

# *Basin Environmental Service Technologies, LLC*

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## **REMEDIATION SUMMARY AND RISK- BASED SITE CLOSURE REQUEST**

**BOPCO, LP  
POKER LAKE UNIT WELL #149  
Eddy County, New Mexico  
Unit Letter "I" (NE/SE), Section 31, Township 23 South, Range 30 East  
Latitude 32.260954° North, Longitude 103.914777° West  
NMOCD Reference #2RP-1206**

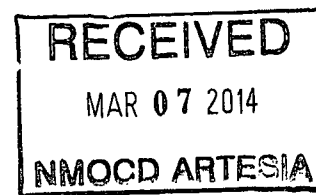
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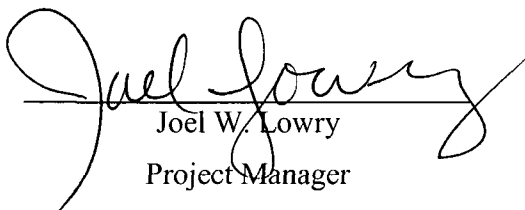
**BOPCO, LP  
522 W. Mermod, Suite 704  
Carlsbad, New Mexico 88220**

Prepared By:

**Basin Environmental Service Technologies, LLC  
3100 Plains Highway  
Lovington, New Mexico 88260**

**January 2014**



  
Joel W. Lowry  
Project Manager

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- Appendix C – Laboratory Analytical Reports

## 1.0 INTRODUCTION & BACKGROUND INFORMATION

Basin Environmental Service Technologies, LLC (Basin), on behalf of BOPCO, LP (BOPCO), has prepared this *Remediation Summary and Risk-Based Site Closure Request* for the release site known as Poker Lake Unit Well #149 (PLU #149). The legal description of the release site is Unit Letter "T" (NE/SE), Section 31, Township 23 South, Range 30 East, in Eddy County, New Mexico. The geographic coordinates of the release site are 32.260954° North latitude and 103.914777° West longitude. The property affected by the release is owned by the United States Department of the Interior and administered by the Bureau of Land Management (BLM). A "Site Location Map" is provided as Figure 1.

On May 29, 2012, BOPCO discovered a release had occurred on the PLU #149 Flow Line. The release was attributed to the failure of a section of two and seven-eighths-inch (2 7/8") flow line. The release was reported to the New Mexico Oil Conservation Division (NMOCD) Artesia District Office immediately. The "Release Notification and Corrective Action" (Form C-141) indicated approximately thirty barrels (30 bbls) of produced water and fifteen barrels (15 bbls) of crude oil were released, with no recovery. The initial Form C-141 indicated the release affected approximately two thousand square feet (2,000 ft<sup>2</sup>) of pasture land. The release occurred on top of an area previously impacted by at least two (2) prior flow line releases. There was also an area in the impact zone that had exposed plastic from a reserve pit location. During initial response activities, a temporary repair clamp was placed on the pipe. The affected segment has since been replaced. The Form C-141 is provided as Appendix A. General photographs of the release site are provided as Appendix B.

Prior to conducting excavation activities, Boone Archaeological Services of New Mexico (Boone) conducted a cultural survey of the affected area resulting in a negative finding. Boone determined that remediation activities associated with the PLU #149 release could be conducted without impacting any cultural resources.

## 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 31, Township 23 South, Range 30 East. A depth to groundwater reference map utilized by the NMOCD indicates groundwater should be encountered at approximately two hundred feet (200') 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 1,000 feet 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 1,000 feet 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 PLU #149 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, ethylbenzene, toluene and xylene (BTEX) – 50 mg/Kg (ppm)
- Total petroleum hydrocarbon (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 July 27, 2012, Basin conducted an initial investigation at the release site in an effort to determine the nature and extent of soil impact. During the initial investigation, a hand auger was utilized to collect forty-two (42) soil samples from three (3) dry drainages (Flow Path #1, Flow Path #2 and Flow Path #3) north of the release point. Soil samples collected at the surface and at two feet (2') bgs were field-screened for concentrations of chloride using a Hach Quantab® Field Test Kit. Field test results suggested soil impact above NMOCD Regulatory Standards was only present in Flow Path #1. A summary of "Chloride Field Test Results" is provided as Table 1. An "Initial Investigation Map" is provided as Figure 2.

On December 18, 2013, Basin began remediation activities at the release site. The floor and sidewalls of the primary excavation in the western portion of the remediation site were advanced until field tests suggested concentrations of BTEX, TPH and chloride were less than NMOCD Regulatory Standards. A historical release site east of the primary excavation was also remediated during this time. Excavated material was stockpiled on-site, pending final disposition.

On December 19, 2013, three (3) confirmation soil samples (East Wall, South Wall and North Wall) were collected from the sidewalls of the excavation in the eastern portion of the remediation site and submitted to Cardinal Laboratories, of Hobbs, New Mexico, for analysis of chloride concentrations by EPA Method 4500 Cl-B. Laboratory analytical results indicate chloride concentrations ranged from 752 ppm for soil sample South Wall to 400 ppm for soil sample East Wall. A summary of "Concentrations of Benzene, BTEX, TPH and Chloride in Soil" is provided in Table 2. Laboratory analytical reports are provided as Appendix C.

In addition, four (4) soil samples (Pile of Dirt #1, Pile of Dirt #1A, Pile of Dirt #2A and Pile of Dirt #2B) were collected from two (2) on-site soil stockpiles (Pile of Dirt #1 and Pile of Dirt #2) of unknown origin and submitted to the laboratory for analysis of chloride concentrations. Laboratory analytical results indicated chloride concentrations ranged from 2,880 ppm for soil sample Pile of Dirt #1A to 608 ppm for soil sample Pile of Dirt #2B. Two (2) soil samples (Floor #1A and Floor #1B) were collected from beneath the respective stockpiles and submitted to the laboratory for analysis of chloride concentrations. Laboratory analytical results indicated the concentration of chloride for soil samples Floor #1A and Floor #1B was 1,340 and 2,160 ppm, respectively. Based on laboratory analytical results, it was determined that soil stockpiles Pile of Dirt #1 and Pile of Dirt #2 would be hauled to an NMOCD-approved disposal facility, and the soil beneath them remediated to NMOCD Standards.

On December 23, 2013, a test trench (East Pit TT) was advanced in the floor of the eastern excavation in an effort to determine the vertical extent of soil impact. During the advancement of the test trench, five (5) soil samples (East Pit TT @ 7', East Pit TT @ 10', East Pit TT @ 12', East Pit TT @ 15' and East Pit TT @ 18') were collected and submitted to the laboratory for analysis of chloride concentrations. Laboratory analytical results indicated chloride concentrations ranged from 4,400 ppm for soil sample East Pit TT @ 10' to 816 ppm for soil sample East Pit TT @ 18'. Soil samples East Pit TT @ 7' and East Pit TT @ 18' were also for concentrations of TPH using EPA Method SW-846 8015M, which were determined to be 80.0 ppm and less than the laboratory Method Detection Limit (MDL), respectively. Soil Sample East Pit TT @ 18' was also analyzed for concentrations of BTEX using EPA Method SW-846-8021b, which were determined to be less than the laboratory MDL.

One (1) additional confirmation soil sample (East Pit West SW) was collected from the west sidewall of the eastern excavation for chloride analysis. Laboratory analytical results indicated the chloride concentration was 400 ppm.

On December 26, 2013, five (5) confirmation soil samples (West Pit WSW, West Pit NSW, West Pit ESW, West Pit SSW, and West Pit Floor @ 3') were collected from the floor and sidewalls of the primary excavation in the western portion of the remediation site and submitted to the laboratory for analysis of chloride concentrations. Laboratory analytical results indicated chloride concentrations ranged from 720 ppm for soil sample West Pit WSW to 96.0 ppm for soil sample West Pit SSW. Soil sample West Pit Floor @ 3' was also analyzed for concentrations of BTEX and TPH, which were determined to be less than the laboratory MDL and 5,874 ppm respectively. Based on laboratory analytical results the floor of the excavation was advanced an additional two (2') feet.

On December 31, 2012, a twenty-millimeter (20-mil) polyurethane liner was installed on the floor of the eastern excavation at approximately four feet (4') bgs. This engineering control was designed to inhibit the vertical migration of contaminants left in-situ. A one-foot (1') layer of pad sand was installed below and above the liner to maintain its integrity during backfilling activities. The remaining portion of the excavation was backfilled with locally purchased, non-impacted material and contoured to match the surrounding topography. The final dimensions of the excavation in the eastern portion of the remediation site were approximately forty feet (40') in width, forty feet (40') in length and four feet (4') in depth.

On January 9, 2014, one (1) confirmation soil sample (West Floor 5') was collected from the floor of the western excavation and submitted to the laboratory for analysis of TPH concentrations. Laboratory analytical results indicated the TPH concentration was less than the laboratory MDL.

On January 10, 2014, in accordance with BLM requests, approximately three hundred linear feet (300') of Flow Path #1 was excavated to approximately three feet (3') bgs. Three (3) confirmation soil samples (F.P. C @ 5', Trench @ 50' and Trench @ 100') were collected from the floor of the trench and submitted to the laboratory for analysis of chloride concentrations. Laboratory analytical results indicated chloride concentrations ranged from 608 ppm for soil sample Trench @ 50' to 320 ppm for soil sample F.P. C @ 5'. Soil sample F.P. C @ 5' was also analyzed for concentrations of TPH, which were determined to be less than the laboratory MDL.

On January 13, 2014, three (3) confirmation soil samples (Trench @ 150', Trench @ 200' and Trench @ 250') were collected from the floor of the trench and submitted to the laboratory for analysis of chloride concentrations. Laboratory analytical results indicated chloride concentrations ranged from 304 ppm for soil sample Trench @ 200' to 112 ppm for soil sample Trench @ 250'.

Between December 27, 2013, and January 16, 2014, approximately seven hundred and forty cubic yards (740 yd<sup>3</sup>) of impacted material was transported to Lea Land, LLC (NMOCD Permit #WM-01-035) for disposal. The final dimensions of the primary excavation in the western portion of the remediation site were approximately forty feet (40') in width, forty feet (40') in length and five feet (5') in depth.

Approximately three hundred feet (300') of a narrow flowpath traveling north from the primary release point was excavated to approximately three feet (3') bgs. Upon receiving laboratory analytical data from confirmation soil samples, the excavated areas were backfilled with locally purchased, non-impacted material. River rock was installed in the affected drainage in an effort to mitigate erosion. Following backfilling, areas affected by the remediation activities were contoured to fit the surrounding topography.

#### **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

Soil samples collected from the floor and sidewalls of the excavations at the PLU #149 Release Site were analyzed by an NMOCD-approved laboratory. Laboratory analytical results indicated concentrations of BTEX, TPH and chloride were below NMOCD Regulatory Remediation Action Levels established for the site in each of the submitted soil samples, with the exception of those collected from the East Pit Test Trench. An approved twenty-millimeter (20-mil) polyurethane liner was installed in the floor of the eastern excavation in an effort to inhibit the vertical migration of contaminants left in-situ. Based on these laboratory analytical results and the installation of an approved engineering control, Basin recommends BOPCO provide the NMOCD Artesia District Office and BLM a copy of this *Remediation Summary and Risk-Based Site Closure Request* and request the NMOCD grant site closure to the PLU #149 release site.

## 6.0 LIMITATIONS

Basin Environmental Service Technologies, LLC, has prepared this *Remediation Summary and Risk-Based 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.

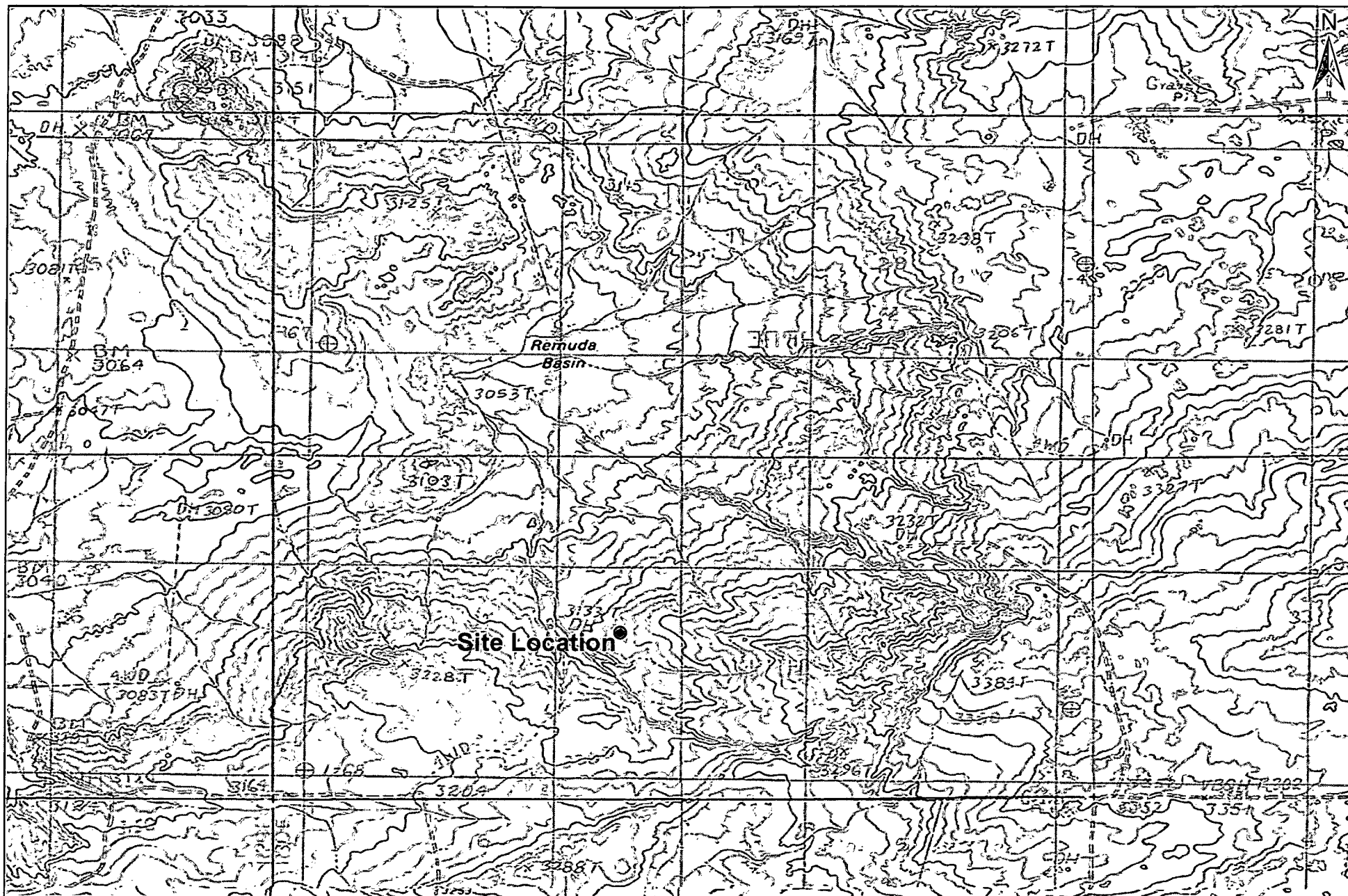
This report has been prepared for the benefit of BOPCO, LP. The information contained in this report, including all exhibits and attachments, may not be used by any other party without the express consent of Basin Environmental Service Technologies, LLC, and/or BOPCO, LP.

## **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**



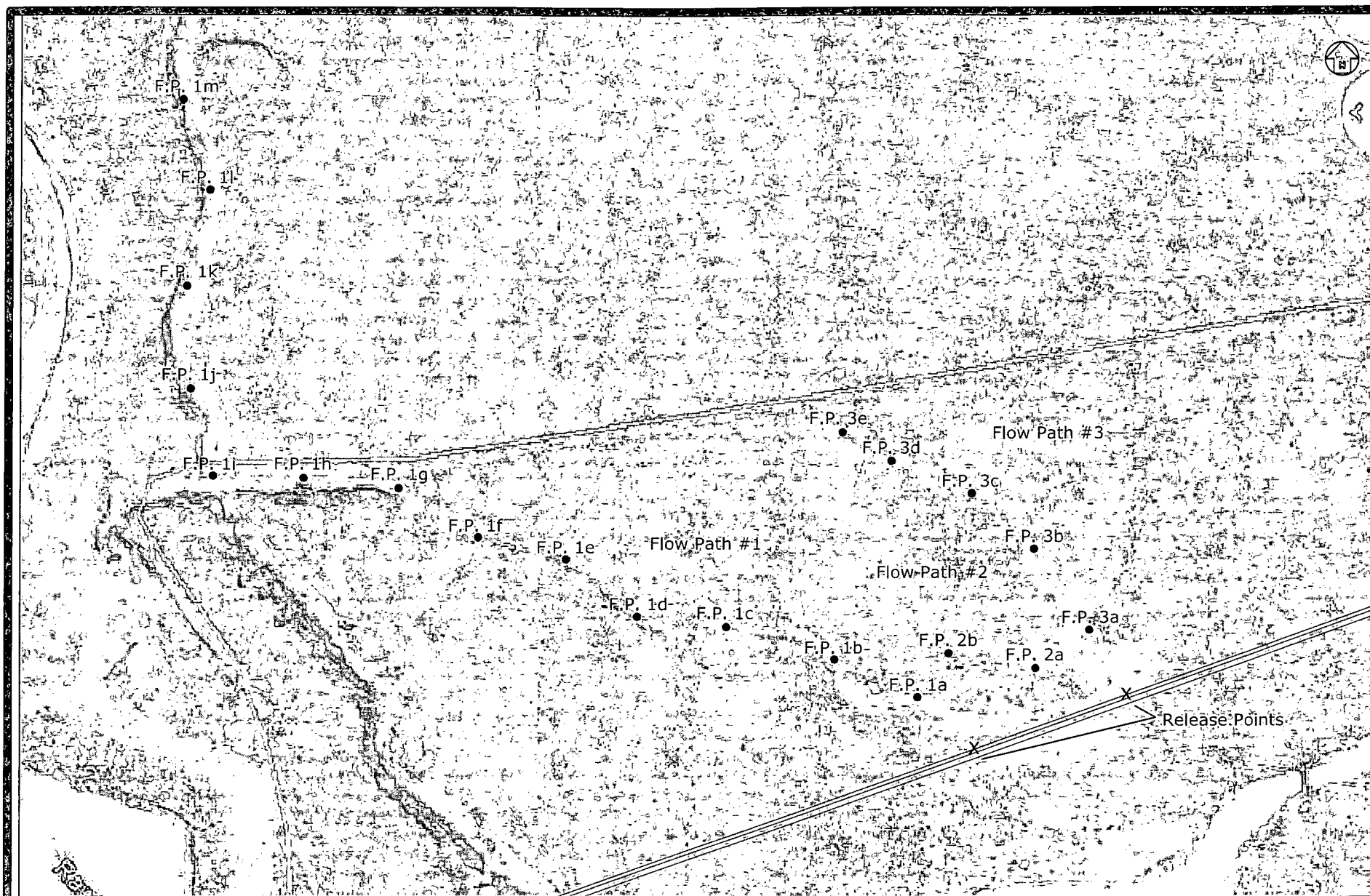
1,000 500 0 1,000 2,000  
Distance in Feet

**Figure 1**  
**Site Location Map**  
**BOPCO, LP**  
**Poker Lake Unit Well #149**  
**Eddy County, New Mexico**  
**NMOCD Reference #: 2RP-1206**



Basin Environmental Service Technologies, LLC  
3100 Plains Hwy.  
Lovington, NM 88260

Drawn By: BJA	Checked By: BRB
January 17, 2014	Scale: 1" = 2,000'



**Legend:**

- Flow Line
- Sample Location
- X Release Point

**Figure 2**

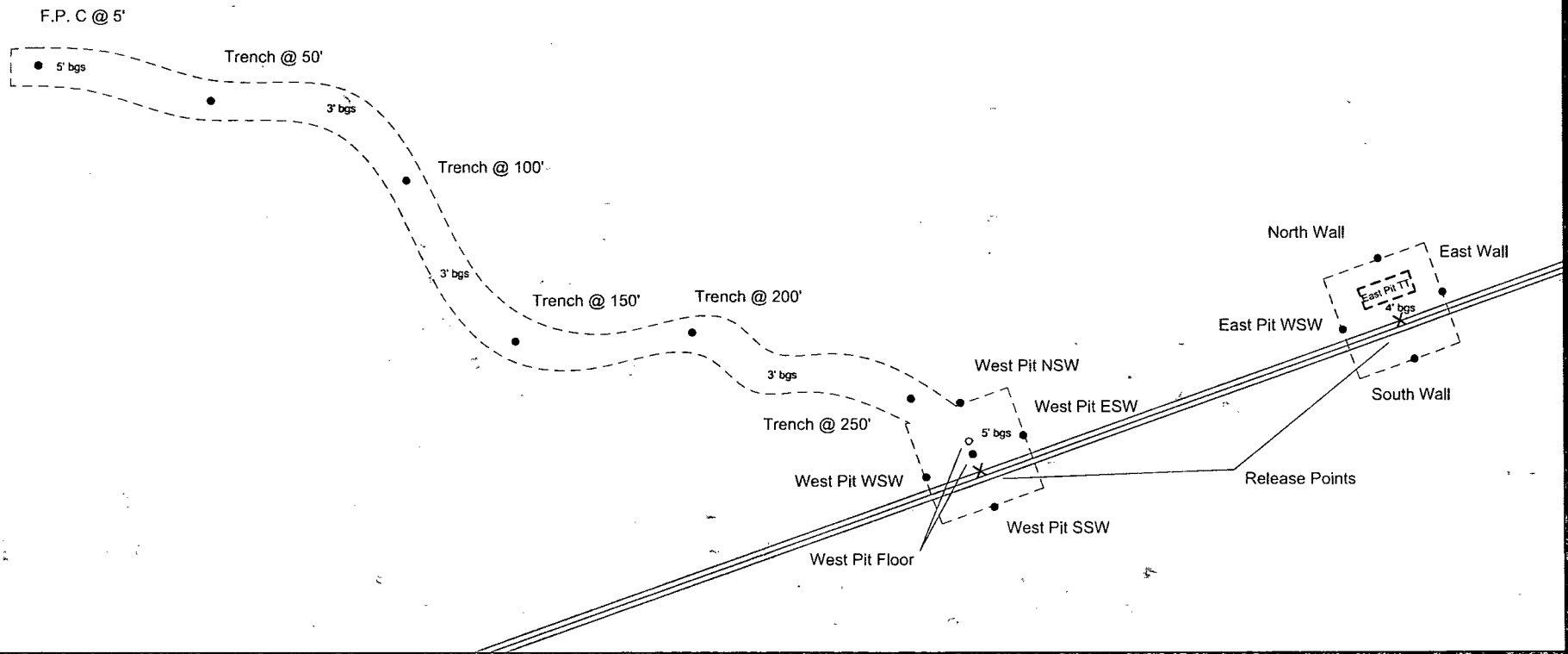
Initial Investigation Map  
BOPCO, L.P.  
Poker Lake Unit #149  
Eddy County, New Mexico

**Basin Environmental Services**

Prep By: JWL

Checked By: BJA

January 9, 2014



**Legend:**

- Excavated Area
- Flow Line
- Sample Location
- X Release Point

**Figure 3**

Site & Sample Location Map  
BOPCO, L.P.  
Poker Lake Unit #149  
Eddy County, New Mexico

**Basin Environmental Services**

Prep By: JWL

Checked By: BJA

January 9, 2014

Scale: 1" = 60'

## **TABLES**

**TABLE 1**

**CHLORIDE FIELD TEST RESULTS**

**BOPCO, LP  
POKER LAKE UNIT WELL #149  
NMOCD REF # 2RP-1206  
EDDY COUNTY, NEW MEXICO**

<b>SAMPLE LOCATION</b>	<b>SAMPLE DEPTH (BGS)</b>	<b>SOIL STATUS</b>	<b>CHLORIDE (mg/Kg)</b>
F.P. 1a	Surface	Excavated	8,428
F.P. 1a @ 2'	2'	Excavated	4,040
F.P. 1b	Surface	Excavated	2,460
F.P. 1b @ 2'	2'	Excavated	904
F.P. 1c	Surface	Excavated	5,572
F.P. 1c @ 2'	2'	Excavated	5,140
F.P. 1d	Surface	In-Situ	612
F.P. 1d @ 2'	2'	In-Situ	1,288
F.P. 1e	Surface	In-Situ	1,480
F.P. 1e @ 2'	2'	In-Situ	3,164
F.P. 1f	Surface	In-Situ	2,912
F.P. 1f @ 2'	2'	In-Situ	5,140
F.P. 1g	Surface	In-Situ	5,140
F.P. 1g @ 2'	2'	In-Situ	472
F.P. 1h	Surface	In-Situ	2,912
F.P. 1h @ 2'	2'	In-Situ	4,040
F.P. 1i	Surface	In-Situ	188
F.P. 1i @ 2'	2'	In-Situ	<112
F.P. 1j	Surface	In-Situ	2,460
F.P. 1j @ 2'	2'	In-Situ	1,380
F.P. 1k	Surface	In-Situ	112
F.P. 1k @ 2'	2'	In-Situ	280
F.P. 1l	Surface	In-Situ	4,040
F.P. 1l @ 2'	2'	In-Situ	720
F.P. 1m	Surface	In-Situ	112
F.P. 1m @ 2'	2'	In-Situ	188
F.P. 1n	Surface	In-Situ	<112
F.P. 1n @ 2'	2'	In-Situ	<112
F.P. 2a	Surface	In-Situ	904
F.P. 2a @ 2'	2'	In-Situ	564
F.P. 2b	Surface	In-Situ	<112
F.P. 2b @ 2'	2'	In-Situ	<112
F.P. 3a	Surface	In-Situ	160
F.P. 3a @ 2'	2'	In-Situ	<112
F.P. 3b	Surface	In-Situ	136
F.P. 3b @ 2'	2'	In-Situ	720
F.P. 3c	Surface	In-Situ	136
F.P. 3c @ 2'	2'	In-Situ	776
F.P. 3d	Surface	In-Situ	560
F.P. 3d @ 2'	2'	In-Situ	560
F.P. 3e	Surface	In-Situ	<112
F.P. 3e @ 2'	3'	In-Situ	160

TABLE 1

## CONCENTRATIONS OF BENZENE, BTEX, TPH &amp; CHLORIDES IN SOIL

BOPCO, LP  
POKER LAKE UNIT WELL #149  
NMOCD REF # 2RP-1206  
EDDY COUNTY, NEW MEXICO

SAMPLE LOCATION	SAMPLE DEPTH (BGS)	SAMPLE DATE	SOIL STATUS	METHOD: EPA SW 846-8021B, 5030					METHOD: 8015M			TOTAL TPH C <sub>6</sub> -C <sub>35</sub> (mg/Kg)	4500 Cl-B CHLORIDE (mg/Kg)
				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)		
East Wall	3'	12/19/2013	In-Situ	-	-	-	-	-	-	-	-	-	400
South Wall	3'	12/19/2013	In-Situ	-	-	-	-	-	-	-	-	-	752
North Wall	3'	12/19/2013	In-Situ	-	-	-	-	-	-	-	-	-	688
Pile of Dirt #1	N/A	12/19/2013	Disposed	-	-	-	-	-	-	-	-	-	2,400
Pile of Dirt #1A	N/A	12/19/2013	Disposed	-	-	-	-	-	-	-	-	-	2,880
Floor #1A	Surface	12/19/2013	Excavated	-	-	-	-	-	-	-	-	-	1,340
Floor #1B	Surface	12/19/2013	Excavated	-	-	-	-	-	-	-	-	-	2,160
Pile of Dirt #2A	N/A	12/19/2013	Disposed	-	-	-	-	-	-	-	-	-	1,060
Pile of Dirt #2B	N/A	12/19/2013	Disposed	-	-	-	-	-	-	-	-	-	608
East Pit TT @ 7'	7'	12/23/2013	In-Situ	-	-	-	-	-	<10.0	48.2	31.8	80.0	2,920
East Pit TT @ 10'	10'	12/23/2013	In-Situ	-	-	-	-	-	-	-	-	-	4,400
East Pit TT @ 12'	12'	12/23/2013	In-Situ	-	-	-	-	-	-	-	-	-	4,240
East Pit TT @ 15'	15'	12/23/2013	In-Situ	-	-	-	-	-	-	-	-	-	1,150
East Pit TT @ 18'	18'	12/23/2013	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<10.0	816
East Pit West SW	3'	12/23/2013	In-Situ	-	-	-	-	-	-	-	-	-	400
West Pit WSW	2.5'	12/26/2013	In-Situ	-	-	-	-	-	-	-	-	-	720
West Pit NSW	2.5'	12/26/2013	In-Situ	-	-	-	-	-	-	-	-	-	384
West Pit ESW	2.5'	12/26/2013	In-Situ	-	-	-	-	-	-	-	-	-	320
West Pit SSW	2.5'	12/26/2013	In-Situ	-	-	-	-	-	-	-	-	-	96.0
West Pit Floor @ 3'	3'	12/26/2013	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<50.0	4,970	904	5,874	832
West Floor 5'	5'	1/9/2014	In-Situ	-	-	-	-	-	<10.0	<10.0	<10.0	<10.0	-
F.P. C @ 5'	3'	1/10/2014	In-Situ	-	-	-	-	-	<10.0	<10.0	<10.0	<10.0	320
Trench @ 50'	3'	1/10/2014	In-Situ	-	-	-	-	-	-	-	-	-	608
Trench @ 100'	3'	1/10/2014	In-Situ	-	-	-	-	-	-	-	-	-	576
Trench @ 150'	3'	1/13/2014	In-Situ	-	-	-	-	-	-	-	-	-	160
Trench @ 200'	3'	1/13/2014	In-Situ	-	-	-	-	-	-	-	-	-	304
Trench @ 250'	3'	1/13/2014	In-Situ	-	-	-	-	-	-	-	-	-	112
NMOCD Criteria				10				50				5,000	1,000

- = Not analyzed.

## **APPENDICES**



**Appendix A**  
**Release Notification and Corrective Action**  
**(Form C-141)**

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**

nJMW 1219346973 OPERATOR ☒ Initial Report ☐ Final Report

Name of Company BOPCO, L.P.	260737	Contact Tony Savoie
Address 522 W. Mermod, Suite 704 Carlsbad, N.M. 88220		Telephone No. 432-556-8730
Facility Name Poker Lake Unit Well #149		Facility Type E&P

Surface Owner Federal	Mineral Owner Federal	Lease No.
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**LOCATION OF RELEASE** 30-015-31416

Unit Letter I	Section 31	Township 23S	Range 30E	Feet from the	North/South Line	Feet from the	East/West Line	County Eddy
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Latitude N 32.260954 Longitude W 103.914777

**NATURE OF RELEASE**

Type of Release: Produced water and crude oil	Volume of Release: 30 Bbls of Produced water and 15 Bbls crude oil	Volume Recovered: None
Source of Release: 2 7/8" flow line	Date and Hour of Occurrence 5/29/12 Time unknown	Date and Hour of Discovery 5/29/12 2:00 p.m.
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? NMOCD Mike Bratcher and BLM Jim Amos	
By Whom? Tony Savoie	Date and Hour 6/1/12, NMOCD at 11:42 a.m. BLM at 11:45 a.m. The report was delayed to a medical situation with T.S.	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse.	

**RECEIVED**

JUN 26 2012

NMOCD ARTESIA

If a Watercourse was Impacted, Describe Fully.\*

Describe Cause of Problem and Remedial Action Taken.\* The flow line developed a leak due to external corrosion. A temporary repair clamp was placed on the pipe. Four joints of pipe were replaced between 5/30/12 and 6/14/12.

Describe Area Affected and Cleanup Action Taken.\* Approximately 2000 sq. ft. of pasture land. All of the released fluid soaked into the ground. The spill happened on top of an area previously impacted by at least 2 prior flow line releases. There is also an area in the impact zone that has exposed plastic from a reserve pit location. The release site will be reviewed with the BLM and NMOCD to determine the best course of action. The remediation will comply with the NMOCD and BLM requirements for spills.

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: Tony Savoie	<b>OIL CONSERVATION DIVISION</b>	
Printed Name: Tony Savoie	Approved by District Supervisor: Signed By Mike Bratcher	
Title: Waste Mgmt. & Remediation Specialist	Approval Date: JUL 11 2012	Expiration Date:
E-mail Address: TASavoie@BassPet.com	Conditions of Approval:	Attached <input type="checkbox"/>
Date: 6/24/12	Phone: 432-556-8730	

\* Attach Additional Sheets If Necessary

Remediation per OCD Rules &  
Guidelines. **SUBMIT REMEDIATION  
PROPOSAL NOT LATER THAN:**

8/11/2012

2RP-1206

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

RECEIVED

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

MAR 07 2014

NMOCD ARTESIA

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**

<b>OPERATOR</b>		Initial Report	<input checked="" type="checkbox"/> Final Report
Name of Company	BOPCO, L.P. 260737	Contact	Tony Savoie
Address	522 W. Mermod, Suite 704 Carlsbad, N.M. 88220	Telephone No.	575-887-7329
Facility Name:	Poker Lake Unit Well #149 (2RP-1206)	Facility Type	E & P

Surface Owner: Federal	Mineral Owner: Federal	API No. 30-015-31416
------------------------	------------------------	----------------------

**LOCATION OF RELEASE**

Unit Letter I	Section 31	Township 23S	Range 30E	Feet from the	North/South Line	Feet from the	East/West Line	County Eddy
------------------	---------------	-----------------	--------------	---------------	------------------	---------------	----------------	----------------

**Latitude N 32.260954      Longitude W 103.914777**

**NATURE OF RELEASE**

Type of Release: Produced water and crude oil	Volume of Release 30 bbls of Produced water and 15 bbls crude oil	Volume Recovered None
Source of Release: 2 7/8" flow line	Date and Hour of Occurrence 5/29/12 Time unknown	Date and Hour of Discovery: 5/29/12 2:00 p.m.
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? NMOCD Mike Bratcher and BLM Jim Amos	
By Whom? Tony Savoie	Date and Hour: 6/1/12, NMOCD at 11:42 a.m. BLM at 11.45 a.m. The report was delayed to a medical situation with T.S.	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse.	


If a Watercourse was Impacted, Describe Fully.\*

Describe Cause of Problem and Remedial Action Taken: The flow line developed a leak due to external corrosion. A temporary repair clamp was placed on the pipe. Four joints of pipe were replaced between 5/30/12 and 6/14/12.

Describe Area Affected and Cleanup Action Taken.\* Approximately 2000 sq. ft. of pasture land. All of the released fluid soaked into the ground. The spill happened on top of an area previously impacted by at least 2 prior flow line releases. The is also an area in the impact zone that has exposed plastic from a reserve pit location. The release site will be reviewed with the BLM and NMOCD to determine the best course of action. The remediation will comply with the NMOCD and BLM requirements for spills.

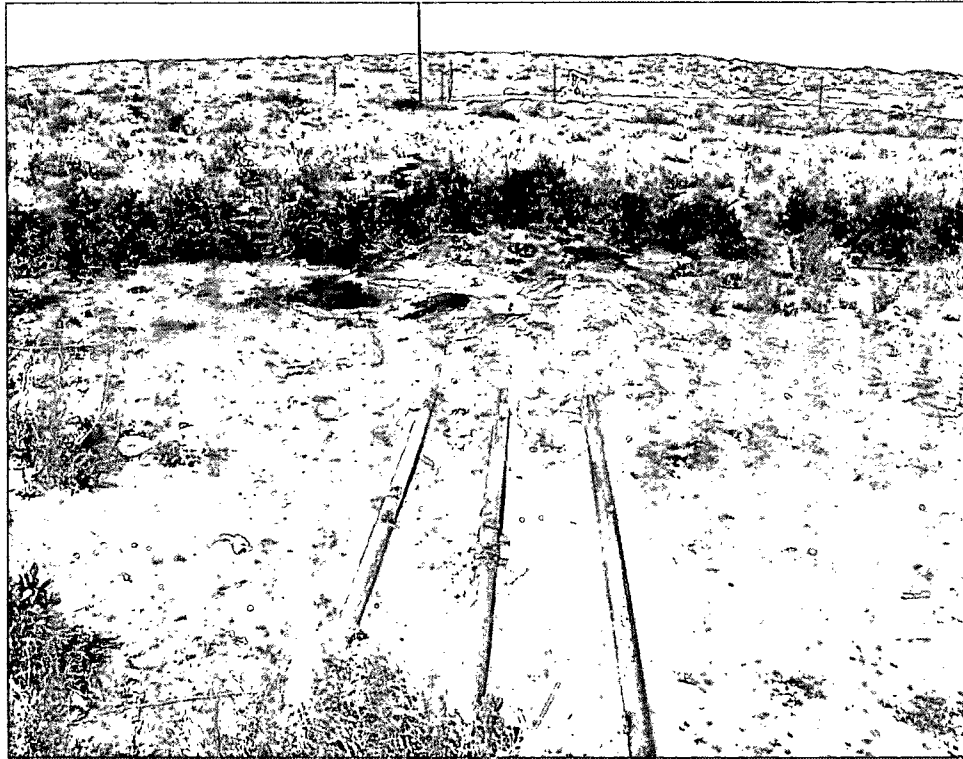
Remediation activities conducted at the PLU Well #149 Remediation Site met the objectives set forth by the NMOCD and BLM. The final dimensions of the western excavation were approximately 40' in width, 40' in length and 5' in depth. Approximately 300' of a narrow flowpath traveling north from the western excavation was excavated to 3' bgs. The final dimensions of the eastern excavation were approximately 40' in width, 40' in length and 4' in depth. On December 31, 2013, a 20-mil liner was placed on the floor of the eastern excavation to inhibit the vertical migration of contaminants left in-situ. Between Dec. 18, 2013, and Jan. 16, 2014, approximately 740 cy of impacted soil was excavated and transported to an NMOCD-approved disposal facility. **Please reference the attached Basin Environmental Services Technologies Remediation Summary and Risk-Based Site Closure Request for details of remediation activities.**

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.

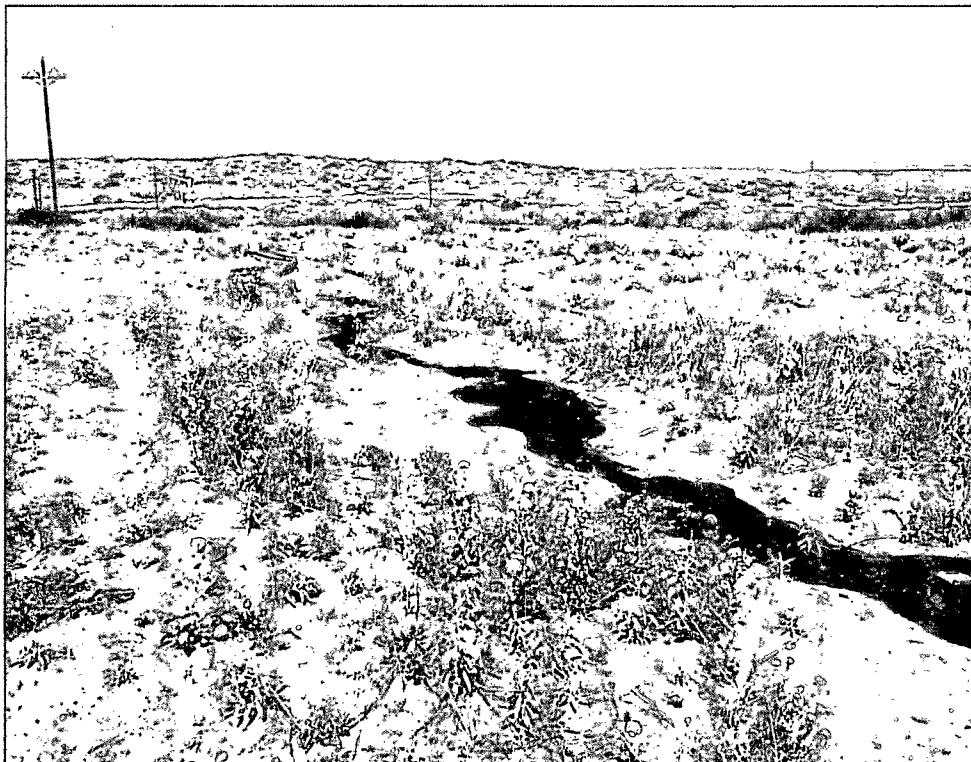
Signature: 	<b>OIL CONSERVATION DIVISION</b>	
Printed Name: Tony Savoie	Approved by District Supervisor:	
Title: Waste Mgmt. & Remediation Specialist	Approval Date:	Expiration Date:
E-mail Address: TASavoie@BassPet.com	Conditions of Approval:	
Date: 3/7/14	Phone: 432-556-8730	

## **Appendix B**

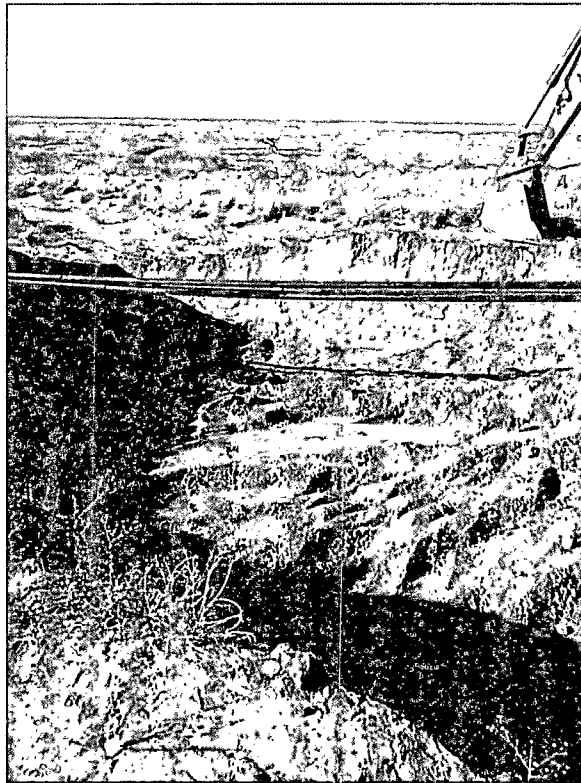
### **Photographs**



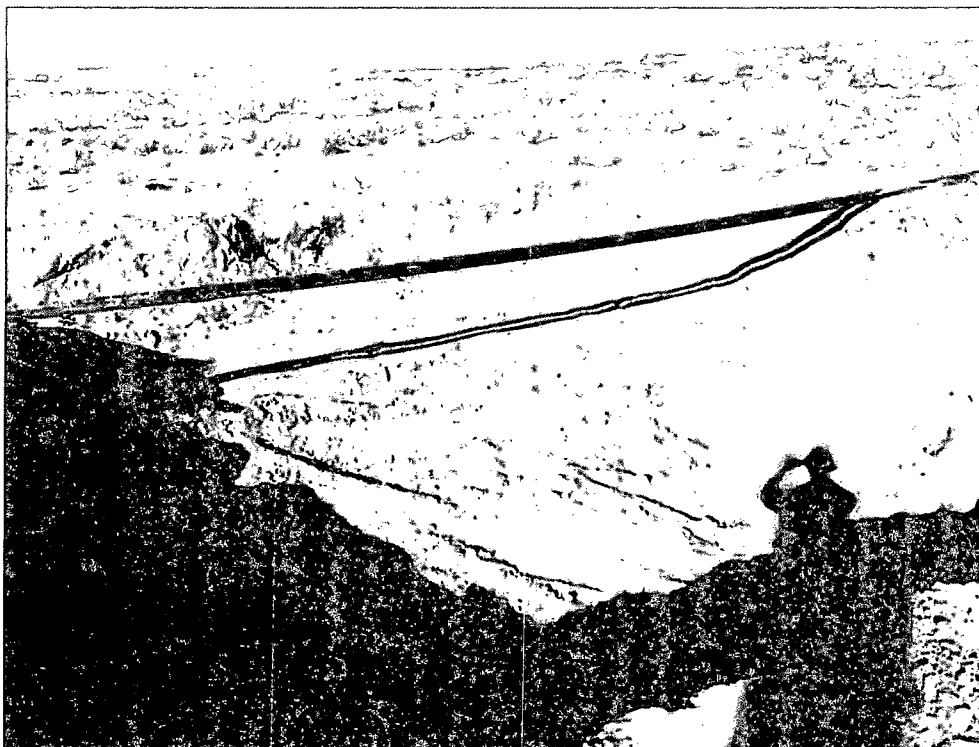
Photograph of the initial release at the PLU #149.



Photograph of the initial release and narrow flowpath at the PLU #149.



Photograph of excavation in the eastern portion of the remediation site at the PLU #149.



Photograph of the excavated release point (West Pit) at the PLU #149 Release Site.



Photograph of liner installation in the eastern portion of the remediation site at the PLU #149.



Photograph of the excavated flow path at the PLU #149.



Photograph of backfilling activities at the PLU #149 Release Site.

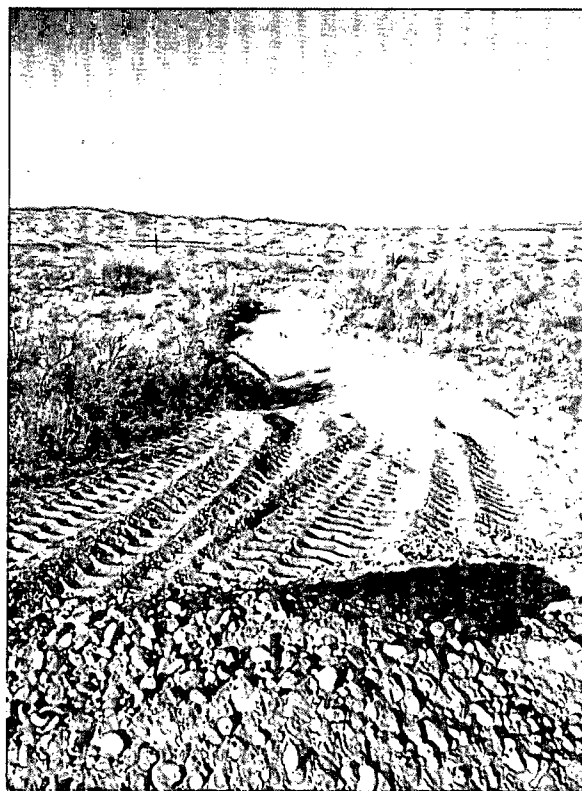


Photograph of PLU #149 Release Site after remediation activities.





Photograph of PLU #149 Release Site after remediation activities.



Photograph of narrow flowpath at the PLU #149 Release Site after remediation activities.

# **Appendix C**

## **Laboratory Analytical Reports**



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

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December 26, 2013

JOEL LOWRY

Basin Environmental Service

P.O. Box 301

Lovington, NM 88260

RE: PLU #149

Enclosed are the results of analyses for samples received by the laboratory on 12/20/13 8:30.

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 [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

Cardinal Laboratories is accredited 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. Keene

Lab Director/Quality Manager

**Analytical Results For:**

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

 Received: 12/20/2013  
 Reported: 12/26/2013  
 Project Name: PLU #149  
 Project Number: NONE GIVEN  
 Project Location: EDDY COUNTY, NM

 Sampling Date: 12/19/2013  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: PILE OF DIRT #1 (H303093-01)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2400	16.0	12/26/2013	ND	432	108	400	3.77	

**Sample ID: PILE OF DIRT #1A (H303093-02)**

Chloride, SM4500Cl-B			mg/kg Analyzed By: CK							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	2880	16.0	12/26/2013	ND	432	108	400	3.77		

**Sample ID: EAST WALL (H303093-03)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	400	16.0	12/26/2013	ND	432	108	400	3.77	

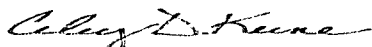
**Sample ID: FLOOR #1A (H303093-04)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	1340	16.0	12/26/2013	ND	432	108	400	3.77		

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

 Received: 12/20/2013  
 Reported: 12/26/2013  
 Project Name: PLU #149  
 Project Number: NONE GIVEN  
 Project Location: EDDY COUNTY, NM

 Sampling Date: 12/19/2013  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: SOUTH WALL (H303093-05)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	752	16.0	12/26/2013	ND	432	108	400	3.77	

**Sample ID: FLOOR #1B (H303093-06)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2160	16.0	12/26/2013	ND	432	108	400	3.77	

**Sample ID: NORTH WALL (H303093-07)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	688	16.0	12/26/2013	ND	432	108	400	3.77	

**Sample ID: PILE OF DIRT #2A (H303093-08)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1060	16.0	12/26/2013	ND	432	108	400	3.77	

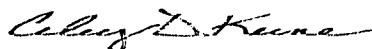
**Sample ID: PILE OF DIRT #2B (H303093-09)**

Chloride, SM4500Cl-B	mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	608	16.0	12/26/2013	ND	400	100	400	7.69	

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Notes and Definitions**

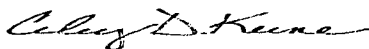
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

---

Cardinal Laboratories

\*=Accredited Analyte

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---

Celest D. Keene, Lab Director/Quality Manager



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

## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

PLEASE NOTE: Liability and Damages. Cardinal's liability 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. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or 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 reasons or otherwise.

Relinquished By:	Date: 12/20/13	Received By:	Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Phone #:
Time: 7:00			Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Fax #:
Relinquished By:	Date: 12/20/13	Received By:	REMARKS:	
Time: 8:30			Please email results to pm@basinenv.com, TASavoie@BassPet.com & SJWalters@BassPet.com	
Delivered By: (Circle One)	Sample Condition	CHECKED BY:		
Sampler - UPS - Bus - Other:	Cool <input type="checkbox"/> Intact <input type="checkbox"/>	(Initials)		
FORM-006	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			

Revision 1.0

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

# 54

January 03, 2014

JOEL LOWRY

Basin Environmental Service

P.O. Box 301

Lovington, NM 88260

RE: PLU #149

Enclosed are the results of analyses for samples received by the laboratory on 12/26/13 9:15.

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 [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

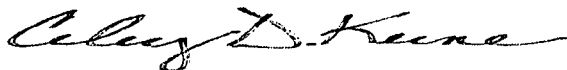
Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

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. Keene

Lab Director/Quality Manager



**Analytical Results For:**

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

 Received: 12/26/2013  
 Reported: 01/03/2014  
 Project Name: PLU #149  
 Project Number: NONE GIVEN  
 Project Location: EDDY COUNTY, NM

 Sampling Date: 12/23/2013  
 Sampling Type: Soil  
 Sampling Condition: \*\* (See Notes)  
 Sample Received By: Kathy Perez

**Sample ID: EAST PIT TT @ 7' (H303129-01)**

Chloride, SM4500Cl-B			mg/kg		Analyzed By: AP				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>2920</b>	16.0	01/02/2014	ND	400	100	400	11.3	
TPH 8015M			mg/kg		Analyzed By: ms				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	12/27/2013	ND	189	94.6	200	5.41	
<b>DRO &gt;C10-C28</b>	<b>48.2</b>	10.0	12/27/2013	ND	184	91.9	200	10.3	
<b>EXT DRO &gt;C28-C35</b>	<b>31.8</b>	10.0	12/27/2013	ND					
<i>Surrogate: 1-Chlorooctane</i>									
	101 %	65.2-140							
<i>Surrogate: 1-Chlorooctadecane</i>									
	101 %	63.6-154							

**Sample ID: EAST PIT TT @ 10' (H303129-02)**

Chloride, SM4500Cl-B			mg/kg		Analyzed By: AP				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>4400</b>	16.0	01/02/2014	ND	400	100	400	11.3	

**Sample ID: EAST PIT TT @ 12' (H303129-03)**

Chloride, SM4500Cl-B			mg/kg		Analyzed By: AP				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>4240</b>	16.0	01/02/2014	ND	400	100	400	11.3	

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received: 12/26/2013  
Reported: 01/03/2014  
Project Name: PLU #149  
Project Number: NONE GIVEN  
Project Location: EDDY COUNTY, NM

Sampling Date: 12/23/2013  
Sampling Type: Soil  
Sampling Condition: \*\* (See Notes)  
Sample Received By: Kathy Perez

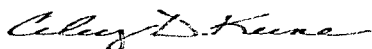
**Sample ID: EAST PIT TT @ 15' (H303129-04)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	1150	16.0	01/02/2014	ND	400	100	400	11.3		

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received: 12/26/2013  
Reported: 01/03/2014  
Project Name: PLU #149  
Project Number: NONE GIVEN  
Project Location: EDDY COUNTY, NM

Sampling Date: 12/23/2013  
Sampling Type: Soil  
Sampling Condition: \*\* (See Notes)  
Sample Received By: Kathy Perez

**Sample ID: EAST PIT TT @ 18' (H303129-05)**

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	12/30/2013	ND	1.77	88.5	2.00	3.75	
Toluene*	<0.050	0.050	12/30/2013	ND	1.76	87.9	2.00	3.39	
Ethylbenzene*	<0.050	0.050	12/30/2013	ND	1.73	86.5	2.00	3.04	
Total Xylenes*	<0.150	0.150	12/30/2013	ND	5.08	84.6	6.00	2.87	
Total BTEX	<0.300	0.300	12/30/2013	ND					

Surrogate: 4-Bromofluorobenzene (PID) 103 % 89.4-126

Chloride, SM4500Cl-B			mg/kg		Analyzed By: AP				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	816	16.0	01/02/2014	ND	416	104	400	0.00	

TPH 8015M			mg/kg		Analyzed By: ms				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	12/27/2013	ND	189	94.6	200	5.41	
DRO >C10-C28	<10.0	10.0	12/27/2013	ND	184	91.9	200	10.3	
EXT DRO >C28-C35	<10.0	10.0	12/27/2013	ND					


Surrogate: 1-Chlorooctane 99.1 % 65.2-140

Surrogate: 1-Chlorooctadecane 92.6 % 63.6-154

Cardinal Laboratories

\*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received: 12/26/2013  
Reported: 01/03/2014  
Project Name: PLU #149  
Project Number: NONE GIVEN  
Project Location: EDDY COUNTY, NM

Sampling Date: 12/23/2013  
Sampling Type: Soil  
Sampling Condition: \*\* (See Notes)  
Sample Received By: Kathy Perez

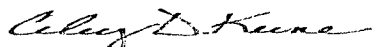
**Sample ID: EAST PIT WEST SW (H303129-06)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	400	16.0	01/02/2014	ND	416	104	400	0.00	

Cardinal Laboratories

\* = Accredited Analyte

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Celest 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

---

Cardinal Laboratories

\*=Accredited Analyte

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---

Celey D. Keene, Lab Director/Quality Manager

## ARDINAL LABORATORIES

101 East Marland, Hobbs, NM 88240

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

## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page 7 of 7

[illegible]

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Relinquished By: <i>Paul Jones</i>	Date: <i>12-26-13</i>	Received By: <i>[Signature]</i>	Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Phone #:
	Time: <i>8:00</i>		Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Fax #:
Relinquished By: <i>[Signature]</i>	Date: <i>12-26-13</i>	Received By: <i>[Signature]</i>	REMARKS:	
	Time: <i>9:15</i>			
Delivered By: (Circle One)		Sample Condition	CHECKED BY:	
		Cool <input checked="" type="checkbox"/> Intact <input type="checkbox"/>	(Initials)	
		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
		<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes		
Sampler - UPS - Bus - Other:	<i>8.4°C</i>			
FORM-006				

Please email results to Tony Savoie, Jody Walters and PM@basinenv.com

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

January 03, 2014

JOEL LOWRY

Basin Environmental Service

P.O. Box 301

Lovington, NM 88260

RE: PLU #149

Enclosed are the results of analyses for samples received by the laboratory on 12/27/13 8:25.

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 [www.tceq.texas.gov/field/ga/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/ga/lab_accred_certif.html).

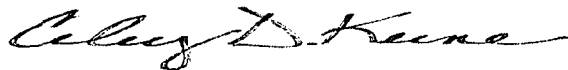
Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

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,



Caley D. Keene

Lab Director/Quality Manager

**Analytical Results For:**

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

Received: 12/27/2013  
Reported: 01/03/2014  
Project Name: PLU #149  
Project Number: NONE GIVEN  
Project Location: EDDY COUNTY, NM

Sampling Date: 12/26/2013  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: WEST PIT WSW (H303132-01)**

Chloride, SM4500CI-B		mg/kg	Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	720	16.0	01/02/2014	ND	416	104	400	0.00	

**Sample ID: WEST PIT NSW (H303132-02)**

Chloride, SM4500CI-B		mg/kg	Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	384	16.0	01/02/2014	ND	416	104	400	0.00	

**Sample ID: WEST PIT ESW (H303132-03)**

Chloride, SM4500CI-B		mg/kg	Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	320	16.0	01/02/2014	ND	416	104	400	0.00	

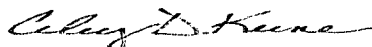
**Sample ID: WEST PIT SSW (H303132-04)**

Chloride, SM4500CI-B		mg/kg	Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	96.0	16.0	01/02/2014	ND	416	104	400	0.00	

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



**Analytical Results For:**

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

Received: 12/27/2013  
Reported: 01/03/2014  
Project Name: PLU #149  
Project Number: NONE GIVEN  
Project Location: EDDY COUNTY, NM

Sampling Date: 12/26/2013  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: WEST PIT FLOOR @ 3' (H303132-05)**

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	01/02/2014	ND	1.85	92.7	2.00	4.48	
Toluene*	<0.050	0.050	01/02/2014	ND	1.90	94.8	2.00	3.83	
Ethylbenzene*	<0.050	0.050	01/02/2014	ND	1.91	95.3	2.00	3.12	
Total Xylenes*	<0.150	0.150	01/02/2014	ND	5.55	92.6	6.00	3.00	
Total BTEX	<0.300	0.300	01/02/2014	ND					

Surrogate: 4-Bromofluorobenzene (PIC) 104 % 89.4-126

Chloride, SM4500Cl-B			mg/kg		Analyzed By: AP				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	832	16.0	01/02/2014	ND	416	104	400	0.00	

TPH 8015M			mg/kg		Analyzed By: ms					S-06
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<50.0	50.0	12/27/2013	ND	189	94.6	200	5.41		
DRO >C10-C28	4970	50.0	12/27/2013	ND	184	91.9	200	10.3		
EXT DRO >C28-C35	904	50.0	12/27/2013	ND						

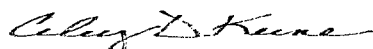
Surrogate: 1-Chlorooctane 118 % 65.2-140

Surrogate: 1-Chlorooctadecane 213 % 63.6-154

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Notes and Definitions**

S-06	The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interference's.
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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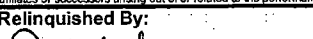


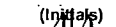
Celey D. Keene, Lab Director/Quality Manager



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## Page 5 of 5

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Relinquished By: 		Date: 12-27-13	Received By: 	Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Phone #:
Time: 7:30				Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Fax #:
Relinquished By: 		Date: 12-27-13	Received By: Jodi Benson	REMARKS:	
Time: 8:25				Please email results to pm@basinenv.com, TASavoie@BassPet.com & SJWalters@BassPet.com	
Delivered By: (Circle One)		Sample Condition		CHECKED BY:	
Sampler - UPS - Bus - Other:		Cool <input type="checkbox"/> Intact <input type="checkbox"/>		(Initials)	
FORM-006		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
		3.8°C			

January 10, 2014

JOEL LOWRY

Basin Environmental Service

P.O. Box 301

Lovington, NM 88260

RE: PLU #149

Enclosed are the results of analyses for samples received by the laboratory on 01/09/14 16:20.

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 [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

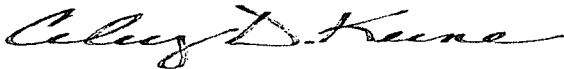
Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

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. Keene

Lab Director/Quality Manager

**Analytical Results For:**

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

Received: 01/09/2014  
Reported: 01/10/2014  
Project Name: PLU #149  
Project Number: NONE GIVEN  
Project Location: EDDY COUNTY, NM

Sampling Date: 01/09/2014  
Sampling Type: Soil  
Sampling Condition: \*\* (See Notes)  
Sample Received By: Jodi Henson

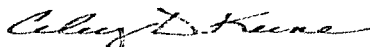
**Sample ID: WEST FLOOR 5' (H400085-01)**

TPH 8015M	mg/kg	Analyzed By: ms							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	01/10/2014	ND	211	106	200	0.499	
DRO >C10-C28	<10.0	10.0	01/10/2014	ND	218	109	200	2.11	
EXT DRO >C28-C35	<10.0	10.0	01/10/2014	ND					
<hr/>									
Surrogate: 1-Chlorooctane	106 %	65.2-140							
Surrogate: 1-Chlorooctadecane	108 %	63.6-154							

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Notes and Definitions**

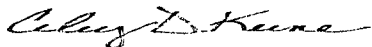
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

---

Cardinal Laboratories

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---

Celestine D. Keene, Lab Director/Quality Manager



# **CARDINAL LABORATORIES**

101 East Marland, Hobbs, NM 88240

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

## **CHAIN-OF-CUSTODY AND ANALYSIS REQUEST**

Page 4 of 4

Company Name: Basin Environmental Service Technologies, LLC				<b>BILL TO</b>		<b>ANALYSIS REQUEST</b>																					
Project Manager: Joel Lowry				P.O. #:		<div style="display: flex; justify-content: space-around;"> <div>Chloride</div> <div>TPH (8015M)</div> <div>BTEX (8021B)</div> </div>																					
Address: P.O. Box 301				Company: BOPCO, LP																							
City: Lovington		State: NM		Zip: 88260																							
Phone #: (575)396-2378		Fax #: (575)396-1429		Address: 522 W. Marland																							
Project #:		Project Owner:		City: Carlsbad																							
Project Name: PLU #149		State: NM		Zip: 88220																							
Project Location: Eddy Co., NM		Phone #: (432)556-8730		Fax #:																							
Sampler Name: <i>Steve Taylor</i>																											
FOR LAB USE ONLY																											
Lab I.D.		Sample I.D.		(GRAB OR C)OMP		# CONTAINERS		MATRIX				PRESERV.		SAMPLING													
								GROUNDWATER WASTEWATER SOIL OIL SLUDGE OTHER				ACID/BASE ICE / COOL OTHER		DATE TIME													
H400085																											
1 West Floor 5'														1/9/14 1:15		X											
2 West Floor 7'														1/9/14 1:30		* Hold											

PLEASE NOTE: Liability and Damages. Cardinal's liability 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. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or 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 reasons or otherwise.

Relinquished By: <i>Steve Taylor</i>		Date: 1/9/14		Received By: <i>Jodi Benson</i>		Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No		Add'l Phone #:	
Relinquished By:		Time: 4:20		Received By:		Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No		Add'l Fax #:	
Date:		Time:				REMARKS:			
Delivered By: (Circle One)		Sample Condition		CHECKED BY:		Please email results to pm@basinenv.com, TASavole@BassPet.com & SJWalters@BassPet.com			
Sampler - UPS - Bus - Other:		Cool <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Intact <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		RUSH!!			

Revision 1.0

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

#54

January 13, 2014

JOEL LOWRY

Basin Environmental Service

P.O. Box 301

Lovington, NM 88260

RE: PLU #149

Enclosed are the results of analyses for samples received by the laboratory on 01/10/14 16:20.

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 [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

Cardinal Laboratories is accredited 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. Keene

Lab Director/Quality Manager



**Analytical Results For:**

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

Received: 01/10/2014  
Reported: 01/13/2014  
Project Name: PLU #149  
Project Number: NONE GIVEN  
Project Location: EDDY COUNTY, NM

Sampling Date: 01/10/2014  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: F.P. C @ 5' (H400099-01)**

Chloride, SM4500Cl-B			mg/kg		Analyzed By: AP				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>320</b>	16.0	01/13/2014	ND	400	100	400	3.92	
TPH 8015M			mg/kg		Analyzed By: ms				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	01/11/2014	ND	190	94.8	200	1.69	
DRO >C10-C28	<10.0	10.0	01/11/2014	ND	195	97.7	200	2.06	
EXT DRO >C28-C35	<10.0	10.0	01/11/2014	ND					
Surrogate: 1-Chlorooctane	98.8 %	65.2-140							
Surrogate: 1-Chlorooctadecane	114 %	63.6-154							

**Sample ID: TRENCH @ 50' (H400099-02)**

Chloride, SM4500Cl-B			mg/kg		Analyzed By: AP				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>608</b>	16.0	01/13/2014	ND	400	100	400	3.92	


**Sample ID: TRENCH @ 100' (H400099-03)**

Chloride, SM4500Cl-B			mg/kg		Analyzed By: AP				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>576</b>	16.0	01/13/2014	ND	400	100	400	3.92	

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\*=Accredited Analyte

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Celestine D. Keene, Lab Director/Quality Manager

**Notes and Definitions**

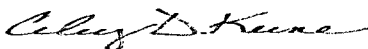
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

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Celey D. Keene, Lab Director/Quality Manager



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Revision 1.0

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#54

January 14, 2014

JOEL LOWRY

Basin Environmental Service

P.O. Box 301

Lovington, NM 88260

RE: PLU #149

Enclosed are the results of analyses for samples received by the laboratory on 01/13/14 16:26.

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 [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).


Cardinal Laboratories is accredited 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. Keene

Lab Director/Quality Manager

**Analytical Results For:**

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

Received: 01/13/2014  
Reported: 01/14/2014  
Project Name: PLU #149  
Project Number: NONE GIVEN  
Project Location: EDDY COUNTY, NM

Sampling Date: 01/13/2014  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: TRENCH @ 150' (H400110-01)**

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	01/14/2014	ND	432	108	400	7.14	

**Sample ID: TRENCH @ 200' (H400110-02)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	304	16.0	01/14/2014	ND	432	108	400	7.14	

**Sample ID: TRENCH @ 250' (H400110-03)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	112	16.0	01/14/2014	ND	432	108	400	7.14	

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Celey D. Keene, Lab Director/Quality Manager

**Notes and Definitions**

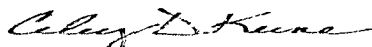
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

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Celey D. Keene, Lab Director/Quality Manager



# CARDINAL LABORATORIES

101 East Marland, Hobbs, NM 88240

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

## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page 4 of 4

Company Name: Basin Environmental Service Technologies, LLC				<b>BILL TO</b>				<b>ANALYSIS REQUEST</b>																			
Project Manager: Joel Lowry				P.O. #:				<div style="display: flex; justify-content: space-around;"> <div>Chloride</div> <div>TPH (8015M)</div> <div>BTEX (8021B)</div> </div>																			
Address: P.O. Box 301				Company: BOPCO, LP																							
City: Lovington State: NM Zip: 88260				Attn: Tony Savoie																							
Phone #: (575)396-2378 Fax #: (575)396-1429				Address: 522 W. Marland																							
Project #: Project Owner:				City: Carlsbad																							
Project Name: PLU #149				State: NM Zip: 88220																							
Project Location: Eddy Co., NM				Phone #: (432)556-8730																							
Sampler Name: <u>Steve Taylor</u>				Fax #:																							
FOR LAB USE ONLY						MATRIX		PRESERV.		SAMPLING																	
Lab I.D.	Sample I.D.	(GRAB OR C/COMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER	ACID/BASE	ICE / COOL	OTHER	DATE	TIME													
H400110																											
	1 Trench @ 150'												1/13/14	11:30	X												
	2 Trench @ 200'												1/13/14	12:30	X												
	3 Trench @ 250'												1/13/14	3:00	X												

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Relinquished By:	Date: 1/13/14	Received By: Jodi Benson	Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Phone #:
Time: 4:20			Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Fax #:
Relinquished By:	Date:	Received By:	REMARKS: RUST!!	
Time:			Please email results to pm@basinenv.com, TASavoie@BassPet.com & SJWalters@BassPet.com	
Delivered By: (Circle One)	Sample Condition	CHECKED BY:		
Sampler - UPS - Bus - Other:	Cool Intact			
FORM-006	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
Revision 1.0	<input type="checkbox"/> No <input type="checkbox"/> No			

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#54