 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**12.6**	1.04	mg/kg dry	1	P8A0508	01/05/18	01/06/18	EPA 300.0	
% Moisture	**4.0**	0.1	%	1	P8A0801	01/08/18	01/08/18	ASTM D2216	

Larson & Associates, Inc.	Project: Pogo Fast Caprock 5	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0158-01	
Midland TX, 79710	Project Manager: Mark Larson	

SB-14 5'-6'

8A05004-22 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**19.5**	1.04	mg/kg dry	1	P8A0508	01/05/18	01/06/18	EPA 300.0	
% Moisture	**4.0**	0.1	%	1	P8A0801	01/08/18	01/08/18	ASTM D2216	

Larson & Associates, Inc.	Project: Pogo Fast Caprock 5	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0158-01	
Midland TX, 79710	Project Manager: Mark Larson	

SB-14 10'-11'

8A05004-23 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**181**	1.06	mg/kg dry	1	P8A0508	01/05/18	01/06/18	EPA 300.0	
% Moisture	**6.0**	0.1	%	1	P8A0801	01/08/18	01/08/18	ASTM D2216	

Larson & Associates, Inc.	Project: Pogo Fast Caprock 5	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0158-01	
Midland TX, 79710	Project Manager: Mark Larson	

SB-14 15'-16'

8A05004-24 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**1090**	5.32	mg/kg dry	5	P8A0508	01/05/18	01/06/18	EPA 300.0	
% Moisture	**6.0**	0.1	%	1	P8A0801	01/08/18	01/08/18	ASTM D2216	

Larson & Associates, Inc.	Project: Pogo Fast Caprock 5	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0158-01	
Midland TX, 79710	Project Manager: Mark Larson	

SB-14 20'-21'

8A05004-25 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**2200**	5.95	mg/kg dry	5	P8A0508	01/05/18	01/06/18	EPA 300.0	
% Moisture	**16.0**	0.1	%	1	P8A0801	01/08/18	01/08/18	ASTM D2216	

Larson & Associates, Inc.	Project: Pogo Fast Caprock 5	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0158-01	
Midland TX, 79710	Project Manager: Mark Larson	

SB-14 25'-26'

8A05004-26 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**1610**	6.10	mg/kg dry	5	P8A0508	01/05/18	01/06/18	EPA 300.0	
% Moisture	**18.0**	0.1	%	1	P8A0801	01/08/18	01/08/18	ASTM D2216	

Larson & Associates, Inc.	Project: Pogo Fast Caprock 5	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0158-01	
Midland TX, 79710	Project Manager: Mark Larson	

SB-14 30'-31'

8A05004-27 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**1330**	5.88	mg/kg dry	5	P8A0508	01/05/18	01/06/18	EPA 300.0	
% Moisture	**15.0**	0.1	%	1	P8A0801	01/08/18	01/08/18	ASTM D2216	

Larson & Associates, Inc.	Project: Pogo Fast Caprock 5	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0158-01	
Midland TX, 79710	Project Manager: Mark Larson	

SB-14 35'-36'

8A05004-28 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**1140**	1.16	mg/kg dry	1	P8A0508	01/05/18	01/06/18	EPA 300.0	
% Moisture	**14.0**	0.1	%	1	P8A0801	01/08/18	01/08/18	ASTM D2216	

Larson & Associates, Inc.	Project: Pogo Fast Caprock 5	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0158-01	
Midland TX, 79710	Project Manager: Mark Larson	

SB-14 40'-41'

8A05004-29 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**999**	1.15	mg/kg dry	1	P8A0508	01/05/18	01/06/18	EPA 300.0	
% Moisture	**13.0**	0.1	%	1	P8A0801	01/08/18	01/08/18	ASTM D2216	

Larson & Associates, Inc.	Project: Pogo Fast Caprock 5	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0158-01	
Midland TX, 79710	Project Manager: Mark Larson	

SB-14 45'-46'

8A05004-30 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**859**	1.12	mg/kg dry	1	P8A0508	01/05/18	01/06/18	EPA 300.0	
% Moisture	**11.0**	0.1	%	1	P8A0801	01/08/18	01/08/18	ASTM D2216	

Larson & Associates, Inc.	Project: Pogo Fast Caprock 5	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0158-01	
Midland TX, 79710	Project Manager: Mark Larson	

SB-14 50'-51'

8A05004-31 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**106**	1.10	mg/kg dry	1	P8A0508	01/05/18	01/06/18	EPA 300.0	
% Moisture	**9.0**	0.1	%	1	P8A0801	01/08/18	01/08/18	ASTM D2216	

General Chemistry Parameters by EPA / Standard Methods - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P8A0507 - * DEFAULT PREP *** **										
Blank (P8A0507-BLK1)				Prepared: 01/05/18 Analyzed: 01/06/18						
Chloride	ND	1.00	mg/kg wet							
LCS (P8A0507-BS1)				Prepared: 01/05/18 Analyzed: 01/06/18						
Chloride	413	1.00	mg/kg wet	400		103	80-120			
LCS Dup (P8A0507-BSD1)				Prepared: 01/05/18 Analyzed: 01/06/18						
Chloride	413	1.00	mg/kg wet	400		103	80-120	0.0218	20	
Duplicate (P8A0507-DUP1)		**Source: 8A05004-01**		Prepared: 01/05/18 Analyzed: 01/06/18						
Chloride	857	1.12	mg/kg dry		853			0.403	20	
Duplicate (P8A0507-DUP2)		**Source: 8A05004-11**		Prepared: 01/05/18 Analyzed: 01/06/18						
Chloride	1250	5.95	mg/kg dry		1150			8.31	20	
Matrix Spike (P8A0507-MS1)		**Source: 8A05004-01**		Prepared: 01/05/18 Analyzed: 01/06/18						
Chloride	1960	1.12	mg/kg dry	1120	853	98.8	80-120			
Batch P8A0508 - * DEFAULT PREP *** **										
Blank (P8A0508-BLK1)				Prepared: 01/05/18 Analyzed: 01/06/18						
Chloride	ND	1.00	mg/kg wet							
LCS (P8A0508-BS1)				Prepared: 01/05/18 Analyzed: 01/06/18						
Chloride	414	1.00	mg/kg wet	400		104	80-120			
LCS Dup (P8A0508-BSD1)				Prepared: 01/05/18 Analyzed: 01/06/18						
Chloride	383	1.00	mg/kg wet	400		95.8	80-120	7.79	20	

General Chemistry Parameters by EPA / Standard Methods - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P8A0508 - * DEFAULT PREP *** **										
Duplicate (P8A0508-DUP1)	**Source: 8A05004-21**			Prepared: 01/05/18 Analyzed: 01/06/18						
Chloride	10.6	1.04	mg/kg dry		12.6			16.5	20	
Duplicate (P8A0508-DUP2)	**Source: 8A05004-31**			Prepared: 01/05/18 Analyzed: 01/06/18						
Chloride	109	1.10	mg/kg dry		106			3.01	20	
Matrix Spike (P8A0508-MS1)	**Source: 8A05004-21**			Prepared: 01/05/18 Analyzed: 01/06/18						
Chloride	1140	1.04	mg/kg dry	1040	12.6	108	80-120			
Batch P8A0801 - * DEFAULT PREP *** **										
Blank (P8A0801-BLK1)				Prepared & Analyzed: 01/08/18						
% Moisture	ND	0.1	%							
Duplicate (P8A0801-DUP1)	**Source: 8A05003-25**			Prepared & Analyzed: 01/08/18						
% Moisture	13.0	0.1	%		12.0			8.00	20	
Duplicate (P8A0801-DUP2)	**Source: 8A05004-26**			Prepared & Analyzed: 01/08/18						
% Moisture	18.0	0.1	%		18.0			0.00	20	
Duplicate (P8A0801-DUP3)	**Source: 8A05005-22**			Prepared & Analyzed: 01/08/18						
% Moisture	8.0	0.1	%		7.0			13.3	20	
Duplicate (P8A0801-DUP4)	**Source: 8A05006-02**			Prepared & Analyzed: 01/08/18						
% Moisture	1.0	0.1	%		2.0			66.7	20	R2
Duplicate (P8A0801-DUP5)	**Source: 8A05007-10**			Prepared & Analyzed: 01/08/18						
% Moisture	15.0	0.1	%		15.0			0.00	20	

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: Pogo Fast Caprock 5
Project Number: 17-0158-01
Project Manager: Mark Larson

Fax: (432) 687-0456

Notes and Definitions

R2	The RPD exceeded the acceptance limit.
BULK	Samples received in Bulk soil containers
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
LCS	Laboratory Control Spike
MS	Matrix Spike
Dup	Duplicate

Report Approved By: _____ Date: 1/8/2018

Brent Barron, Laboratory Director/Technical Director

CHAIN-OF-CUSTODY

Larson & Associates, Inc.
Environmental Consultants
507 N. Marienfeld, Ste. 200
Midland, TX 79701
432-687-0901

Data Reported to:

DATE: Jan 5 2018 PAGE 1 OF 2
PO #: _____ LAB WORK ORDER #: 8A05004
PROJECT LOCATION OR NAME: Pogo East Caprock 5
LAI PROJECT #: 17-0158-01 COLLECTOR: SJ

TRRP report? ☐ Yes ☒ No

TIME ZONE: Time zone/State: MST/NM

(S=SOIL) P=PAINT
W=WATER SL=SLUDGE
A=AIR OT=OTHER

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	ANALYSES: CHLORIDE ☑ M300	FIELD NOTES
SB-13 30'-31'	1	1/3/18	11:25	S	1				✓		✓	
35'-36'	2		11:27									
40'-41'	3		11:28									
45'-46'	4		11:32									
50'-51'	5		11:34									
SB-12 30'-31'	6		12:29									
35'-36'	7		12:30									
40'-41'	8		12:31									
45'-46'	9		12:34									
50'-51'	10		12:36									
SB-1 30'-31'	11		13:28									
35'-36'	12		13:30									
40'-41'	13		13:31									
45'-46'	14		13:35									
50'-51'	15		13:37									
TOTAL												

ANALYSES: ☐ BTEX ☐ MTBE ☐ TRPH 418.1 ☐ TPH 1005 ☐ TPH 1006 ☐ GASOLINE MOD 8015 ☐ DIESEL - MOD 8015 ☐ VOC 8260 ☐ SVOC 8270 ☐ PAH 8270 ☐ HOLDPAH ☐ 8081 PESTICIDES ☐ 8151 HERBICIDES ☐ 8082 PCBS ☐ TCLP - METALS (RCRA) ☐ TCLP VOC ☐ TCLP - PEST ☐ HERB ☐ Semi-VOC ☐ TOTAL METALS (RCRA) ☐ OTHER LIST ☐ LEAD - TOTAL ☐ D.W. 200.8 ☐ TCLP ☐ RCI ☐ TOX ☐ FLASHPOINT ☐ TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐ pH ☐ HEXAVALENT CHROMIUM ☐ EXPLOSIVES ☐ PECHLORATE ☐ CHLORIDE ☑ ANIONS ☐ ALKALINITY ☐

RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature)

RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature)

RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature) 1-5-18 910

TURN AROUND TIME
NORMAL ☐
1 DAY ☒
2 DAY ☐
OTHER ☐ Rush

LABORATORY USE ONLY:
RECEIVING TEMP: -23 THERM #: _____
CUSTODY SEALS - ☐ BROKEN ☒ INTACT ☐ NOT USED
☐ CARRIER BILL # _____
☒ HAND DELIVERED

63

CHAIN-OF-CUSTODY

Larson & Associates, Inc.
Environmental Consultants
507 N. Marienfeld, Ste. 200
Midland, TX 79701
432-687-0901

Data Reported to:

DATE: Jan 5 2018 PAGE 2 OF

PO #: LAB WORK ORDER #:

PROJECT LOCATION OR NAME: Pogo East Caprock 5

LAI PROJECT #: 17-0158-01 COLLECTOR: SJ

TRRP report? ☐ Yes ☒ No

TIME ZONE: Time zone/State: MST/TX

(S=SOIL) W=WATER A=AIR P=PAINT SL=SLUDGE OT=OTHER

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	ANALYSES	FIELD NOTES
SB-10 30'-31'	16	1/3/18	14:10	S	1				✓			
35'-36'	17		14:14									
40'-41'	18		14:16									
45'-46'	19		14:19									
50'-51'	20		14:22									
SB-14 0'-1'	21		14:35									
5'-6'	22		15:03									
10'-11'	23		15:05									
15'-16'	24		15:07									
20'-21'	25		15:08									
25'-26'	26		15:11									
30'-31'	27		15:13									
35'-36'	28		15:14									
40'-41'	29		15:15									
45'-46'	30		15:18									
TOTAL												

ANALYSES: BTEX ☐ MTBE ☐ | TRPH 418.1 ☐ | TPH 1005 ☐ TPH 1006 ☐ | GASOLINE MOD 8015 ☐ | DIESEL - MOD 8015 ☐ | VOC 8260 ☐ | SVOC 8270 ☐ PAH 8270 ☐ HOLDPAH ☐ | 8081 PESTICIDES ☐ 8151 HERBICIDES ☐ | 8082 PCBS ☐ | TCLP - METALS (RCRA) ☐ TCLP VOC ☐ | TCLP - PEST ☐ HERB ☐ SemiVOC ☐ | TOTAL METALS (RCRA) ☐ OTHER LIST ☐ | LEAD - TOTAL ☐ D.W. 200.8 ☐ TCLP ☐ | RCI ☐ TOX ☐ FLASHPOINT ☐ | TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐ | pH ☐ HEXAVALENT CHROMIUM ☐ | EXPLOSIVES ☐ PECHLORATE ☐ | CHLORIDE ☒ ANIONS ☐ ALKALINITY ☐ | M300

RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)

RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)

RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature) 1-5-18 910

TURN AROUND TIME
NORMAL ☐
1 DAY ☒
2 DAY ☐
OTHER ☐ RUSH

LABORATORY USE ONLY:
RECEIVING TEMP: ~23 THERM #:
CUSTODY SEALS - ☐ BROKEN ☒ INTACT ☐ NOT USED
☐ CARRIER BILL #
☒ HAND DELIVERED

64

Frozen

CHAIN-OF-CUSTODY

Larson & Associates, Inc.
Environmental Consultants
507 N. Marienfeld, Ste. 200
Midland, TX 79701
432-687-0901

Data Reported to:

DATE: Jan 5 2018 PAGE 3 OF ___

PO #: ___ LAB WORK ORDER #: ___

PROJECT LOCATION OR NAME: Pogo Eastlapack 5

LAI PROJECT #: 17-0158-01 COLLECTOR: SJ

TRRP report? ☐ Yes ☒ No

TIME ZONE: Time zone/State: MST/NM

(S=SOIL) P=PAINT
W=WATER SL=SLUDGE
A=AIR OT=OTHER

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	ANALYSES: BTEX ☐ MTBE ☐	TRPH 418.1 ☐ TPH 1005 ☐ TPH 1006 ☐	GASOLINE MOD 8015 ☐	DIESEL - MOD 8015 ☐	VOC 8260 ☐	SVOC 8270 ☐ PAH 8270 ☐ HCLDPAH ☐	8081 PESTICIDES ☐ 8151 HERBICIDES ☐	8082 PCBS ☐	TCLP - METALS (RCRA) ☐ TCLP VOC ☐	TCLP - PEST ☐ HERB ☐ Semi-VOC ☐	TOTAL METALS (RCRA) ☐ OTHER LIST ☐	LEAD - TOTAL ☐ D.W. 200.8 ☐ TCLP ☐	RCI ☐ TOX ☐ FLASHPOINT ☐	TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐	pH ☐ HEXAVALENT CHROMIUM ☐	EXPLOSIVES ☐ PECHLORATE ☐	CHLORIDE ☒ ANIONS ☐ ALKALINITY ☐ M300	FIELD NOTES
SB-14 50'-51'	31	1/3/18	15:20	S	1				✓																		✓	
TOTAL																												

RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature)

RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature)

RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature)

1-5-18 910

TURN AROUND TIME
NORMAL ☐
1 DAY ☒
2 DAY ☐
OTHER ☐ Rush

LABORATORY USE ONLY:
RECEIVING TEMP: -23 THERM #: ___
CUSTODY SEALS - ☐ BROKEN ☒ INTACT ☐ NOT USED
☐ CARRIER BILL # ___
☒ HAND DELIVERED

65