## Basin Environmental Service Technologies, LLC

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## **REMEDIATION SUMMARY**

## AND SITE CLOSURE REQUEST

BOPCO, LP PLU-CVX-JV-RR #010H API 30-015-42158 Eddy County, New Mexico Unit Letter "P" (SE/SE), Section 17, Township 25 South, Range 30 East Latitude 32.12386° North, Longitude 103.89703° West NMOCD Reference #2RP-2614

Prepared For:

BOPCO, LP 522 W. Mermod, Suite 704 Carlsbad, New Mexico 88220

Prepared By: Basin Environmental Service Technologies, LLC 3100 Plains Highway Lovington, New Mexico 88260

February 2015

Joel W. Lo Project Manager

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## **1.0 INTRODUCTION & BACKGROUND INFORMATION**

Basin Environmental Service Technologies, LLC (Basin), on behalf of BOPCO, LP (BOPCO), has prepared this *Remediation Summary and Site Closure Request* for the release site known as PLU-CVX-JV-RR #010H (Ross Ranch #010H). The legal description of the release site is Unit Letter "P" (SE/SE), Section 17, Township 25 South, Range 30 East, in Eddy County, New Mexico. The geographic coordinates of the release site are 32.12386° North latitude and 103.89703° West longitude. The property affected by the release is owned by the United States Department of the Interior - Bureau of Land Management (BLM). A "Site Location Map" is provided as Figure 1.

On November 14, 2014, a release occurred during fracking activities at the PLU-CVX-JV-RR #010H Well. The "Release Notification and Corrective Action" (Form C-141) indicated a twoinch (2") bleed-off line ruptured while fracking the well, resulting in the release of approximately sixty-nine barrels (69 bbls) of produced water. The New Mexico Oil Conservation Division (NMOCD) Artesia District Office was notified of the release immediately. During initial response activities the bleed-off line was repaired, and a vacuum truck was used to recover approximately sixty barrels (60 bbls) of fluid from within the frac containments. Spray from the release misted approximately eleven thousand, nine hundred forty square feet (11,940 ft<sup>2</sup>) of the caliche well pad. The Form C-141 is provided as Appendix A. General photographs of the release site are provided as Appendix B.

## 2.0 NMOCD SITE CLASSIFICATION

A search of the New Mexico Water Rights Reporting System (NMWRRS) database maintained by the New Mexico Office of the State Engineer (NMOSE) indicated information was unavailable for Section 17, Township 25 South, Range 30 East. A depth to groundwater reference map utilized by the NMOCD indicates groundwater should be encountered at approximately two hundred twenty-five feet (225') below ground surface (bgs). Based on the NMOCD ranking system, zero (0) points will be assigned to the site as a result of this criterion.

A search of the NMWRRS database indicated there are no water wells within one thousand feet (1,000') of the release. Based on the NMOCD ranking system, zero (0) points will be assigned to the site as a result of this criterion.

There are no surface water bodies within one thousand feet (1,000') of the release. Based on the NMOCD ranking system, zero (0) points will be assigned to the site as a result of this criterion.

NMOCD guidelines indicate the Ross Ranch #010H release site has an initial ranking score of zero (0) points. The soil remediation levels for a site with a ranking score of zero (0) points are as follows:

- Benzene 10 mg/Kg (ppm)
- Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX) 50 mg/Kg (ppm)
- Total Petroleum Hydrocarbons (TPH) 5,000 mg/Kg (ppm)

The New Mexico Administrative Code (NMAC) does not currently specify a remediation level for chloride concentrations in soil. Chloride remediation levels are set by the NMOCD on a site-specific basis.

## 3.0 SUMMARY OF SOIL REMEDIATION ACTIVITIES

On January 15, 2015, Basin began excavating impacted soil at the release site. The floor and sidewalls of the excavation were advanced until field tests suggested concentrations of BTEX, TPH and chloride were below NMOCD regulatory guidelines. Excavated soil was stockpiled onsite, pending final disposition.

On January 19, 2015, five (5) confirmation soil samples (A5 N. Wall @ 1', A5 Floor @ 1', A6 E. Wall @ 1', A6 N. Wall @ 1' and A6 Floor @ 1') were collected from the excavated area and submitted to Cardinal Laboratories for analysis of chloride concentrations. Laboratory analytical results indicated chloride concentrations ranged from 528 ppm for soil sample A6 E. Wall @ 1' to 64.0 ppm for soil sample A5 N. Wall @ 1'. Soil sample A6 Floor @ 1' was also analyzed for concentrations of BTEX and TPH, which were determined to be less than the appropriate laboratory method detection limit (MDL). A summary of "Concentrations of Benzene, BTEX, TPH & Chloride in Soil" is provided in Table 1. A "Site & Sample Location Map" is provided as Figure 2. Laboratory analytical reports are provided as Appendix C.

On January 20, 2015, eight (8) confirmation soil samples (E. Wall @ 50', A3 W. Wall @ 1', A3 Floor @ 1', A3 @ 1', B4 @ 1', B6 E. Wall @ 1', B6 Floor @ 1' and B6 @ 50' Floor @ 1') were collected from the excavated area and submitted to the laboratory for analysis of chloride concentrations. Laboratory analytical results indicated chloride concentrations ranged from 640 ppm for soil sample B6 E. Wall @ 1' to 144 ppm for soil sample B6 @ 50' Floor @ 1'. Soil sample B6 @ 50' Floor @ 1' was also analyzed for concentrations of BTEX and TPH, which were determined to be less than the appropriate laboratory MDL. Excavation activities continued toward the south.

On January 23, 2015, two (2) confirmation soil samples (C4 @ 1' and C5 @ 1') were collected from the excavated area and submitted to the laboratory for analysis of chloride concentrations. Laboratory analytical results indicated soil sample C4 @ 1' exhibited a chloride concentration of 160 ppm and soil sample C5 @ 1' exhibited a chloride concentration of 144 ppm. Soil sample C5 @ 1' was also analyzed for concentrations of BTEX and TPH, which were determined to be less than the appropriate laboratory MDL. Excavation activities continued toward the south.

On January 27, 2015, five (5) confirmation soil samples (B #3, B #5, C #6, D #4 and D #6) were collected from the remediation site and submitted to the laboratory for analysis of chloride concentrations. Laboratory analytical results indicated the chloride concentrations ranged from 608 ppm for soil sample B #5 to <16.0 ppm for soil sample C #6. Excavation activities continued toward the south.

On January 28, 2015, nine (9) confirmation soil samples (A #2, A #4, B #2, C #2, C #3, D #1, D #3, D #5 and E #6) were collected from the remediation site and submitted to the laboratory for analysis of chloride concentrations. Laboratory analytical results indicated the chloride concentrations ranged from 624 ppm for soil sample D #3 to 64.0 ppm for soil sample D #5. Excavation activities continued toward the south.

On January 29, 2015, three (3) confirmation soil samples (E #4 @ 1', E #5 @ 2' and F #5 @ Surf.) were collected from the remediation site and submitted to the laboratory for analysis of chloride concentrations. Laboratory analytical results indicated the chloride concentrations ranged from 672 ppm for soil sample E #5 @ 2' to 32.0 ppm for soil samples E #4 @ 1' and F #5 @ Surf. Excavation activities continued toward the south.

On February 4, 2015, eight (8) confirmation soil samples (D #2 @ 1', F #1 @ 1', F #2 @ 1', F #3 @ 3', E #1 @ Surface, E #2 @ 1', E #3 @ 1' and E #4 @ 1') were collected from the remediation site and submitted to the laboratory for analysis of chloride concentrations. Laboratory analytical results indicated the chloride concentrations ranged from 512 ppm for soil sample D #2 @ 1' to 112 ppm for soil sample F #2 @ 1'.

The final dimensions of the excavation were approximately one hundred forty (140) to one hundred eighty feet (180') in width, two hundred sixty feet (260') in length and one (1) to three feet (3') in depth. Upon receiving laboratory analytical data from confirmation soil samples, the excavated area was backfilled with locally purchased, non-impacted caliche. Following backfilling, areas affected by the remediation activities were compacted and contoured to meet the needs of the well pad.

Between January 21, and February 9, 2015, approximately three thousand, three hundered and sixty cubic yards (3360 yd<sup>3</sup>) of impacted material was transported to Lea Land, Inc. (NMOCD Permit #WM-01- 035) for disposal.

## 4.0 QA/QC PROCEDURES

## 4.1 Soil Sampling

Soil samples were delivered to Cardinal Laboratories, Inc., in Hobbs, New Mexico, for BTEX, TPH and/or chloride analyses using the methods described below:

- BTEX concentrations in accordance with EPA Method SW-846 8021b
- TPH concentrations in accordance with EPA Method SW-846 8015M
- Chloride concentrations in accordance with EPA Method 4500 Cl-B

## 4.2 Decontamination of Equipment

Cleaning of the sampling equipment was the responsibility of the environmental technician. Prior to use, and between each sample, the sampling equipment was cleaned with Liqui-Nox® detergent and rinsed with distilled water.

## 4.3 Laboratory Protocol

The laboratory was responsible for proper QA/QC procedures after signing the chain-of-custody form(s). These procedures were either transmitted with the laboratory reports or are on file at the laboratory.

## 5.0 SITE CLOSURE REQUEST

Confirmation soil samples collected from the excavated area at the Ross Ranch #010H remediation site were analyzed by an NMOCD-approved laboratory, which determined concentrations of BTEX, TPH and chloride were less than NMOCD regulatory standards in each of the submitted soil samples. Based on these laboratory analytical results, Basin recommends BOPCO provide the NMOCD-Artesia District Office and the BLM a copy of this *Remediation Summary and Site Closure Request* and request the NMOCD grant site closure to the Ross Ranch #010H release site.

## 6.0 LIMITATIONS

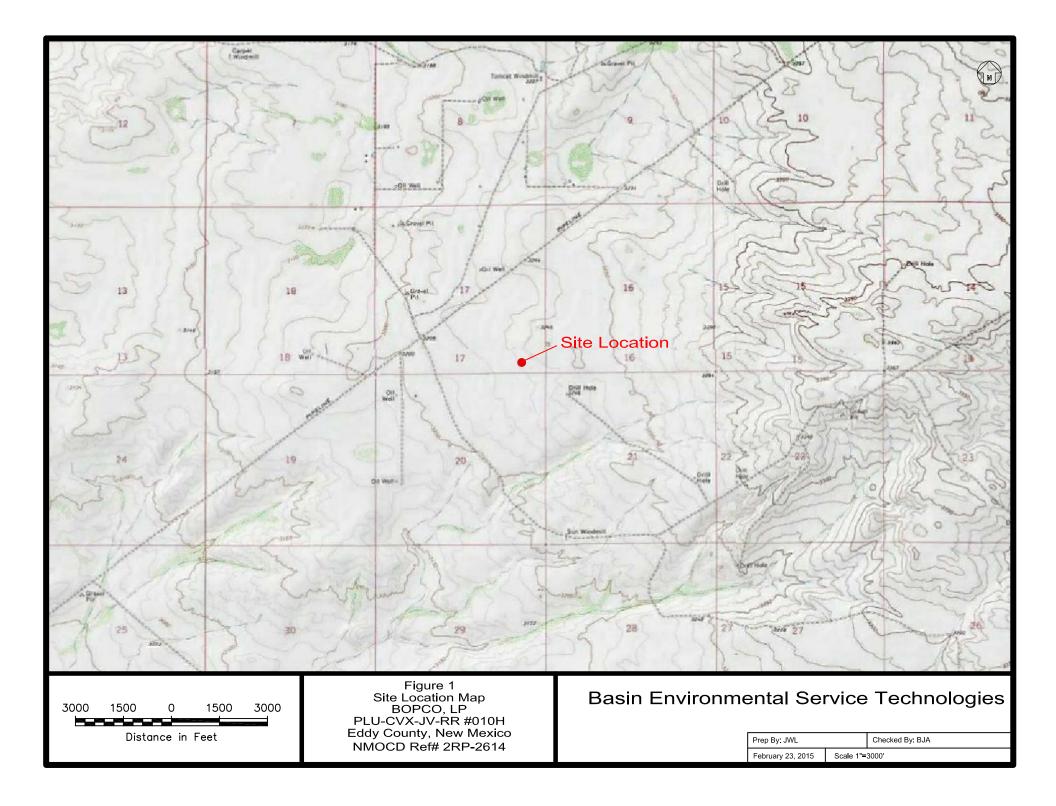
Basin Environmental Service Technologies, LLC, has prepared this *Remediation Summary and Site Closure Request* to the best of its ability. No other warranty, expressed or implied, is made or intended. Basin has examined and relied upon documents referenced in the report and on oral statements made by certain individuals. Basin has not conducted an independent examination of the facts contained in referenced materials and statements. Basin has presumed the genuineness of these documents and statements and that the information provided therein is true and accurate. Basin has prepared this report in a professional manner, using the degree of skill and care exercised by similar environmental consultants. Basin notes that the facts and conditions referenced in this report may change over time, and the conclusions and recommendations set forth herein are applicable only to the facts and conditions as described at the time of this report.

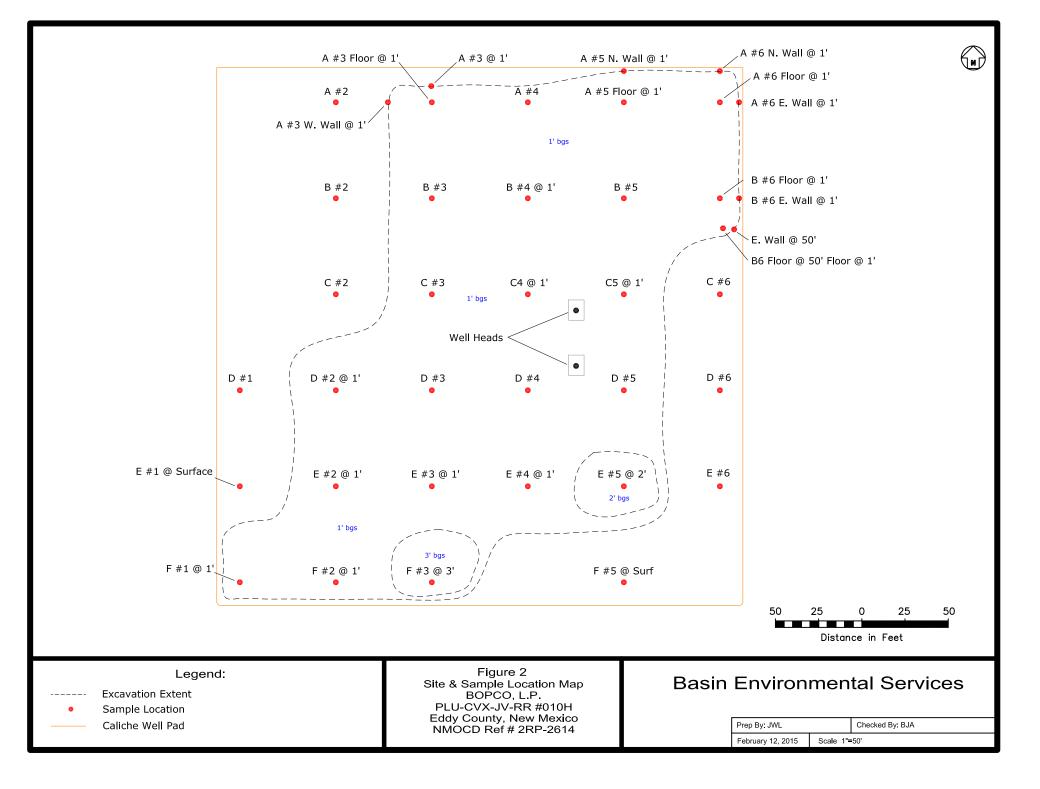
This report has been prepared for the benefit of BOPCO, LP. The information contained in this report, including all exhibits and attachments, may not be used by any other party without the express consent of Basin Environmental Service Technologies, LLC, and/or BOPCO, LP.

## 7.0 **DISTRIBUTION:**

- Copy 1: Mike Bratcher New Mexico Energy, Minerals and Natural Resources Department Oil Conservation Division (District 2) 1301 E. Grand Avenue Artesia, NM 88210
- Copy 2: James Amos Bureau of Land Management 602 E. Greene Street Carlsbad, New Mexico 88220
- Copy 3: Tony Savoie BOPCO, LP 522 W. Mermod, Suite 704 Carlsbad, NM 88220
- Copy 4: Basin Environmental Service Technologies, LLC P.O. Box 301 Lovington, NM 88260

# **FIGURES**





## **TABLES**

#### TABLE 1 CONCENTRATIONS OF BENZENE, BTEX, TPH & CHLORIDE IN SOIL

#### BOPCO, LP PLU-CVX-JV-RR #010H EDDY COUNTY, NEW MEXICO NMOCD REFERENCE #: 2RP-2614

					METHOD: E	EPA SW 846	-8021B, 503	0	MET	FHOD: 80 <sup>-</sup>	15M	TOTAL	4500 CI-B
SAMPLE LOCATION	SAMPLE DEPTH (BGS)	SAMPLE DATE	SOIL STATUS	BENZENE (mg/Kg)	TOLUENE (mg/Kg)	ETHYL- BENZENE (mg/Kg)	TOTAL XYLENES (mg/Kg)	TOTAL BTEX (mg/Kg)	GRO C <sub>6</sub> -C <sub>12</sub> (mg/Kg)	DRO C <sub>12</sub> -C <sub>28</sub> (mg/Kg)	ORO C <sub>28</sub> -C <sub>35</sub> (mg/Kg)	TPH C <sub>6</sub> -C <sub>35</sub> (mg/Kg)	CHLORIDI (mg/Kg)
A5 N. Wall @ 1'	1'	1/19/2015	In-Situ	-	-	-	-	-	-	-	-	-	64.0
A5 Floor @ 1'	1'	1/19/2015	In-Situ	-	-	-	-	-	-	-	-	-	176
A6 E. Wall @ 1'	1'	1/19/2015	In-Situ	-	-	-	-	-	-	-	-	-	528
A6 N. Wall @ 1'	1'	1/19/2015	In-Situ	-	-	-	-	-	-	-	-	-	352
A6 Floor @ 1'	1'	1/19/2015	In-Situ	<0.050	<0.050	< 0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<10.0	240
E. Wall @ 50'	1'	1/20/2015	In-Situ	-	-	-	-	•	-	-	-	-	528
A3 W. Wall @ 1'	1'	1/20/2015	In-Situ	-	-	-	-	-	-	-	-	-	192
A3 Floor @ 1'	1'	1/20/2015	In-Situ	-	-	-	-	-	-	-	-	-	272
A3 @ 1'	1'	1/20/2015	In-Situ	-	-	-	-	-	-	-	-	-	336
B4 @ 1'	1'	1/20/2015	In-Situ	-	-	-	-	-	-	-	-	-	400
B6 E. Wall @ 1'	1'	1/20/2015	In-Situ	-	-	-	-	-	-	-	-	-	640
B6 Floor @ 1'	1'	1/20/2015	In-Situ	-	-	-	-	-	-	-	-	-	160
B6 @ 50' Floor @ 1'	1'	1/20/2015	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<10.0	144
C4 @ 1'	1'	1/23/2015	In-Situ		_				-				160
C5 @ 1'	1'	1/23/2015	In-Situ	< 0.050	< 0.050	< 0.050	<0.150	< 0.300	<10.0	<10.0	<10.0	<10.0	144
03 @ 1	1	1/23/2013	III-Silu	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<10.0	144
B #3	1'	1/27/2015	In-Situ	-	-	-	-	-	-	-	-	-	448
B #5	1'	1/27/2015	In-Situ	-	-	-	-	-	-	-	-	-	608
C #6	Surface	1/27/2015	In-Situ	-	-	-	-	-	-	-	-	-	<16.0
D #4	1'	1/27/2015	In-Situ	-	-	-	-	-	-	-	-	-	32.0
D #6	Surface	1/27/2015	In-Situ	-	-	-	-	-	-	-	-	-	80.0
A #2	Surface	1/28/2015	In-Situ	-	-	-		-	-	-	-	-	272
A #4	1'	1/28/2015	In-Situ	-	-	-	-	-	-	-	-	-	208
B #2	Surface	1/28/2015	In-Situ	-	-	-	-	-	-	-	-	-	352
C #2	Surface	1/28/2015	In-Situ	-	-	-	-	-	-	-	-	-	480
C #3	1'	1/28/2015	In-Situ	-	-	-	-	-	-		-		192
D #1	Surface	1/28/2015	In-Situ	-	-	-	-	-	-	-	-	-	368
D #3	1'	1/28/2015	In-Situ	-	-	-			-	-	-		624
D #5	1'	1/28/2015	In-Situ	-	-	-	-		-	-	-		64.0
E #6	Surface	1/28/2015	In-Situ	-	-	-	-	-	-		-		96.0
L #0	Sunace	1/20/2013	In-Situ	-	-	-	-	-	-	-	-	-	30.0
E #4 @ 1'	1'	1/29/2015	In-Situ	-	-	-	-	-	-	-	-	-	32.0
E #5 @ 2'	2'	1/29/2015	In-Situ	-	-	-	-	-	-	-	-	-	672
F #5 @ Surf.	Surface	1/29/2015	In-Situ	•	-	-		•	•	•	-	•	32.0
D #2 @ 1'	1'	2/4/2015	In-Situ	-	-	-	-	-	-	-	-	-	512
F #1 @ 1'	1'	2/4/2015	In-Situ	-		-	-	-	-		-		208
F #2 @ 1'	1'	2/4/2015	In-Situ	-	-	-	-	-	-	-	-	-	112
F #3 @ 3'	3'	2/4/2015	In-Situ	-	-	-			-	-	-		192
E #1 @ Surface	Surface	2/4/2015	In-Situ In-Situ	-	-	-	-	-	-		-	-	256
E #1 @ Sunace E #2 @ 1'	Surface 1'	2/4/2015	In-Situ In-Situ	-	-	-	-	-	-	-	-		230
E #2 @ 1 E #3 @ 1'	1'	2/4/2015	In-Situ In-Situ	-	-	-	-	-	-	-	-	-	384
E #4 @ 1'	1'	2/4/2015	In-Situ In-Situ	-	-	-	-	-	-	-	-	-	160
NMOCD Criteria				10				50				5,000	1,000

- = Not analyzed.

## **APPENDICES**

## Appendix A

## Release Notification and Corrective Action (Form C-141)

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## State of New Mexico Energy Minerals and Natural Resources

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

1220 S. St. Fran	cis Dr., Santa	Fe, NM 8750	5			$\frac{11}{20} \times 11 \times 100$		•						
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			Rele	ease Notific	atio	on and Co	orrective A	ctio	n					
NAB14	37441	278				<b>OPERA</b> '	TOR		🛛 Initia	al Report		Final Report		
Name of Co			ATA	1737-		Contact: To								
			04 Carlsl	oad, N.M. 88220	)		No. 575-887-732	79.	······································		<u></u>			
Facility Nar									oduction					
						Facility Type: Exploration and Production								
Surface Ow	ner: Federa	nl		Mineral O	wner:	Federal	<u> </u>		API No	. 30-015-4	2158			
			_		TIO	N OF RE	LEASE							
Unit Letter P	Section 17	Township 25S	Range 30E	Feet from the 290		h/South Line	Feet from the 675		West Line East	County Eddy				
	<u></u>			Latitude <u>N 32</u>	2.1238	<u>36</u> Longitud	e <u>W 103.89703</u>	L	·······			<b>_</b>		
				NAT	URE	COF REL	EASE							
Type of Relea			_				Release: 69 bbls.			lecovered: 6				
Source of Rel	lease: 2" ble	ed off line					lour of Occurrence					: 11/14/14 at		
		·	·				t approx.1:00 p.m.			ately 1:00 p	. <u>m.</u>			
Was Immedia	ite Notice G		Yes 🗌	No 🗌 Not Re	quired		Whom? H. Patter	rson vo	nce mail					
By Whom? A	my Ruth						lour: 11/14/14 at 3	3·30 n i						
Was a Watero	course Reach	ned?					lume Impacting th							
			Yes 🛛	No			1 0							
If a Watercou	rse was Imp	acted. Descri	be Fully.*							L CONS				
il a materio a									A	RTESIA DIS	JIRICI			
										NOV 18	2014			
Describe Caus										RECEIV	ED			
While frackin	g the well a	2" bleed off	ine ruptur	ed. The line was r	epaire	d and the frac	continued.							
Describe Area	Affected an	nd Cleanup A	ction Tak	en.*										
The frac pump	os and lines	were contain	ed inside (	) perm containmer	nt with	6" walls; the	spray from the rup	otured l	ine misted a	n area on th	e well	pad		
measuring app	proximately	11,940 sq.ft.	Sixty barr	els of produced w	ater w	as recovered fi	om the containme	ents. Tl	ne remainder	r of the fluid	l soake	d into the		
ground.	area will be	alaanad un is		as to the NMOCI	) and I	DI Managadiat								
. The impacted	area will be	cleaned up in	i accordai	ice to the NMOCI		BLM remediat	ion guidennes.							
I hereby certif	y that the in	formation giv	en above	is true and comple	ete to t	he best of my	knowledge and un	dersta	nd that pursu	ant to NMC	)CD ru	les and		
regulations all	operators an	re required to	report an	d/or file certain rel	lease n	otifications an	d perform correct	ive act	ions for relea	ases which	may en	danger		
public health c	or the enviro	nment. The	acceptance	e of a C-141 repor	t by th	e NMOCD ma	rked as "Final Re	port" d	loes not relie	eve the oper	ator of	liability		
				investigate and ren ance of a C-141 ren										
federal, state, o					ponta	ioes not reneve	the operator of re	sponsi		inpliance w	many	other		
		<u>_</u>			T		OIL CONS	ERV	ATION I	DIVISIO	N			
~		2	۵.											
Signature:	1 aug	X am	<u>u</u>				Signed By	M	14 Des	Ballon	-			
Printed Name:	Tony Savoi	e				Approved by I	Environmental Spo	ecialist						
							wholy			117	Λ			
Title: Waste M	lanagement	and Remedia	tion Speci	alist		Approval Date	: 11   41   4		Expiration D	ate: N//	4			
E-mail Addres	s: tasavoie@	basspet.com				Conditions of	Approval:				_			
. 1							n per O.C.D. R	lules	& Guidal	Attached				
Date:	./18/1			432-556-8730		UBMIT REI		ROP	OSAL NO					
Attach Additi	onal Sheets	s If Necessa	ry .			ATER THAI		14			2R	P-2014		

Appendix B Photographs



Photograph of surface staining at the PLU-CVX-JV-RR #010H release site.



Photograph of surface staining at the PLU-CVX-JV-RR #010H release site.



Photograph of excavation activities at the PLU-CVX-JV-RR #010H release site.



Photograph of excavation activities at the PLU-CVX-JV-RR #010H release site.



Photograph of backfilling activities at the PLU-CVX-JV-RR #010H release site.



Photograph of the PLU-CVX-JV-RR #010H release site after remediation activities.

# Appendix C

Laboratory Analytical Reports



January 23, 2015

JOEL LOWRY Basin Environmental Service P.O. Box 301 Lovington, NM 88260

RE: PLU CVX JV RR #010 H

Enclosed are the results of analyses for samples received by the laboratory on 01/21/15 11:05.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at <a href="https://www.tceq.texas.gov/field/ga/lab\_accred\_certif.html">www.tceq.texas.gov/field/ga/lab\_accred\_certif.html</a>.

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

Celey D. Keine

Celey D. Keene Lab Director/Quality Manager



Basin Environmental Service JOEL LOWRY P.O. Box 301 Lovington NM, 88260 Fax To: (575) 396-1429

Received:	01/21/2015	Sampling Date:	01/20/2015
Reported:	01/23/2015	Sampling Type:	Soil
Project Name:	PLU CVX JV RR #010 H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Celey D. Keene
Project Location:	EDDY COUNTY, NM		

#### Sample ID: E. WALL @ 50' (H500193-01)

Chloride, SM4500Cl-B	mg	/kg	Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	528	16.0	01/21/2015	ND	400	100	400	3.92	

#### Sample ID: A3 W. WALL @ 1' (H500193-02)

Chloride, SM4500Cl-B	mg	/kg	Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	192	16.0	01/21/2015	ND	416	104	400	0.00	

#### Sample ID: A3 FLOOR @ 1' (H500193-03)

Chloride, SM4500CI-B	mg	/kg	Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	272	16.0	01/21/2015	ND	416	104	400	0.00	

#### Sample ID: A3 @ 1' (H500193-04)

Chloride, SM4500Cl-B	mg	/kg	Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	336	16.0	01/21/2015	ND	416	104	400	0.00	

#### **Cardinal Laboratories**

\*=Accredited Analyte

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Celeg D. Keine

Celey D. Keene, Lab Director/Quality Manager



Basin Environmental Service JOEL LOWRY P.O. Box 301 Lovington NM, 88260 Fax To: (575) 396-1429

Received:	01/21/2015	Sampling Date:	01/20/2015
Reported:	01/23/2015	Sampling Type:	Soil
Project Name:	PLU CVX JV RR #010 H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Celey D. Keene
Project Location:	EDDY COUNTY, NM		

#### Sample ID: B4 @ 1' (H500193-05)

Chloride, SM4500Cl-B	mg/kg Analyzed By: AP			d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	400	16.0	01/21/2015	ND	416	104	400	0.00	

#### Sample ID: B6 E. WALL @ 1' (H500193-06)

Chloride, SM4500Cl-B	mg,	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	640	16.0	01/21/2015	ND	416	104	400	0.00	

#### Sample ID: B6 FLOOR @ 1' (H500193-07)

Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	160	16.0	01/21/2015	ND	416	104	400	0.00	

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Celeg D. Keine



Basin Environmental Service JOEL LOWRY P.O. Box 301 Lovington NM, 88260 Fax To: (575) 396-1429

Received:	01/21/2015	Sampling Date:	01/20/2015
Reported:	01/23/2015	Sampling Type:	Soil
Project Name:	PLU CVX JV RR #010 H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Celey D. Keene
Project Location:	EDDY COUNTY, NM		

#### Sample ID: B6 @ 50' FLOOR @ 1' (H500193-08)

BTEX 8021B	mg/	kg	Analyze	d By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	01/22/2015	ND	1.58	78.8	2.00	14.6	
Toluene*	<0.050	0.050	01/22/2015	ND	1.51	75.7	2.00	15.2	
Ethylbenzene*	<0.050	0.050	01/22/2015	ND	1.44	72.0	2.00	15.8	
Total Xylenes*	<0.150	0.150	01/22/2015	ND	4.34	72.3	6.00	16.4	
Total BTEX	<0.300	0.300	01/22/2015	ND					
Surrogate: 4-Bromofluorobenzene (PID	102 9	% 61-154							
Chloride, SM4500Cl-B	mg/	'kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	144	16.0	01/21/2015	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	01/21/2015	ND	192	95.9	200	2.00	
DRO >C10-C28	<10.0	10.0	01/21/2015	ND	191	95.6	200	0.476	
EXT DRO >C28-C35	<10.0	10.0	01/21/2015	ND					
Surrogate: 1-Chlorooctane	101 9	47.2-15	7						
Surrogate: 1-Chlorooctadecane	113 9	52.1-17	6						

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Celeg D. Keine

Celey D. Keene, Lab Director/Quality Manager



Basin Environmental Service JOEL LOWRY P.O. Box 301 Lovington NM, 88260 Fax To: (575) 396-1429

Received:	01/21/2015	Sampling Date:	01/19/2015
Reported:	01/23/2015	Sampling Type:	Soil
Project Name:	PLU CVX JV RR #010 H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Celey D. Keene
Project Location:	EDDY COUNTY, NM		

#### Sample ID: A5 N. WALL @ 1' (H500193-09)

Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	64.0	16.0	01/21/2015	ND	416	104	400	0.00	

#### Sample ID: A5 FLOOR @ 1' (H500193-10)

Chloride, SM4500Cl-B	mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	176	16.0	01/21/2015	ND	416	104	400	0.00	

#### Sample ID: A6 E. WALL @ 1' (H500193-11)

Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	528	16.0	01/21/2015	ND	416	104	400	0.00	

#### Sample ID: A6 N. WALL @ 1' (H500193-12)

Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	352	16.0	01/21/2015	ND	416	104	400	0.00	

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Celey D. Keine

Celey D. Keene, Lab Director/Quality Manager



Basin Environmental Service JOEL LOWRY P.O. Box 301 Lovington NM, 88260 Fax To: (575) 396-1429

Received:	01/21/2015	Sampling Date:	01/19/2015
Reported:	01/23/2015	Sampling Type:	Soil
Project Name:	PLU CVX JV RR #010 H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Celey D. Keene
Project Location:	EDDY COUNTY, NM		

#### Sample ID: A6 FLOOR @ 1' (H500193-13)

BTEX 8021B	mg/	/kg	Analyze	d By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	01/22/2015	ND	1.58	78.8	2.00	14.6	
Toluene*	<0.050	0.050	01/22/2015	ND	1.51	75.7	2.00	15.2	
Ethylbenzene*	<0.050	0.050	01/22/2015	ND	1.44	72.0	2.00	15.8	
Total Xylenes*	<0.150	0.150	01/22/2015	ND	4.34	72.3	6.00	16.4	
Total BTEX	<0.300	0.300	01/22/2015	ND					
Surrogate: 4-Bromofluorobenzene (PID	100	% 61-154							
Chloride, SM4500Cl-B	mg,	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	240	16.0	01/21/2015	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	01/21/2015	ND	192	95.9	200	2.00	
DRO >C10-C28	<10.0	10.0	01/21/2015	ND	191	95.6	200	0.476	
EXT DRO >C28-C35	<10.0	10.0	01/21/2015	ND					
Surrogate: 1-Chlorooctane	105	% 47.2-15	7						
Surrogate: 1-Chlorooctadecane	117 9	% 52.1-17	6						

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Celez D. Keine

Celey D. Keene, Lab Director/Quality Manager



#### **Notes and Definitions**

- 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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Celeg D. Keine

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(575) 393-2326 FAX (575) 393-2476

PLEASE NOTE: Liability and Damages. Cardina's lability and clenif's actuative remedy for any clean sating whether bas analyses. At cleans touking those for englgence and any other cause whatsover that be deemed whether divess made service. In no event shall Cardinat be liable for incidential or consequential damages, including without limitation, business and the service in the event shall Cardinate be liable for incidential or consequential damages, including without limitation, business the service in the event shall Cardinate be liable for incidential or consequential damages. Project Manager: Project Name: Phone #: City: Lovington Company Name: Sampler Name: Project Location: Project #: Address: P.O. Box 301 1500193 Lab I.D. FOR LAB USE ONLY 228 92090 (575)396-2378 Steve Taylor PLU CVX JV RR担10H Eddy Co., NM Joel Lowry B6 @ 50' Floor @ 1' Sample I.D. B6 E. Wall @ 1' A3 W. Wall @ 1' E. Wall @ 50' B6 Floor @ 1' A3 Floor @ 1' B4 @ 1' A3 @ 1' Fax #: (575)396-1429 Project Owner: State: NM Zip: G)RAB OR (C)OMP ---4 ---# CONTAINERS 88260 whether based in contract or tort, shall be limited to the amount paid by the client for the unless made in writing and received by Cardinal within 30 days after completion of the applicable on, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, GROUNDWATER WASTEWATER SOIL MATRIX × × × × × × × × OIL SLUDGE City: P.O. #: OTHER State: NM Attn: Company: Fax #: Phone #: Address: ACID/BASE: PRESERV ICE / COOL × × × × × × × × BILL TO OTHER Zip: 1/20/15 1/20/15 1/20/15 1/20/15 1/20/15 1/20/15 1/20/15 1/20/15 DATE Tony Savoie SAMPLING BOPCO, LP TIME × × × × × × × × Chloride × TPH (8015M) × **BTEX (8021B)** HOLD FOR TPH ANALYSIS REQUEST

affiliates of successors arising out of or related to the performance of	services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reason	ISONS OF Otherwise.
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† Cardinal cannot accept verbal changes. Please fax written changes to 575-393-2476

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ARDINAL LABORATORIES 101 East Marland, Hobbs, NM 88240 (575) 393-2326 FAX (575) 393-2476

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Project Manager: Joel Lowry		P.O. #:			_		_					
Address: P.O. Box 301		Company: BOPCO, LP	0, LP							_		
City: Lovington	State: NM Zip: 88260	Attn: Tony Savoie	ē									
Phone #: (575)396-2378 F	Fax #: (575)396-1429	Address:					-					
Project #: F	Project Owner:	City:				Ή						
Project Name: PLU CVX JV RR#010H		State: NM Zip:	de	5M)	21B	R TF						
Project Location: Eddy Co., NM		Phone #:	lorio			FOF						
Sampler Name: Steve Taylor		Fax #:	Ch			LD						
FOR LAB USE ONLY	MATRIX	C PRESERV. SAMPLING				НО						
Lab I.D. Sample I.D.	G)RAB OR (C)OMP CONTAINERS ROUNDWATER VASTEWATER OIL	LUDGE DTHER : CID/BASE: CE / COOL DTHER :	TIME									
09 A5 N. Wall @ 1	g 1	x 1/19/15	×				-	-				
A5 Floor @ 1	1' g 1 ×	x 1/19/15	×				-	$\vdash$	$\vdash$			
A6 E. Wall @ 1	() 1' g 1 x	x 1/19/15	×				-	$\vdash$	$\vdash$			
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FORM-006 Revision 1.0

484

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Sampler - UPS - Bus - Other:

3.4.0

(Initials)

Page 9 of 9



January 28, 2015

JOEL LOWRY Basin Environmental Service P.O. Box 301 Lovington, NM 88260

RE: PLU CVX JV RR #010 H

Enclosed are the results of analyses for samples received by the laboratory on 01/26/15 16:50.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at <a href="https://www.tceq.texas.gov/field/qa/lab\_accred\_certif.html">www.tceq.texas.gov/field/qa/lab\_accred\_certif.html</a>.

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

Celey D. Keine

Celey D. Keene Lab Director/Quality Manager



Basin Environmental Service JOEL LOWRY P.O. Box 301 Lovington NM, 88260 Fax To: (575) 396-1429

Received:	01/26/2015	Sampling Date:	01/23/2015
Reported:	01/28/2015	Sampling Type:	Soil
Project Name:	PLU CVX JV RR #010 H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Celey D. Keene
Project Location:	EDDY COUNTY, NM		

#### Sample ID: C4 @ 1' (H500243-01)

Chloride, SM4500CI-B	mg,	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	160	16.0	01/27/2015	ND	432	108	400	3.77	

#### Sample ID: C5 @ 1' (H500243-02)

BTEX 8021B	mg,	′kg	Analyze	d By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	01/27/2015	ND	1.71	85.4	2.00	7.10	
Toluene*	<0.050	0.050	01/27/2015	ND	1.66	82.8	2.00	6.42	
Ethylbenzene*	<0.050	0.050	01/27/2015	ND	1.58	78.9	2.00	8.23	
Total Xylenes*	<0.150	0.150	01/27/2015	ND	4.75	79.2	6.00	8.71	
Total BTEX	<0.300	0.300	01/27/2015	ND					
Surrogate: 4-Bromofluorobenzene (	PID 102	% 61-154	!						

Chloride, SM4500Cl-B	mg,	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	144	16.0	01/27/2015	ND	432	108	400	3.77	
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	01/27/2015	ND	192	96.1	200	1.01	
DRO >C10-C28	<10.0	10.0	01/27/2015	ND	192	96.2	200	3.37	
EXT DRO >C28-C35	<10.0	10.0	01/27/2015	ND					

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Celeg D. Keine



Basin Environmental Service JOEL LOWRY P.O. Box 301 Lovington NM, 88260 Fax To: (575) 396-1429

Received:	01/26/2015	Sampling Date:	01/23/2015
Reported:	01/28/2015	Sampling Type:	Soil
Project Name:	PLU CVX JV RR #010 H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Celey D. Keene
Project Location:	EDDY COUNTY, NM		

#### Sample ID: C5 @ 1' (H500243-02)

TPH 8015M	mg	/kg	Analyz	ed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Surrogate: 1-Chlorooctadecane	118	% 52.1-176							

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#### \*=Accredited Analyte

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Celeg D. Keine



#### **Notes and Definitions**

- 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

#### Cardinal Laboratories

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Celeg D. Keine

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ARDINAL LABORATORIES 101 East Marland, Hobbs, NM 88240 (575) 393-2326 FAX (575) 393-2476

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Project Manager:	Joel Lowry						T	P.O. #:	1.4													-	-		
Address: P.O. E	P.O. Box 301						0	Company:	bany		BOPCO, LP	F													
VO	State: NM	Zip:	Zip: 88260	260			Þ	Attn:			Tony Savoie														
Phone #: (575)3	(575)396-2378 Fax #: (575)3	(575)396-1429	29				Þ	Address:	ess:					_									5		
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Project Name:	PLU CVX JV RR #010H						S	State:		MN	Zip:					RT									
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Revision 1.0 FORM-006

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Sample Condition Cool Intact Yes Yes No No No

Sampler - UPS - Bus - Other: Delivered By: (Circle One)

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Please email results to pm@basinenv.com, TASavoie@BassPet.com, acruth@basspet.com

CHECKED BY: (Initials)

4:50

Page 5 of 5



January 30, 2015

JOEL LOWRY Basin Environmental Service P.O. Box 301 Lovington, NM 88260

RE: PLU CVX JV RR #010 H

Enclosed are the results of analyses for samples received by the laboratory on 01/28/15 15:12.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at <a href="https://www.tceq.texas.gov/field/ga/lab\_accred\_certif.html">www.tceq.texas.gov/field/ga/lab\_accred\_certif.html</a>.

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

Celey D. Keine

Celey D. Keene Lab Director/Quality Manager



Basin Environmental Service JOEL LOWRY P.O. Box 301 Lovington NM, 88260 Fax To: (575) 396-1429

Received:	01/28/2015	Sampling Date:	01/27/2015
Reported:	01/30/2015	Sampling Type:	Soil
Project Name:	PLU CVX JV RR #010 H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	EDDY COUNTY, NM		

#### Sample ID: B #3 (H500266-01)

Chloride, SM4500Cl-B	mg,	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	448	16.0	01/29/2015	ND	416	104	400	0.00	

#### Sample ID: B #5 (H500266-02)

Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	608	16.0	01/29/2015	ND	416	104	400	0.00	

#### Sample ID: C #6 (H500266-03)

Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	01/29/2015	ND	416	104	400	0.00	

#### Sample ID: D #4 (H500266-04)

Chloride, SM4500Cl-B	mg,	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	01/29/2015	ND	416	104	400	0.00	

#### **Cardinal Laboratories**

\*=Accredited Analyte

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Celeg D. Keine

Celey D. Keene, Lab Director/Quality Manager



Basin Environmental Service JOEL LOWRY P.O. Box 301 Lovington NM, 88260 Fax To: (575) 396-1429

Received:	01/28/2015	Sampling Date:	01/27/2015
Reported:	01/30/2015	Sampling Type:	Soil
Project Name:	PLU CVX JV RR #010 H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	EDDY COUNTY, NM		

## Sample ID: D #6 (H500266-05)

Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	80.0	16.0	01/29/2015	ND	416	104	400	0.00	

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Celeg D. Keine



- 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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Celeg D. Keine

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ARDINAL LABORATORIES 101 East Marland, Hobbs, NM 88240 (575) 393-2326 FAX (575) 393-2476

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Box		P.O. #:			-				-
City: Lovington	State: NM Zin: 88260	pany:	BOPCO, LP						-
Phone #: (575)396-2378	39	Attn: Tony Savoie	bavoie				-	-	
Project #:	Project Owner:	Citu:							-
Project Name: PLU CVX JV RR #010				<i>A</i> )	_	РН			2
Project Location: Eddy Co NM		state: NM Zip:		-		T			_
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Sample Name: Steve Laylor		Fax #:				D F			
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Revision 1.0 FORM-006

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

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February 05, 2015

JOEL LOWRY Basin Environmental Service P.O. Box 301 Lovington, NM 88260

RE: PLU CVX JV RR #010 H

Enclosed are the results of analyses for samples received by the laboratory on 01/29/15 14:05.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at <a href="https://www.tceq.texas.gov/field/ga/lab\_accred\_certif.html">www.tceq.texas.gov/field/ga/lab\_accred\_certif.html</a>.

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

Celey D. Keine

Celey D. Keene Lab Director/Quality Manager



Basin Environmental Service JOEL LOWRY P.O. Box 301 Lovington NM, 88260 Fax To: (575) 396-1429

Received:	01/29/2015	Sampling Date:	01/28/2015
Reported:	02/05/2015	Sampling Type:	Soil
Project Name:	PLU CVX JV RR #010 H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	EDDY COUNTY, NM		

# Sample ID: A #2 (H500274-01)

Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	272	16.0	02/02/2015	ND	432	108	400	3.77	

## Sample ID: A #4 (H500274-02)

Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	208	16.0	02/02/2015	ND	432	108	400	3.77	

#### Sample ID: B #2 (H500274-03)

Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	352	16.0	02/02/2015	ND	432	108	400	3.77	

# Sample ID: C #2 (H500274-04)

Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	480	16.0	02/02/2015	ND	432	108	400	3.77	

#### **Cardinal Laboratories**

\*=Accredited Analyte

Celeg D. Keine

Celey D. Keene, Lab Director/Quality Manager



Basin Environmental Service JOEL LOWRY P.O. Box 301 Lovington NM, 88260 Fax To: (575) 396-1429

Received:	01/29/2015	Sampling Date:	01/28/2015
Reported:	02/05/2015	Sampling Type:	Soil
Project Name:	PLU CVX JV RR #010 H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	EDDY COUNTY, NM		

## Sample ID: C #3 (H500274-05)

Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	192	16.0	02/02/2015	ND	432	108	400	3.77	

# Sample ID: D #1 (H500274-06)

Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	368	16.0	02/02/2015	ND	432	108	400	3.77	

# Sample ID: D #3 (H500274-07)

Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	624	16.0	02/02/2015	ND	432	108	400	3.77	

#### Sample ID: D #5 (H500274-08)

Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	64.0	16.0	02/02/2015	ND	432	108	400	3.77	

## Sample ID: E #6 (H500274-09)

Chloride, SM4500Cl-B	mg,	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	96.0	16.0	02/02/2015	ND	432	108	400	3.77	

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\*=Accredited Analyte

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Celey D. Keine



- 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

#### Cardinal Laboratories

#### \*=Accredited Analyte

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ARDINAL LABORATORIES 101 East Marland, Hobbs, NM 88240 (575) 393-2326 FAX (575) 393-2476

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Company Name:			BILL IU				1	ANALYSIS	REQUEST
Project Manager:	Joel Lowry		P.O. #:		_				
Address: P.O. Box 301	x 301		Company: BOP	BOPCO, LP					
City: Lovington	Stat	State: NM Zip: 88260	Attn: Tony Savoie	voie					
Phone #: (575)396-2378	5-2378 Fax #:	t: (575)396-1429	Address:						
Project #:	Proje	Project Owner:	City:				н		
Project Name: PL	PLU CVX JV RR #010H		State: NM Zip:		le 5M)	21B	TP		
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-	A#2	1 x	1/28/15	910	×				
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<u>ل</u> م.	C#3	1 x	1/28/15	1030	×	_			
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2	E#6	1 x	1/28/15	1250	×				
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PLEASE NOTE: Liability and Dam; analyses. All claims including those service. In no event shall Cardinal b affiliate or surpresence arising out of	ages. Cardinal's liability and client's exclusive tor negligence and any other cause whatsoe be liable for incidental or consequental damag for related in the nerformance of services he	PLEASE NOTE: Liability and Damages. Cardinal's lability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. At claims including those for negligence and any other cause whitspecewer shall be deemed waived unders made in writing and received by Cardinal within 50 days after completion of the applicable analyses. At claims including those for negligence and any other cause whitspecewer shall be deemed waived unders made in writing and received by Cardinal within 50 days after completion of the applicable area/set. In one went shall Cardinal be labeled to incorea queries including without limitation, business including to so of user, to so of profits incored by client, its subadiaries, after an eurosence and one of a valued to the aveformance of available to contract and students runch claim is based incore avoir of the shows stated area or as business.	or tort, shall be limited to the amount paid by received by Cardinal within 30 days after co iss of use, or loss of profits incurred by client based upon any of the above stated reason	/ the client for the mpletion of the applica t, its subsidiaries,	ble				
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† Cardinal cannot accept verbal changes. Please fax written changes to 575-393-2476

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FORM-006 Revision 1.0



February 05, 2015

JOEL LOWRY Basin Environmental Service P.O. Box 301 Lovington, NM 88260

RE: PLU CVX JV RR #010 H

Enclosed are the results of analyses for samples received by the laboratory on 01/30/15 10:40.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at <a href="https://www.tceq.texas.gov/field/ga/lab\_accred\_certif.html">www.tceq.texas.gov/field/ga/lab\_accred\_certif.html</a>.

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

Celey D. Keine

Celey D. Keene Lab Director/Quality Manager



Basin Environmental Service JOEL LOWRY P.O. Box 301 Lovington NM, 88260 Fax To: (575) 396-1429

Received:	01/30/2015	Sampling Date:	01/29/2015
Reported:	02/05/2015	Sampling Type:	Soil
Project Name:	PLU CVX JV RR #010 H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	EDDY COUNTY, NM		

# Sample ID: E #4 @ 1' (H500276-01)

Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	496	16.0	02/02/2015	ND	416	104	400	7.41	

# Sample ID: E #5 @ 2' (H500276-02)

Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	432	16.0	02/02/2015	ND	416	104	400	7.41	

# Sample ID: F #5 @ SURF. (H500276-03)

Chloride, SM4500Cl-B	mg/	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	688	16.0	02/02/2015	ND	416	104	400	7.41	

#### **Cardinal Laboratories**

\*=Accredited Analyte

Celeg D. Keine

Celey D. Keene, Lab Director/Quality Manager



- 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

#### Cardinal Laboratories

#### \*=Accredited Analyte

Celeg D. Keine

Celey D. Keene, Lab Director/Quality Manager

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	(575) 393-2326 FAX (5/5) 393-2410	0147-0					A	ANALYSIS REQUEST	
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Project Manager:	Joel Lowry		P.O. #		- 5				
Address: P.O. Box 301	x 301		Company: BOPCO, LP	O, LP			_		
City: Lovington	State: NM	M Zip: 88260	Attn: Tony Savoie	Ð,					
Phone #: (575)396-2378	6-2378 Fax #: (575)396-1429	5)396-1429	Address:				1		
Project #:	Project Owner:	vner:	City:		Л)	B)	PH		
ame:	PLU CVX JV RR 把10H		State: NM Zip:	ride	015N	3021	OR T		
Project Location:	Eddy Co., NM		Phone #:			x (8	F		
	Joel Lowry		Fax #:			TE			
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† Cardinal cannot accept verbal changes. Please fax written changes to 575-393-2476 Sample Condition Cool Intact Yes Yes No No No

to #

Sampler - UPS - Bus - Other:

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FORM-006 Revision 1.0



February 11, 2015

JOEL LOWRY Basin Environmental Service P.O. Box 301 Lovington, NM 88260

RE: PLU CVX JV RR #010

Enclosed are the results of analyses for samples received by the laboratory on 02/06/15 13:35.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at <a href="https://www.tceq.texas.gov/field/ga/lab\_accred\_certif.html">www.tceq.texas.gov/field/ga/lab\_accred\_certif.html</a>.

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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



Basin Environmental Service JOEL LOWRY P.O. Box 301 Lovington NM, 88260 Fax To: (575) 396-1429

Received:	02/06/2015	Sampling Date:	02/04/2015
Reported:	02/11/2015	Sampling Type:	Soil
Project Name:	PLU CVX JV RR #010	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	EDDY COUNTY, NM		

# Sample ID: D #2 @ 1' (H500364-01)

Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	512	16.0	02/09/2015	ND	416	104	400	0.00	

# Sample ID: F #1 @ 1' (H500364-02)

Chloride, SM4500Cl-B	mg/	'kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	208	16.0	02/09/2015	ND	416	104	400	0.00	

#### Sample ID: F #2 @ 1' (H500364-03)

Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	112	16.0	02/09/2015	ND	416	104	400	0.00	

# Sample ID: F #3 @ 3' (H500364-04)

Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	192	16.0	02/09/2015	ND	416	104	400	0.00	

#### **Cardinal Laboratories**

\*=Accredited Analyte

Celeg D. Keine

Celey D. Keene, Lab Director/Quality Manager



Basin Environmental Service JOEL LOWRY P.O. Box 301 Lovington NM, 88260 Fax To: (575) 396-1429

Received:	02/06/2015	Sampling Date:	02/04/2015
Reported:	02/11/2015	Sampling Type:	Soil
Project Name:	PLU CVX JV RR #010	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	EDDY COUNTY, NM		

## Sample ID: E #1 @ SURFACE (H500364-05)

Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	256	16.0	02/09/2015	ND	416	104	400	0.00	

# Sample ID: E #2 @ 1' (H500364-06)

Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	240	16.0	02/09/2015	ND	416	104	400	0.00	

# Sample ID: E #3 @ 1' (H500364-07)

Chloride, SM4500Cl-B	mg	/kg	Analyze	d By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	384	16.0	02/09/2015	ND	416	104	400	0.00	

## Sample ID: E #4 @ 1' (H500364-08)

Chloride, SM4500Cl-B	mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	160	16.0	02/09/2015	ND	416	104	400	0.00	

#### **Cardinal Laboratories**

\*=Accredited Analyte

Celeg D. Keine

Celey D. Keene, Lab Director/Quality Manager



- 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

#### Cardinal Laboratories

#### \*=Accredited Analyte

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Celeg D. Keine

Company Name			AR	R	7
	(575) 393-2326 F	IVI East Marland,	RDINAL LABORAT		
	FAX (575) 393-2476	d, Hobbs, NM 88240	RATORIES		

# CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Relinguisbed By: Relinguished By: PLEASE NOTE: Liability and Damages. Cardinal's lability a analyses. All claims including those for negligence and any service. In no event shall Cardinal be liable for incidental or Sampler Name: Steve Taylor Project Location: H5003/d City: Project Name: Phone #: Project #: Project Manager: Company Name: FOR LAB USE ONLY Address: Lab I.D. Lovington 102N 3L00 P.O. Box 301 (575)396-2378 t of or related to the p PLU CVX JV RR 挡10 ages. Cardinal's liability and client's exclusive remedy for any Eddy Co., NM Joel Lowry Sample I.D. E #1 @ Surface E#4@1 E #2 @ 1' E #3 @ 1' F #3 @ 3' D #2 @ 1' F #2 @ 1' F #1 @ 1' other cause whatsoever shall be Date: 2-6 -15 Time: 13:35 Time: Date: damages, Project Owner: Fax #: (575)396-1429 State: NM Received By: Received By: (G)RAB OR (C)OMP Zip: --\_ ---# CONTAINERS unless made in writing and 88260 ether based GROUNDWATER WASTEWATER × × × × × × × SOIL × MATRIX ms, loss of use, OIL ract or tort received by Cardinal SLUDGE OTHER Fax #: City: State: NM Phone #: P.O. #: Attn: Address: Company: loss of profits incu ACID/BASE PRESERV × × × × × × × × ICE / COOL the above stated within 30 days after completion of the applicable profits incurred by client, its subsidiaries, to the OTHER BILL TO mount paid by the client for the 2/4/15 2/4/15 2/4/15 2/4/15 Zip 2/4/15 2/4/15 2/4/15 2/4/15 DATE SAMPLING Tony Savoie BOPCO, LP Fax Result: REMARKS: Phone Result: 1125 1120 1115 1110 1105 1100 1055 TIME 1050 × × × × × × Chloride □ Yes TPH (8015M) O No BTEX (8021B) HOLD FOR TPH Add'l Phone #: Add'l Fax #: ANALYSIS REQUEST

Revision 1.0 FORM-006

Sampler - UPS - Bus - Other:

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Sample Condition Cool Intact Pres Pres No No No

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Please email results to pm@basinenv.com, TASavoie@BassPet.com, acruth@basspet.com

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

Page 5 of 5