1001 Noble Energy Way Houston, TX 77070



Tel: 281.872.3100 nblenergy.com

southwest royalties, inc. a subsidiary of noble energy, inc.

September 29, 2017

Sent via email to Crystal.Weaver@state.nm.us and Mike.Bratcher@state.nm.us

NMOCD Crystal Weaver, Environmental Specialist Mike Bratcher, Environmental Specialist 811 S. 1st Street Artesia, NM 88210

Dear Ms. Weaver and Mr. Bratcher,

Southwest Royalties, Inc. respectfully submits the enclosed Release Characterization Report and Remediation Work Plan for release site 2RP-4322.

Should you have any questions or concerns, please contact me at 832-427-7652 or jonathan.pennington@nblenergy.com.

Sincerely,

Jonathan Pennington Environmental Coordinator

CC: Eric Garcia, Republic Backhoe Service LLC

:Enclosure

REPUBLIC BACKHOE SERVICE LLC

Crystal Weaver & Mike Bratcher NMOCD District II 811 S. First St. Artesia, NM 88210

September 29, 2017

Dear Ms. Weaver and Mr. Bratcher,

Subject: Release Characterization Report and Remediation Work Plan

Location: Southwest Royalties, Inc. POGO 36 State #1 Battery NMOCD Remediation Case #2RP-4322

Southwest Royalties, Inc. has contracted Republic Backhoe Service LLC (Republic) to perform a site assessment and remediation services at the above referenced location. The results of our spill summary and proposed remediation activities consist of the following.

Incident Date

June 25, 2017

Incident Description

On June 25, 2017 the pumper observed the Produced Water Tank overflowing at the battery. The pumper then manually turned off the transfer pump at the North Bushy Draw 35 Battery. The cause of the problem was a faulty low level shut off switch at the North Bushy Draw 35 Battery. An electrician was called out to replace the faulty low level switch. The produced water quickly soaked into the ground before a vacuum truck could be called to recover any of the release. A total of 8 barrels of produced water was released. The release of 8 barrels stayed inside of the tank battery containment. The size of the impacted area is approximately 4,300 square feet. A C-141 form was filled out and emailed to NMOCD District II on July 31, 2017 (See Attachment I).

Background Information

The Pogo 36 #1 Battery is located approximately twelve (12) miles southeast of Malaga, New Mexico. The legal location for the Battery is Unit C Section 36 Township 25 South and Range 29 East in Eddy County, New Mexico. The spill site lies within the berms of the Pogo 36 State #1 Battery location with the following GPS Coordinates: Latitude: 32.085529 North Longitude: -103.945357 West. (See Site Map attached in Appendix I and II).

According to the US Department of Agriculture Natural Resource Conservation Service Web Soil Survey, the surface soils are comprised of Upton-Simona Complex with 1 to 15% slope, eroded. The Upton-Simona Complex is classified as being gravelly fine sandy loam, and gravelly loam. Also, Upton-Simona Complex's permeability is moderately rapid at 2.50" to 5.00" per hour, which allowed the produced water to vertically migrate in the surface soil. The local surface geology is described as Quaternary Eolian and Piedmont deposits. The sub-surface geology is comprised of Brown fine Sand (5' bgs), Pink Sandstone with Carbonate Cement (10'-25' bgs), light brown fine sand with 5% ¼" gravel (30' bgs), light yellow silty to fine grain sand (38' and 40' bgs) and brown/yellow clayey sand (45' and 50'). The ground water is protected by the moderate permeability light brown sandstone at 30'. Also, it is protected by a low permeability brown/yellow clayey sand at (45' and 50').

Watercourses in the area are dry except for infrequent flows in response to major precipitation events. According to the New Mexico Office of the State Engineer's (OSE) Water Rights and Points of Diversion databases, no water wells are located within a two mile radius. The nearest well is located approximately 3 miles away with ground water greater than 175' below ground surface (bgs). (See Appendix IV and V for groundwater data)

Regulatory Requirements

New Mexico Oil Conservation Division evaluates each release of produced water or oil according to the Recommended Remediation Action Levels (RRAL). NMOCD uses RRALs as a ranking system when evaluating each spill in terms of Depth to Groundwater, Distance to Surface Water, and Distance to Wellhead Protection Area.

The ranking score for this site is **0** based on the following:

Depth to ground water: 178' (50'-99')	0
Wellhead Protection Area: > 1000'	0
Distance to Surface Water Body: > 1000'	0

Actions Taken

06/27/2017 through 06/29/2017 - A crew and backhoe went to the location and removed soil saturated with produced water from around the tanks. A total of 40 yards were hauled to NMOCD Approved Disposal Site R360. On 6/29/2017

6/29/2017 - Republic used a hand auger to perform four field samples. (See Appendix VI). Field Samples POGO 1, POGO 2, POGO 3, POGO 4 were collected at 4' bgs. All soil samples were performed by Republic Backhoe Service LLC personnel wearing clean nitrile groves. Field Samples were conducted at the following GPS Coordinates:

Pogo-1 32.085565N, -103.945296;

Pogo-2 32.085574N, -103.945449;

Pogo-3 32.0858489N, -103.945449W; and

Pogo-4 32.085470N, -103.945285W. (See Table below for Results)

On 9/20/2017 and 9/22/2017 Big Dog Drill Inc. was contracted to drill a bore hole at the Pogo 36 State #1 Battery. Based on field sample results conducted on 6/29/2017, one bore hole was drilled to satisfy the vertical delineation requirements. The bore hole (1) was drilled in the pooling area inside of the battery bermed area at the following GPS Coordinates 32.085485N, - 103.945329W (See Appendix VI). Samples were taken at 5', 10', 15', 20', 25', 30', 38' 40', 45', and 50' bgs. The soil samples were placed in laboratory provided sample containers and transported to Cardinal Labs in Hobbs, NM for analysis. The chlorides samples were analyzed per Method SM4500C1-B.

Laboratory	Results
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Sample	Date	Sampl	Depth	Chlorides	TPH	BTEX	LITHOLOGY	USCS
Date	Analyzed	e ID	(feet)	(mg/kg)	(mg/kg)	(mg/kg)		
09/19/2017	09/22/2017	BAT-5	5	2200	<10.0	<0.300	Pale Brown fine Sand	SP
09/19/2017	09/22/2017	BAT-10	10	12800	<10.0	<0.300	Pink Sandstone w/ Carbonate Cement	SP
09/19/2017	09/22/2017	BAT-15	15	10700	<10.0	<0.300	Pink Sandstone w/ Carbonate Cement	SP
09/19/2017	09/21/2017	BAT-20	20	6930	NA	NA	Pink Sand Stone w/ Carbonate Cement	SP
09/19/2017	09/21/2017	BAT-25	25	7200	NA	NA	Pink Sandstone with Carbonate Cement	SP
09/19/2017	09/21/2017	BAT-30	30	6660	NA	NA	Lt. Brown fine Sand with 5% ¼" gravel	SM
09/19/2017	09/21/2017	BAT-38	38	2560	NA	NA	Lt. Yellow Silty to Fine grained Sand	SM
09/19/2017	09/21/2017	BAT-40	40	1220	NA	NA	Lt. Yellow Silty to Fine grained Sand	SM
09/22/2017	09/25/2017	BAT-45	45	224	NA	NA	Brown/yellow Clayey Sand	SC
09/22/2017	09/25/2017	BAT-50	50	112	NA	NA	Brown/yellow Clayey Sand	SC
06/29/2017	06/29/2017	Pogo-1	4	640	NA	NA		
06/29/2017	06/29/2017	Pogo-2	4	1624	NA	NA		
06/29/2017	06/29/2017	Pogo-3	4	3380	NA	NA		
06/29/2017	06/29/2017	Pogo-4	4	3780	NA	NA		

Notes: NA = Not Analyzed.

See Appendix VI for Site sample points.

Proposal

The Pogo 36 State #1 is a Salt Water Injection Well that disposes of water from the North Brushy Draw 35 Battery, Dunes 36 State #1, and the Dunes 36 State #2. According to the groundwater data, the release poses little threat to groundwater contamination in the area. The depth to ground water in the area is greater than 175' bgs. The Site Delineation concluded that there are no issues with TPH or BTEX. Chloride contamination is the only issue at the site. Also, sample results indicate that chloride concentrations in soil are below NMOCD permissible levels at 45' bgs. Southwest Royalties, Inc. respectfully requests that NMOCD will consider delaying additional remediation activities at the site until the end of life of the battery.

Republic Backhoe Service LLC evaluated the potential to remediate the spill area while allowing operation of the battery to continue at the same time during remediation; however, this work plan was found to be unsafe and the remediation incomplete, as described below. As stated in the Background Information, the surface soil is comprised of Upton-Simona Complex. The Upton-Simona Complex is classified as being gravelly fine sandy loam, and gravelly loam. According to the Unified Soil Classification System (USCS), the Upton-Simona Complex is classified as SP-Sand with Poor Gradation. This classification is useful in engineering and geology. The US Occupational Safety and Health Administration relies on the USCS to help protect workers from injury when working in excavations and trenches. OSHA uses 3 soil classifications based on strength and other factors which affect the stability of cut slopes. According to the guidelines set by OSHA the Pogo 36 State #1 Battery sits on Type C Soil. According to OSHA, Type C Soil consists of granular soils or cohesive soils with unconfined compressive strength between .5 tsf and 1.5 tsf. Type C Soils are considered low strength resulting in unstable excavations usually resulting in cave-ins. The weight of the Produced Water Tank and that of the Oil Tank will only increase the probability of cave-ins if excavation takes place around the tanks. Type C Soils are susceptible to erosion from wind and rain thus making excavation around the tanks with shoring and shielding systems unsafe and a nonviable option. Excavations taking place in Type C Soils require a larger work site to account for elongated slopes of 34°. This would require disturbing vegetation outside of the leased well pad. The end result of this remediation would likely be only a partial remediation that will still need attention after the end of life of the battery. (See Appendix VII for List of Equipment at the Pogo 36 State #1 Battery)

In addition, temporarily shutting down the facility to remove all equipment and fully remediate the site would also likely require shutting down the North Brushy Draw 35 Battery, Dunes 36 State #1 Well, and Dune 36 State #2 Well. This would cause an undue burden to the company, as these are low oil volume wells that require operation to remain economically viable.

According to the groundwater data, the release poses little threat to groundwater in the area. The depth to ground water in the area is greater than 175' bgs, whereas sample results indicate that chloride concentrations in soil are below NMOCD permissible levels at 45' bgs. Sample results also indicated no detections of TPH or BTEX. Therefore, Southwest Royalties, Inc.

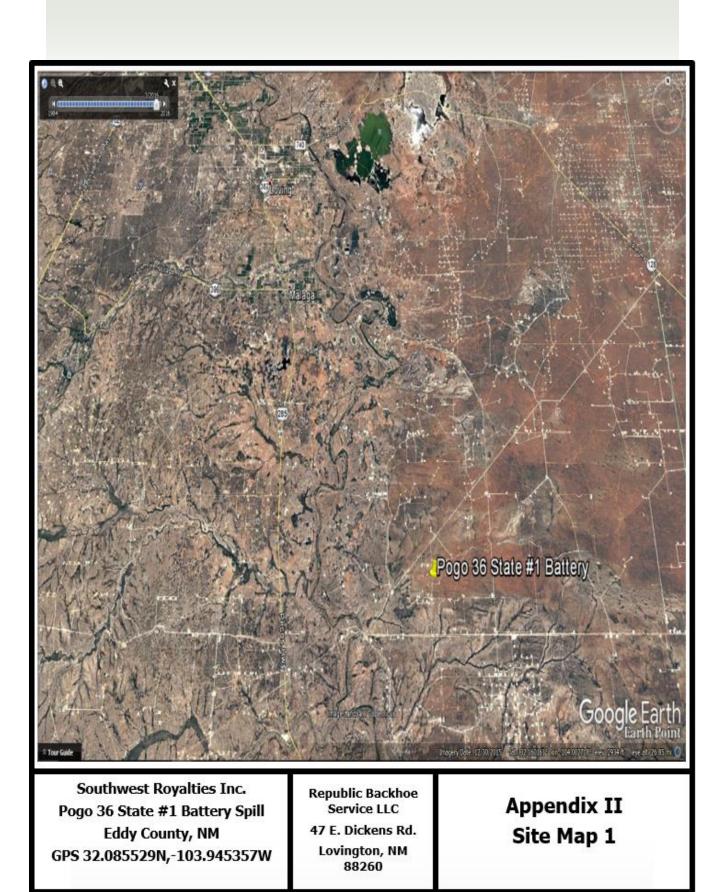
respectfully requests that NMOCD will consider delaying additional remediation activities at the site until the end of life of the battery.

IF you have any questions please call (575) 631-1031.

Eric Garcia Republic Backhoe Services LLC Appendix I C-141

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N/A Describe Ca On 6/25/20 Bushy Dra Switch was Atthough of Describe Ar The release soil to Nut soil to Nut a full site ch I hereby cer regulations public healt should their or the envir federal, stat Signature: Printed Nar Title:	urse was In use of Prob 17 at 11:55 w 35 Bater, is replaced, ho fluids we rea Affected stayed insi CD approve real records i aracterization of the the operations onment. In all operations onment. In all operations onment. In all me: DA dress:	blem and Rem A M the pump y. The cause f the non Monor re vacuumed a d and Cleanup de of the conta d site R360 (6 indicating that on be postpon to save failed to a addition. NM have failed to a addition. NM have failed to a dista R360 (6 indicating that on be postpon to save failed to a dista R360 (6 indicating that on be postpon to save failed to a dista R360 (6 indicating that on be postpon to save failed to a dista R360 (6 indicating that to save failed to a dista R360 (6 indicating that is a save failed to a dista R360 (6 indicating that to save failed to a dista R360 (6 indicating that a dista	ribe Fully edial Acti er noticed of the prot day 6/26/26 i total of 44 Action T ainment ar -27-2017 i given abo to report he accepta OCD acc gulations.	on Taken.* the water tank at the off a crew was a faulty he off a crew and bac through 6-29-2017 ter is encountered a battery is perman we is true and com and/or file certain nce of a C-141 re dy investigate and eptance of a C-14	the locat e removed skhoe rem). NM OS at a depth ently term plete to the release in port by the remediated port by the removed	N/A running over ill switch for the ion to pressult from the bas oved dirty P/ E search did he best of m to the contaminant locs not relice Approved th Pharest Conditions	er. The pumper the the transfer pump re wash the tanking intervent the tanking of the term any w boundwater contain the term any w term any w ter	en manually turn at the North Bus s and stainway. uled to R360. Tom around the ater wells within ination is highly ///	ed off the transfer pump at the Northy Draw 35 Battery. The low level tanks. Hauled 40 yards of contamin 2 miles. The closest well is 2.72 munikely at the location, and ask the pursuant to NMOCD rules and or releases which may endanger ot relieve the operator of liability water, surface water, human head for compliance with any other ON DIVISION		

Appendix II Site Map 1

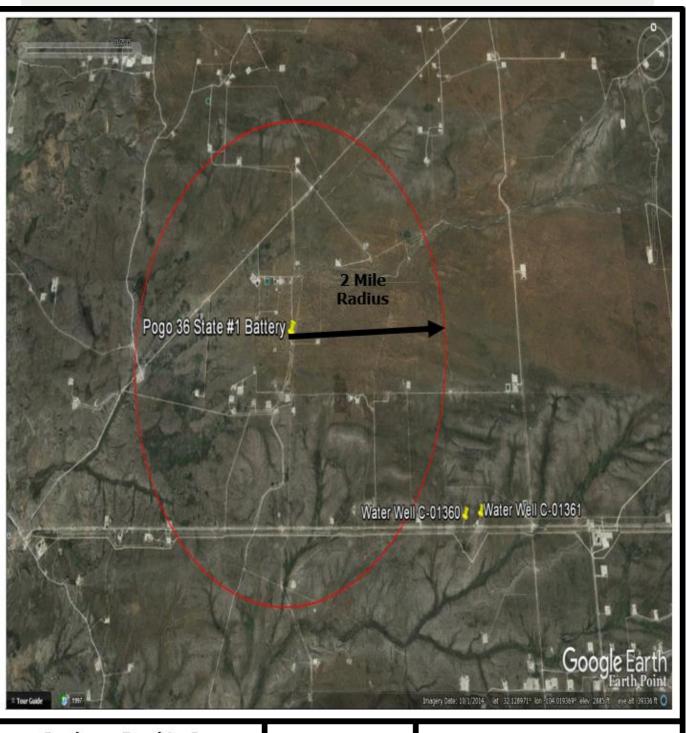


Appendix III Site Map 2



Eddy County, NM GPS 32.085529N,-103.945357W Republic Backhoe Service LLC 47 E. Dickens Rd. Lovington, NM 88260

Appendix III Site Map 2 Appendix IV Water Well Locations



Southwest Royalties Inc. Pogo 36 State #1 Battery Spill Eddy County, NM GPS 32.085529N,-103.945357W

Republic Backhoe Service LLC 47 E. Dickens Rd. Lovington, NM 88260

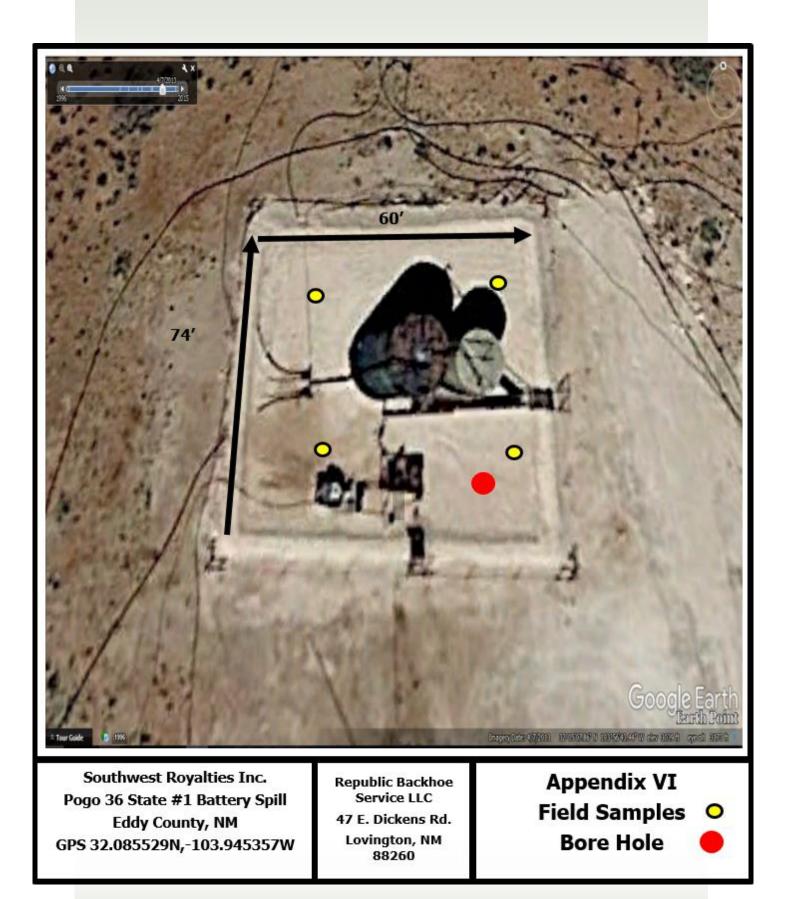
Appendix IV Water Wells Appendix V Groundwater Data

😻 Mozilla Firefox

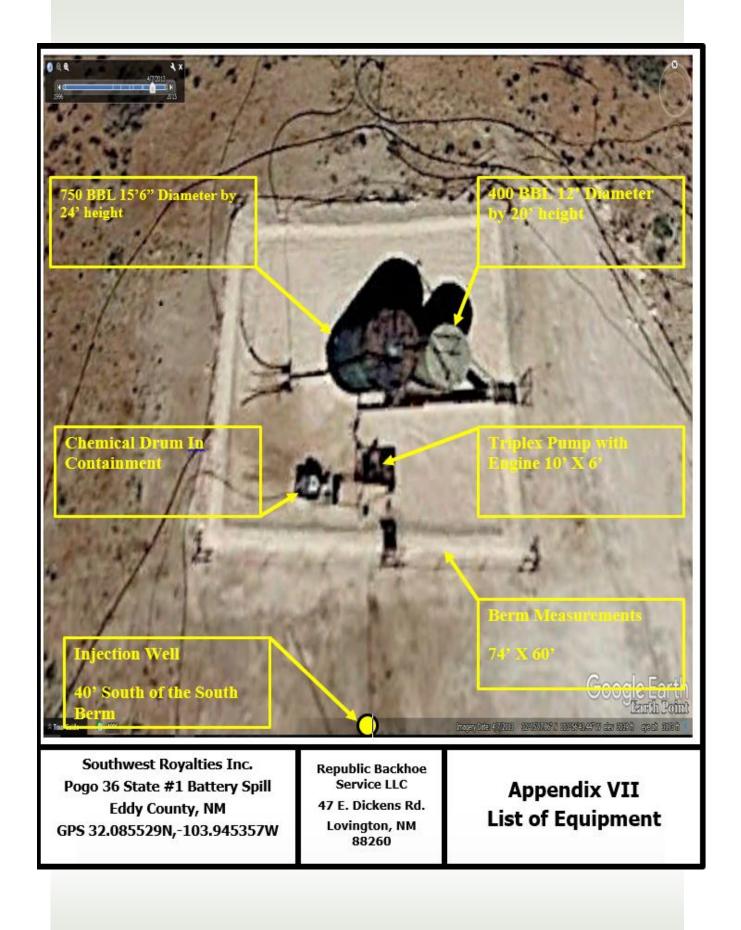
(i) nmwrrs.ose.state.nm.us/nmwrrs/ReportProxy?queryData={"report"%3A"waterColumn"%2C%0A"BasinDiv"%3A"true"%2C%0A"Basin"%3A""%2C%0A"County"%3

	W	ate						00		he State ge De	U		ter	
(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,	L					V 2=NE est to la	E 3=SW 4=SE rgest) (N	2) AD83 UTM in n	neters)	(In f	èet)	
		POD		_	_									
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<u>C 01361</u>			ED	3	43	05	26S	30E	603240	3548157 🌍	4187	775	184	591
										Avera	ge Depth to Wat	ter:	178 fee	et
											Minimum De	pth:	173 fee	et
											Maximum De	pth:	184 fee	et
Record Count: 2														
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9/27/17 11:41 AM											WATER COL WATER	.UMN/ AVER	AGE DEPT	н то

Appendix VI Sampling Map



Appendix VII Battery Equipment



Appendix VII Lab Analysis



September 26, 2017

ERIC GARCIA REPUBLIC BACKHOE SERVICES 47 E. DICKENS RD LOVINGTON, NM 88260

RE: POGO 36 STATE #1 BATTERY

Enclosed are the results of analyses for samples received by the laboratory on 09/25/17 12:12.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-16-8. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey Di Keine

Celey D. Keene Lab Director/Quality Manager

Page 1 of 4



Analytical Results For:

REPUBLIC BACKHOE SERVICES ERIC GARCIA 47 E. DICKENS RD LOVINGTON NM, 88260 Fax To: NONE

Received:	09/25/2017	Sampling Date:	09/22/2017
Reported:	09/26/2017	Sampling Type:	Soil
Project Name:	POGO 36 STATE #1 BATTERY	Sampling Condition:	** (See Notes)
Project Number:	2RP-4322	Sample Received By:	Celey D. Keene
Project Location:	NOBLE PERMIAN		

Sample ID: BAT-45 (H702602-01)

Chloride, SM4500Cl-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	09/25/2017	ND	400	100	400	3.92	

Sample ID: BAT-50 (H702602-02)

Chloride, SM4500Cl-B	mg,	kg	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	112	16.0	09/25/2017	ND	400	100	400	3.92	

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PEXSE NOTE: Labelity and Damages. Candina's labelity and clerit's esclusive memory for any daim arising, whether based in contract or toxt, shall be limited to the amount paid by diert for analyses. All cleims, including those for negligence and any other cause whetsower shall be deemed watered unless mode in writing and received by Cardinal within thithy (30) days after completion of the applicable service. In no event shall Cardinal to lite arises mode in writing and received by Cardinal within thithy (30) days after completion of the applicable service. In no event shall Cardinal to lite arises mode in writing and received by Cardinal within status approximation, out of or million to the performance of the services hereander by Cardinal, magneties of whether such dams is been upon any of the observation assesses arising out of ormital containes.

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Celey D. Keene, Lab Director/Quality Manager

Page 2 of 4



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
8*	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

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*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Page 3 of 4

Company State: MM Zip: 4760 Attn: 760 Company Fax #: Project Owner: Mobile finance Address Company Sample I.D. Sample I.D. G(G)RAB OR (C)OMP State: 7 Company Garage Garage Garage Garage Company Garage Garage Matter Company Garage Garage Fax # Company Garage Gara# Garage Company<	Company Name: Por LI & H. L. Laws (1)	BILL TO	ANALYSIS REQUEST
State: Attr:	Cric Garage	P.O. #	
Project Owner: Noble ("Church Line" City: Hort State: Tx Zip: TX0 70 State: Tx Zip: TX0 70 Phone # Fax # PRESERV Solid GROUNDWATER WASTEWATER Solid GROUNDWATER GROUNDWATER WASTEWATER SOLID GROUNDWATER GROUNDWATER WASTEWATER SOLID GROUNDWATER GROU	581-0131	1 Nole frey	
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for incidental or consequental damages, including w	 Landally on Classroper. Cardinally and lands without any classroper endations remaining for any classroper and any other comes whether any classroper whether any classroper and any other comes whether any classroper any classroper and any other comes whether any classroper and any other comes whether any classroper any c		



September 25, 2017

ERIC GARCIA REPUBLIC BACKHOE SERVICES 47 E. DICKENS RD LOVINGTON, NM 88260

RE: POGO 36 STATE #1 BATTERY

Enclosed are the results of analyses for samples received by the laboratory on 09/20/17 11:00.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-16-8. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keine

Celey D. Keene Lab Director/Quality Manager

Page 1 of 7



Analytical Results For:

REPUBLIC BACKHOE SERVICES ERIC GARCIA 47 E. DICKENS RD LOVINGTON NM, 88260 Fax To: NONE

Received:	09/20/2017	Sampling Date:	09/19/2017
Reported:	09/25/2017	Sampling Type:	Soil
Project Name:	POGO 36 STATE #1 BATTERY	Sampling Condition:	Cool & Intact
Project Number:	2RP-4322	Sample Received By:	Celey D. Keene
Project Location:	NOBLE PERMIAN		

Sample ID: BAT-5 (H702540-01)

BTEX 8021B mg/kg Analyzed By: MS Qualifier RPD Analyte Result Reporting Limit Analyzed Method Blank BS % Recovery True Value QC Benzene* < 0.050 0.050 09/22/2017 ND 2.00 100 2.00 1.00 Toluene* <0.050 0.050 09/22/2017 ND 1.86 93.1 2.00 0.535 Ethylbenzene* 09/22/2017 < 0.050 0.050 ND 96.9 2.00 0.366 1.94 <0.150 0.150 09/22/2017 ND 97.3 6.00 0.325 Total Xylenes* 5.84 Total BTEX 09/22/2017 <0.300 0.300 ND

72-148

Surrogate: 4-Bromofluorobenzene (PIL 103 %

Chloride, SM4500Cl-B	mg/kg		Analyze	Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2200	16.0	09/21/2017	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	<10.0	10.0	09/22/2017	ND	197	98.5	200	1.81	
DRO >C10-C28	<10.0	10.0	09/22/2017	ND	214	107	200	1.01	
EXT DRO >C28-C36	<10.0	10.0	09/22/2017	ND					
Surrogate: 1-Chlorooctane	76.1	% 28.3-16	4						

Surrogate: 1-Chlorooctadecane 80.8 % 34.7-157

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Celey D. Keene, Lab Director/Quality Manager

Page 2 of 7



Analytical Results For:

REPUBLIC BACKHOE SERVICES ERIC GARCIA 47 E. DICKENS RD LOVINGTON NM, 88260 Fax To: NONE

Received:	09/20/2017	Sampling Date:	09/19/2017
Reported:	09/25/2017	Sampling Type:	Soil
Project Name:	POGO 36 STATE #1 BATTERY	Sampling Condition:	Cool & Intact
Project Number:	2RP-4322	Sample Received By:	Celey D. Keene
Project Location:	NOBLE PERMIAN		

Sample ID: BAT-10 (H702540-02)

BTEX 8021B	mg,	/kg	Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	09/22/2017	ND	2.00	100	2.00	1.00	
Toluene*	<0.050	0.050	09/22/2017	ND	1.86	93.1	2.00	0.535	
Ethylbenzene*	<0.050	0.050	09/22/2017	ND	1.94	96.9	2.00	0.366	
Total Xylenes*	<0.150	0.150	09/22/2017	ND	5.84	97.3	6.00	0.325	
Total BTEX	<0.300	0.300	09/22/2017	ND					

Surrogate: 4-Bromafluorobenzene (PIL 106 % 72-148

Chloride, SM4500Cl-B	mg,	/kg	Analyze	d By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	12800	16.0	09/21/2017	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	<10.0	10.0	09/22/2017	ND	197	98.5	200	1.81	
DRO >C10-C28	<10.0	10.0	09/22/2017	ND	214	107	200	1.01	
EXT DRO >C28-C36	<10.0	10.0	09/22/2017	ND					
Surrogate: 1-Chlorooctane	81.4	% 28.3-16	4						
Surrogate: 1-Chlorooctadecane	82.7	% 34.7-15	7						

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Celey D. Keene, Lab Director/Quality Manager

Page 3 of 7



Analytical Results For:

REPUBLIC BACKHOE SERVICES ERIC GARCIA 47 E. DICKENS RD LOVINGTON NM, 88260 Fax To: NONE

Received:	09/20/2017	Sampling Date:	09/19/2017
Reported:	09/25/2017	Sampling Type:	Soil
Project Name:	POGO 36 STATE #1 BATTERY	Sampling Condition:	Cool & Intact
Project Number:	2RP-4322	Sample Received By:	Celey D. Keene
Project Location:	NOBLE PERMIAN		

Sample ID: BAT-15 (H702540-03)

Squible The part To (11, ore	10 00)								
BTEX 8021B	mg/	mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	09/22/2017	ND	2.00	100	2.00	1.00	
Toluene*	<0.050	0.050	09/22/2017	ND	1.86	93.1	2.00	0.535	
Ethylbenzene*	<0.050	0.050	09/22/2017	ND	1.94	96.9	2.00	0.366	
Total Xylenes*	<0.150	0.150	09/22/2017	ND	5.84	97.3	6.00	0.325	
Total BTEX	<0.300	0.300	09/22/2017	ND					

Surrogate: 4-Bromofluorobenzene (PIL 107 % 72-148

Chloride, SM4500Cl-B	mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	10700	16.0	09/21/2017	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	<10.0	10.0	09/22/2017	ND	197	98.5	200	1.81	
DRO >C10-C28	<10.0	10.0	09/22/2017	ND	214	107	200	1.01	
EXT DRO >C28-C36	<10.0	10.0	09/22/2017	ND					
Surrogate: 1-Chlorooctane	80.4	% 28.3-16	4						
Surrogate: 1-Chlorooctadecane	78.9	% 34.7-15	7						

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*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Page 4 of 7



Analytical Results For:

REPUBLIC BACKHOE SERVICES ERIC GARCIA 47 E. DICKENS RD LOVINGTON NM, 88260 Fax To: NONE

Received:	09/20/2017	Sampling Date:	09/19/2017
Reported:	09/25/2017	Sampling Type:	Soil
Project Name:	POGO 36 STATE #1 BATTERY	Sampling Condition:	Cool & Intact
Project Number:	2RP-4322	Sample Received By:	Celey D. Keene
Project Location:	NOBLE PERMIAN		

Sample ID: BAT-20 (H702540-04)

Chloride, SM4500Cl-B mg/kg			Analyze	Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	6930	16.0	09/21/2017	ND	416	104	400	0.00	

Sample ID: BAT-25 (H702540-05)

Chloride, SM4500Cl-B mg/kg			Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	7200	16.0	09/21/2017	ND	416	104	400	0.00	

Sample ID: BAT-30 (H702540-06)

Chloride, SM4500Cl-B mg/kg			Analyze	Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	6660	16.0	09/21/2017	ND	416	104	400	0.00	

Sample ID: BAT-38 (H702540-07)

Chloride, SM4500Cl-B	mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2560	16.0	09/21/2017	ND	416	104	400	0.00	

Sample ID: BAT-40 (H702540-08)

Chloride, SM4500Cl-B	mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1220	16.0	09/20/2017	ND	432	108	400	3.64	

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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 SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

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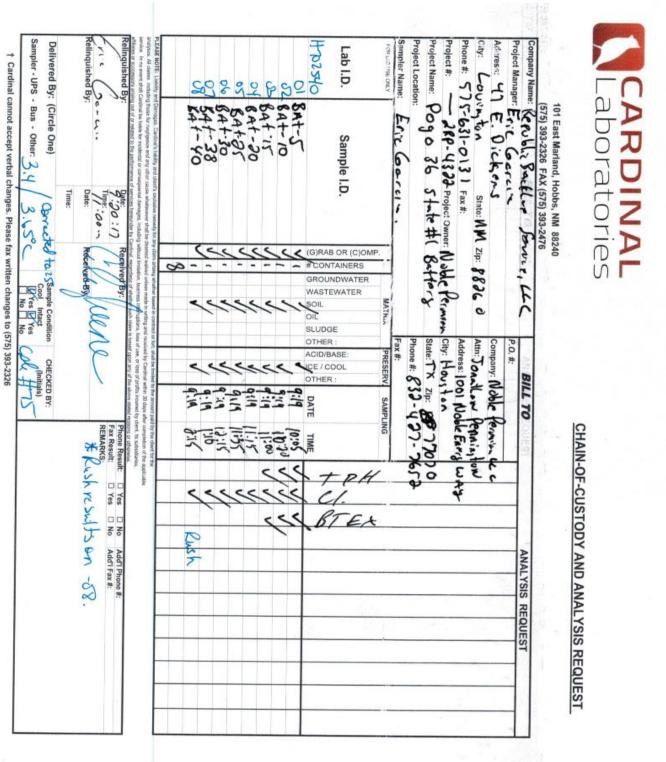
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