

# *Basin Environmental Service Technologies, LLC*

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## **REMEDIATION SUMMARY AND SITE CLOSURE REQUEST**

**BOPCO, LP  
POKER LAKE UNIT #140 TANK BATTERY  
Eddy County, New Mexico  
Unit Letter "E" (SW/NW), Section 32, Township 23 South, Range 30 East  
Latitude 32.263302° North, Longitude 103.910493° West  
NMOCD Reference #s 2RP-1907 & 2RP-2072**

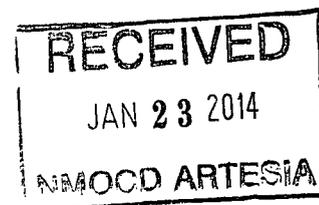
Prepared For:

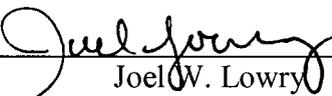
BOPCO, LP  
522 W. Mermod, Suite 704  
Carlsbad, New Mexico 88220

Prepared By:

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

**December 2013**



  
Joel W. Lowry  
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 Poker Lake Unit #140 Tank Battery (PLU #140). The legal description of the release site is Unit Letter "E" (SW/NW), Section 32, Township 23 South, Range 30 East, in Eddy County, New Mexico. The geographic coordinates of the release site are 32.263302° North latitude and 103.910493° West longitude. The property affected by the release is owned by the State of New Mexico and administered by the New Mexico State Land Office (NMSLO). A "Site Location Map" is provided as Figure 1.

On September 9, 2013, BOPCO discovered a release had occurred at the PLU #140 Tank Battery. The release was attributed to the failure of a three-inch (3") poly line near a welded connection, allowing produced water to gravitate from the tank onto the ground outside the tank containment area. The release was reported to the New Mexico Oil Conservation Division (NMOCD) Artesia District Office on September 9, 2013. The "Release Notification and Corrective Action" (Form C-141) indicated approximately ten barrels (10 bbls) of crude oil and fifty barrels (50 bbls) of produced water were released, with no recovery. The initial Form C-141 indicated the release affected approximately three thousand, three hundred and thirty-four square feet (3,334 ft<sup>2</sup>) of pasture and one thousand, one hundred and sixty-two square feet (1,162 ft<sup>2</sup>) of lease road. During initial response activities, the tank valve was closed and the line was repaired; saturated soil around the spill area was scraped up and stockpiled on-site, pending final disposition. The Form C-141 is provided as Appendix A. General photographs of the release site are provided as Appendix B.

On September 19, 2013, BOPCO had a second release at the PLU #140 Tank Battery. The release was attributed to the failure of a three-inch (3") poly line. The Form C-141 indicated that a pin hole near a repair connection made on September 9, 2013, resulted in the release of approximately fifteen barrels (15 bbls) of produced water with approximately five barrels (5 bbls) being recovered. Some of the spill was contained inside the impervious containment, some of the spray area got outside of the containment and affected an area previously impacted by the reportable spill which occurred on September 9, 2013. Both releases were remediated simultaneously in accordance with the NMOCD's Guidelines for Remediation of Leaks, Spills and Releases.

## **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 32, 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 #140 Tank Battery 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 November 15, 2013, Basin began excavation activities at the release site. The floor and sidewalls of the excavation were advanced until field tests suggested concentrations of BTEX, TPH and chloride were less than NMOCD Regulatory Standards. Excavated material was stockpiled on-site, pending final disposition.

On November 18, 2013, two (2) confirmation soil samples were collected from the floor of the excavation 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 48.0 ppm for soil sample West Floor @ 1' to 144 ppm for soil sample East Floor @ 1' to. A summary of "Concentrations of Benzene, BTEX, TPH and Chloride in Soil" is provided in Table 1. Laboratory analytical reports are provided as Appendix C.

On November 20, 2013, two (2) soil samples (Center Road and Ravine Trench Floor) were collected from the floor of the excavation and submitted to the laboratory for analysis of chloride concentrations. Laboratory analytical results indicated chloride concentrations ranged from 752 ppm for soil sample Center Road to 1,230 ppm for soil sample Ravine Trench Floor. Soil samples Center Road and Ravine Trench Floor were also analyzed for concentrations of BTEX using EPA SW-846-8021b and TPH using EPA SW-846 8015M. Laboratory analytical results indicate BTEX and TPH concentrations were less than the appropriate laboratory method detection limit (MDL) in each of the submitted soil samples.

On November 26, 2013, three (3) soil samples (50' South, 100' Floor and 150' Floor) were collected from the floor of the excavation and submitted to the laboratory for analysis of chloride concentrations. Laboratory analytical results indicated chloride concentrations ranged from 272 ppm for soil sample 50' South to 768 ppm for soil sample 100' Floor.

On December 9, 2013, four (4) soil samples (North Wall, South Wall, East Wall and Floor) were collected from the floor and sidewalls of the excavation and submitted to the laboratory for

analysis of chloride concentrations. Laboratory analytical results indicated chloride concentrations ranged from 32.0 ppm for soil sample East Wall to 592 ppm for soil sample Floor. Soil sample Floor was also analyzed for concentrations of BTEX and TPH, which were determined to be less than the appropriate laboratory MDL in each of the submitted soil samples.

On December 11, 2013, two (2) soil samples (Floor #2 and Floor #3) were collected from the floor of the excavation and submitted to the laboratory for analysis of chloride, BTEX and TPH concentrations. Laboratory analytical results indicate chloride concentrations ranged from 288 ppm for soil sample Floor #2 to 480 ppm for soil sample Floor #3. Analytical results indicated BTEX concentration were less than the appropriate laboratory MDL in each of the submitted soil samples. TPH concentrations ranged from 119.1 ppm for soil sample Floor #3 to 1,206 ppm for soil sample Floor #2.

Between December 2 and 13, 2013, approximately six hundred cubic yards (600 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 on the southeast side of the containment area were approximately thirty feet (30') in width, thirty-five feet (35') in length and three and one-half feet (3.5') in depth. Approximately four hundred feet (400') of a narrow flowpath traveling north from the well pad along the caliche access road 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. Following backfilling, the caliche well pad was repaired, and 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 PLU #140 Tank Battery excavation 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 soil sample Ravine Trench Floor, which exhibited a chloride concentration of 1,230 ppm. Based on these laboratory analytical results, Basin recommends BOPCO provide the NMOCD Artesia District Office and the NMSLO a copy of this *Remediation Summary and Site Closure Request* and request the NMOCD grant site closure to the PLU #140 Tank Battery 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: Andrew Kraemer  
New Mexico State Land Office  
602 N. Canal, Suite B.  
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

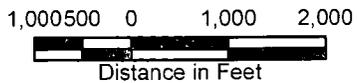
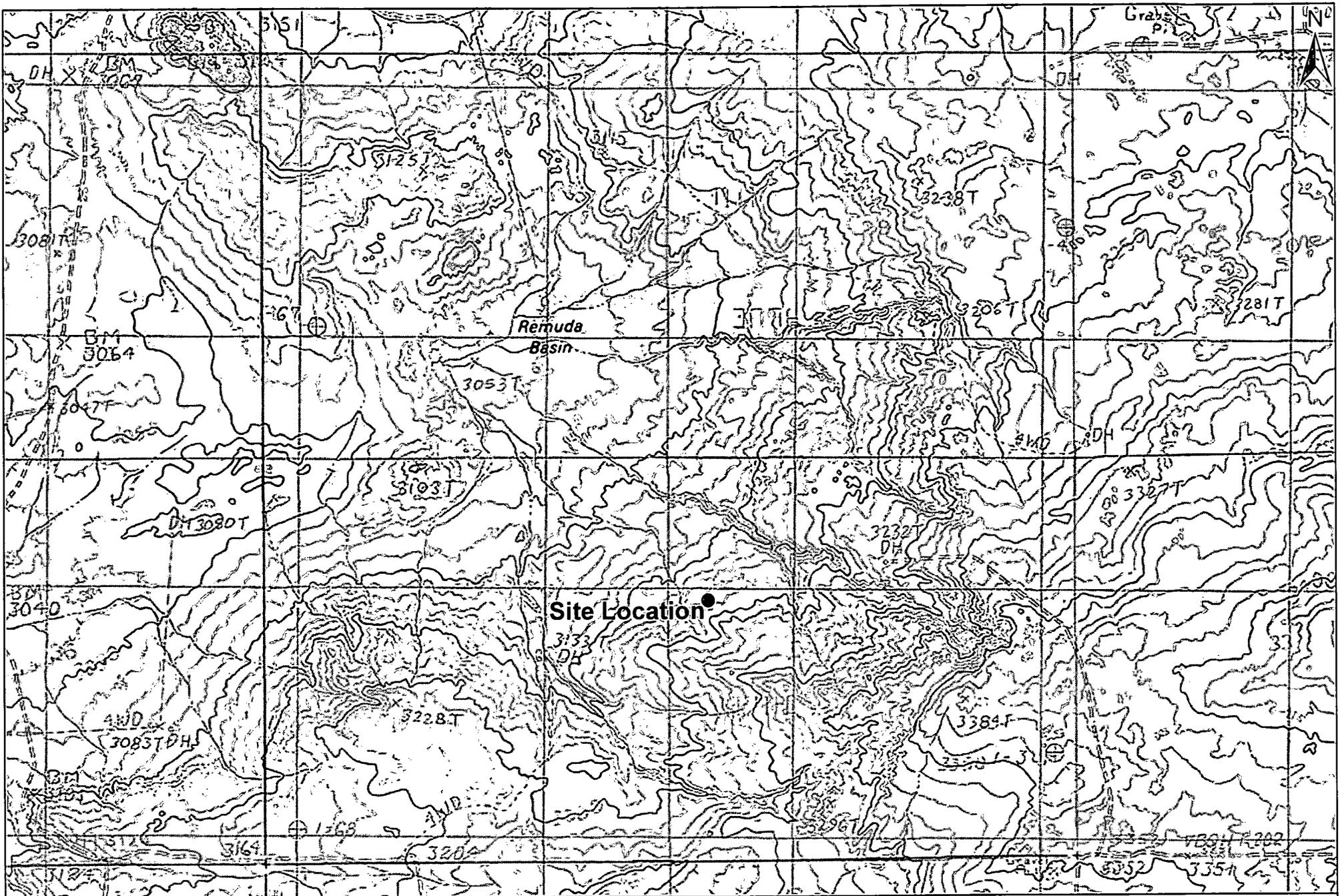
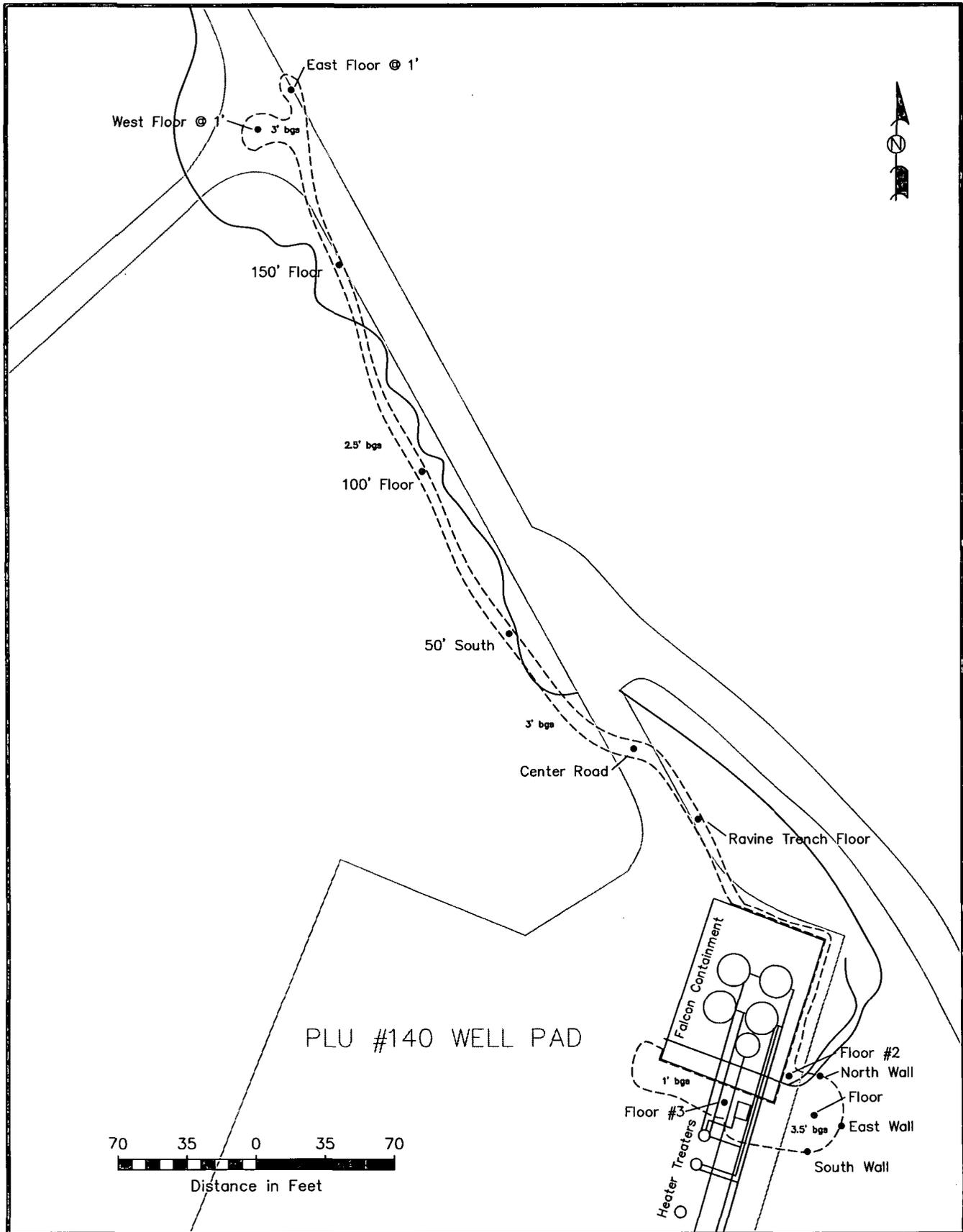


Figure 1  
 Site Location Map  
 BOPCO, LP  
 Poker Lake Unit 140 Tank Battery  
 Eddy County, New Mexico



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

Drawn By: BJA	Checked By: BRB
December 19, 2013	Scale: 1" = 2000'



**LEGEND:**

- Excavation Extent
- Road
- Pipeline
- Sample Location

Figure 2  
 Site & Sample Location Map  
 BOPCO, L.P.  
 PLU #140 Tank Battery  
 Eddy County, NM

**Basin Environmental Services**

Scale: 1" = 70'	Drawn By: JWJ	Prepared By: BJA
December 13, 2012		

## TABLES

TABLE 1

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

BOPCO, LP  
 PLU #140 TANK BATTERY  
 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 CI-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)		
West Floor @ 1'	1'	11/18/2013	In-Situ	-	-	-	-	-	-	-	-	-	48.0
East Floor @ 1'	1'	11/18/2013	In-Situ	-	-	-	-	-	-	-	-	-	144
Center Road	2.5'	11/20/2013	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<10.0	752
Ravine Trench Floor	3'	11/20/2013	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<10.0	1,230
50' South	3'	11/26/2013	In-Situ	-	-	-	-	-	-	-	-	-	272
100' Floor	2.5'	11/26/2013	In-Situ	-	-	-	-	-	-	-	-	-	768
150' Floor	3'	11/26/2013	In-Situ	-	-	-	-	-	-	-	-	-	480
North Wall	2.5'	12/9/2013	In-Situ	-	-	-	-	-	-	-	-	-	80.0
South Wall	2.5'	12/9/2013	In-Situ	-	-	-	-	-	-	-	-	-	288
East Wall	2.5'	12/9/2013	In-Situ	-	-	-	-	-	-	-	-	-	32.0
Floor	3.5'	12/9/2013	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<10.0	592
Floor #2	1'	12/11/2013	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<50.0	771	435	1,206	288
Floor #3	1'	12/11/2013	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	81.4	37.7	119.1	480
<b>NMOCD Criteria</b>				<b>10</b>				<b>50</b>				<b>5,000</b>	<b>1,000</b>

- = Not analyzed.

## APPENDICES

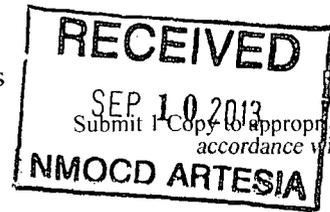
**Appendix A**

**Release Notification and Corrective Action**

**(Form C-141)**

District I  
1625 N. French Dr., Hobbs, NM 88240  
District II  
811 S. First St., 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 August 8, 2011  
Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

**Release Notification and Corrective Action**

nJMW 1325656033

**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. 575-887-7329
Facility Name: Poker Lake Unit 140 Tank Battery	Facility Type: Exploration and Production
Surface Owner: State of NM	Mineral Owner: State of NM
API No. 30-105-29876	

**LOCATION OF RELEASE**

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
E	32	23S	30E					Eddy

Latitude N 32.263302 Longitude W 103.910493

**NATURE OF RELEASE**

Type of Release: Crude oil and produced water	Volume of Release: 10 Bbbls crude oil and 50 Bbbls produced water	Volume Recovered: None
Source of Release: 3" water transfer poly line	Date and Hour of Occurrence: 9-9-13, time unknown	Date and Hour of Discovery: 9-9-13 time 9:00 a.m.
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? NMOCD emergency #104	
By Whom? Tony Savoie	Date and Hour: 9/9/13 at approx. 1:00 p.m.	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input 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 3" poly line failed at a welded connection. The pump was not running at the time of discovery, produced water was gravitating from the tank onto the ground outside the tank containment area, the tank valve was closed and the line was repaired.

Describe Area Affected and Cleanup Action Taken.\* Approximately 3334 sq. ft. of pasture and approximately 1162 sq. ft. of road was affected by the release. All of the fluid had soaked into the ground. A one-call will be placed and the saturated soil will be scraped up and stockpiled on-site. A remediation plan will be submitted to the NMOCD.

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: <i>Tony Savoie</i>	<b>OIL CONSERVATION DIVISION</b>	
Printed Name: Tony Savoie	Approved by Environmental Specialist: Signed By <i>Mike Beaman</i>	
Title: Waste Management and Remediation Specialist	Approval Date: <b>SEP 11 2013</b>	Expiration Date:
E-mail Address: <a href="mailto:tasavoie@basspet.com">tasavoie@basspet.com</a>	Conditions of Approval: Remediation per OCD Rule & Guidelines. <b>SUBMIT REMEDIATION PROPOSAL NO LATER THAN:</b>	Attached <input type="checkbox"/>
Date: 9/10/13 Phone: 432-556-8730	<b>October 13, 2013</b>	<b>2 RP-1907</b>

\* Attach Additional Sheets If Necessary

District I  
1625 N. French Dr., Hobbs, NM 88240  
District II  
811 S. First St., 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 August 8, 2011

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

**Release Notification and Corrective Action**

*njmw 1332428471* OPERATOR  Initial Report  Final Report

Name of Company: BOPCO, L.P. <i>260737</i>	Contact: Tony Savoie
Address: 522 W. Mermod, Suite 704 Carlsbad, N.M. 88220	Telephone No. 575-887-7329
Facility Name: Poker Lake Unit 140 Tank Battery	Facility Type: Exploration and Production

Surface Owner: State of NM	Mineral Owner: State of NM	API No. 30-105-29876
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**LOCATION OF RELEASE**

Unit Letter E	Section 32	Township 23S	Range 30E	Feet from the	North/South Line	Feet from the	East/West Line	County Eddy
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Latitude N 32.263302 Longitude W 103.910493

**NATURE OF RELEASE**

Type of Release: Produced water	Volume of Release: 15 Bbls produced water	Volume Recovered: 5 bbls from the impervious containment.
Source of Release: 3" water transfer poly line	Date and Hour of Occurrence: 9-19-13, time unknown	Date and Hour of Discovery: 9-19-13 time 9:00 a.m.
Was Immediate Notice Given? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Required	If YES, To Whom?	
By Whom?	Date and Hour:	
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.*	<div style="border: 2px solid black; padding: 5px; width: fit-content; margin: auto;"> <p style="font-size: 1.2em; margin: 0;"><b>RECEIVED</b></p> <p style="font-size: 1.2em; margin: 0;">NOV 15 2013</p> <p style="font-size: 1.2em; margin: 0;"><b>NMOCD ARTESIA</b></p> </div>	

Describe Cause of Problem and Remedial Action Taken.\*  
The 3" poly line had a pin hole near a repair connection from a previous release.

Describe Area Affected and Cleanup Action Taken.\* Some of the spill was contained inside the impervious containment, some of the spray area got outside the containment and affected an area previously impacted by a reportable spill at the same location on 9/9/13. Both spills are scheduled to be cleaned up in accordance with the NMOCD standards beginning on 11/18/13.

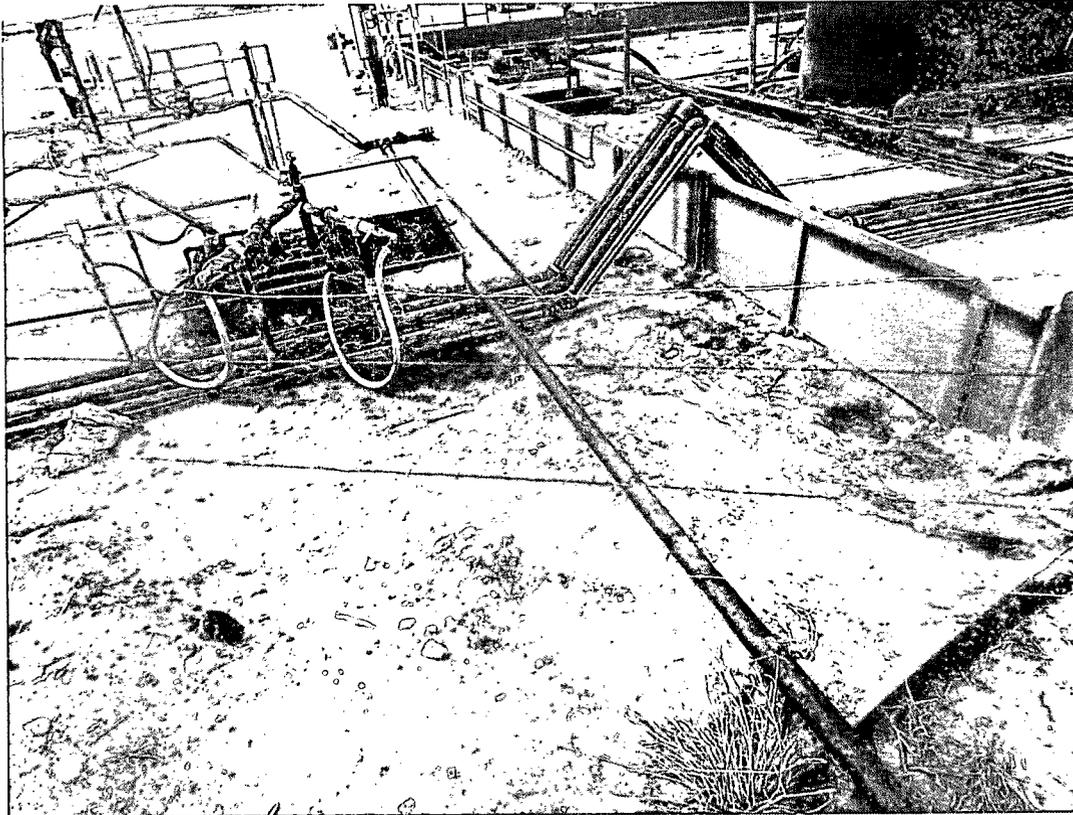
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger 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: <i>Tony Savoie</i>	<b>OIL CONSERVATION DIVISION</b>	
Printed Name: Tony Savoie	Approved by Environmental Specialist	By <i>Mike Brandon</i>
Title: Waste Management and Remediation Specialist	Approval Date:	Expiration Date:
E-mail Address: <a href="mailto:tasavoie@busspet.com">tasavoie@busspet.com</a>	Conditions of Approval: Remediation per OCD Rule & Guidelines. <b>SUBMIT REMEDIATION PROPOSAL NO LATER THAN:</b>	Attached <input type="checkbox"/>
Date: 11/14/13 Phone: 432-556-8730	<b>December 20, 2013</b>	

\* Attach Additional Sheets If Necessary

*2RP-2072*

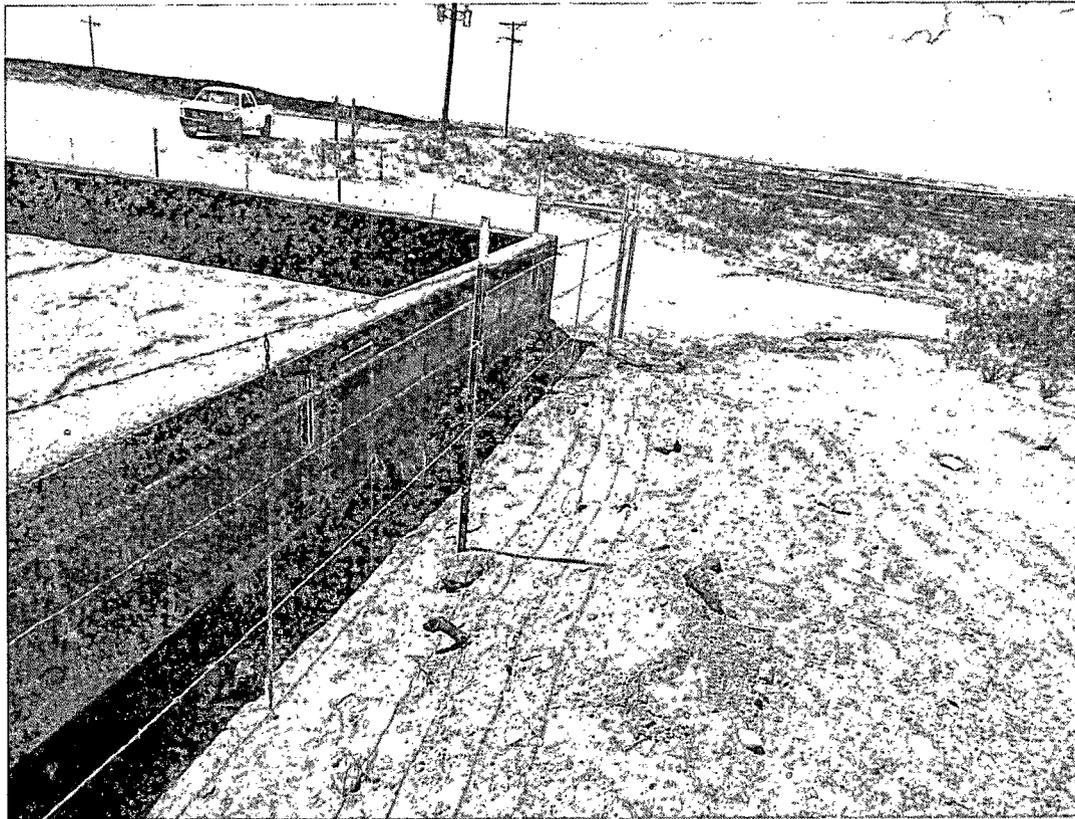
**Appendix B**  
**Photographs**



Photograph of surface impact from the initial release on the south side of the PLU #140 Tank Battery.



Photograph of surface impact from the initial release on the east side of the PLU #140 Tank Battery.



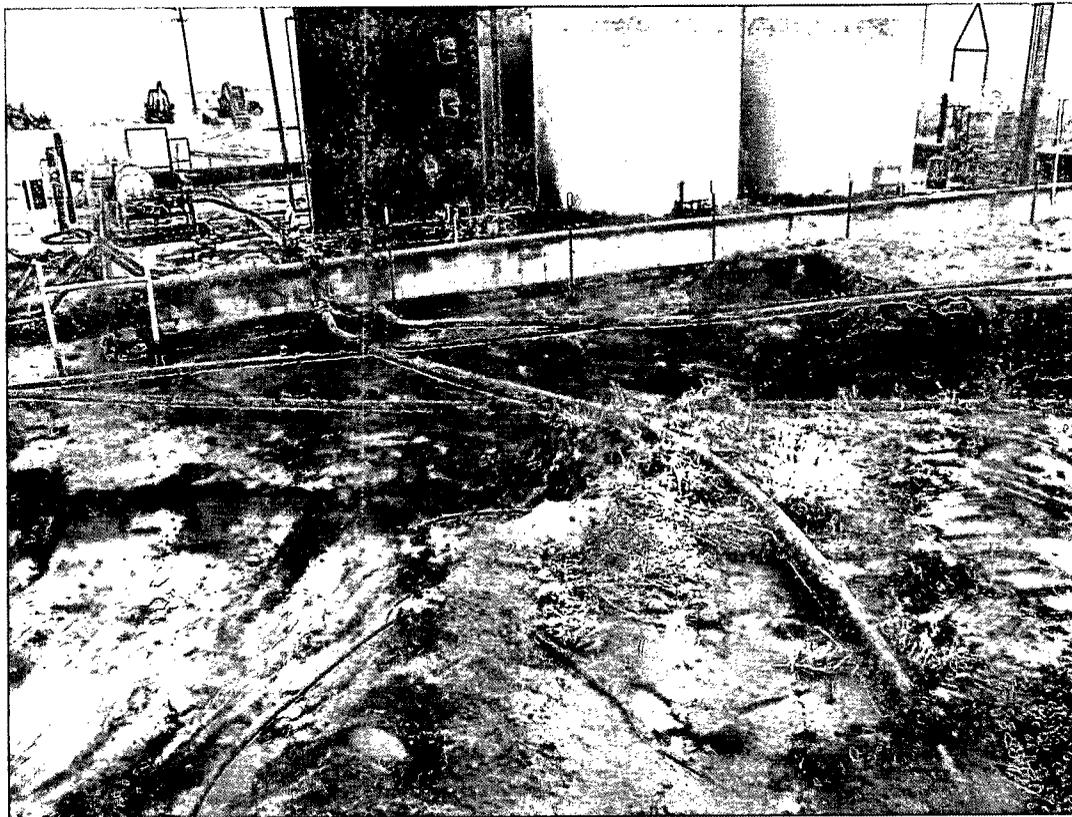
Photograph of surface impact from the initial release on the north side of the PLU #140 Tank Battery.



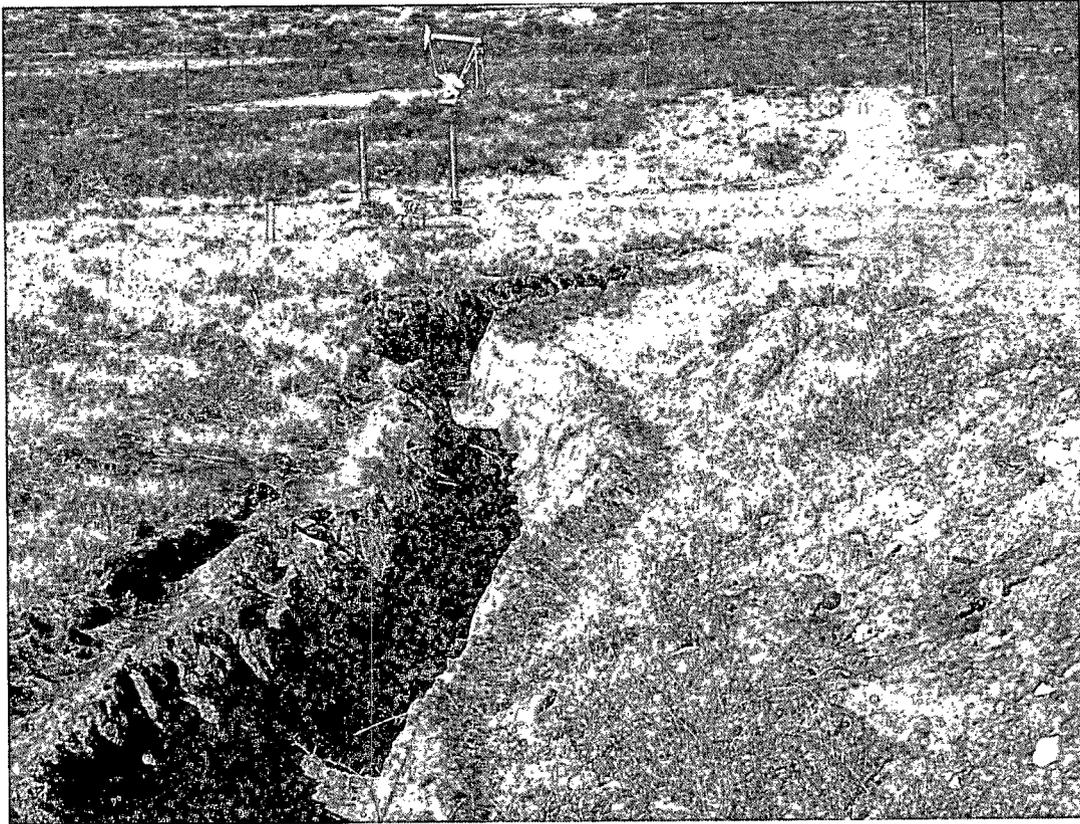
Photograph the initial release and flowpath at the PLU #140 Tank Battery Release Site.



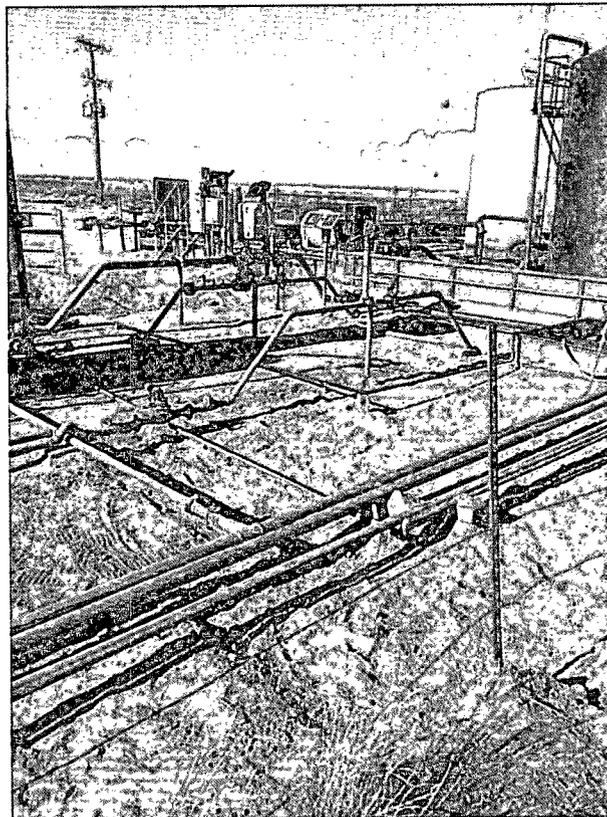
Photograph of the primary excavation southeast of the containment area at the PLU #140 Tank Battery. (Looking West)



Photograph of a portion of the excavation at the PLU #140 Tank Battery. (Looking West)



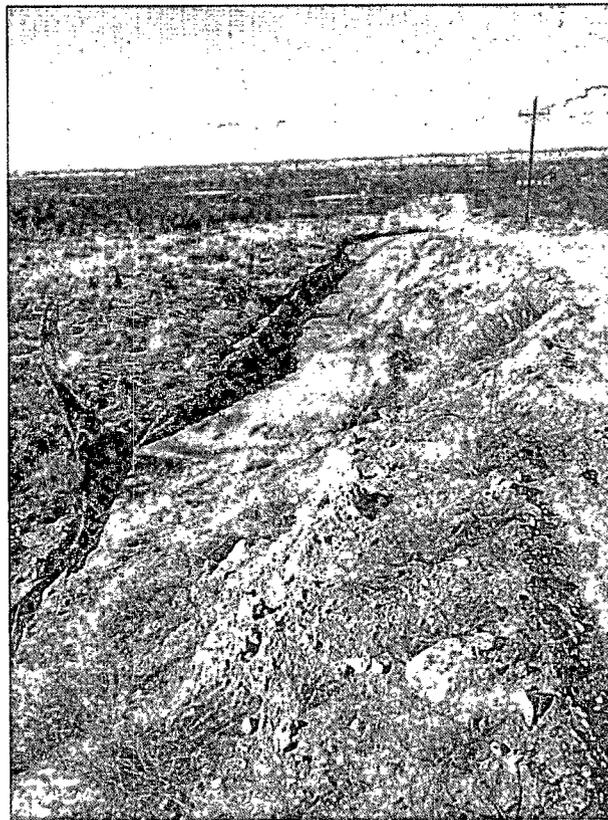
Photograph of the excavated flowpath at the PLU #140 Tank Battery. (Looking North)



Photograph of affected area south of the battery after remediation activities at the PLU #140 Tank Battery. (Looking Northwest)



Photograph of eastern portion of the PLU #140 Tank Battery after remediation activities. (Looking North)



Photograph of the affected drainage ditch after remediation activities. (Looking North)

**Appendix C**  
**Laboratory Analytical Reports**

November 21, 2013

JOEL LOWRY

Basin Environmental Service

P.O. Box 301

Lovington, NM 88260

RE: POKER LAKE 140

Enclosed are the results of analyses for samples received by the laboratory on 11/19/13 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 [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:	11/19/2013	Sampling Date:	11/18/2013
Reported:	11/21/2013	Sampling Type:	Soil
Project Name:	POKER LAKE 140	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	EDDY CO, NM		

**Sample ID: WEST FLOOR @ 1' (H302818-01)**

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>48.0</b>	16.0	11/21/2013	ND	432	108	400	0.00		

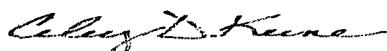
**Sample ID: EAST FLOOR @ 1' (H302818-02)**

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>144</b>	16.0	11/21/2013	ND	432	108	400	0.00		

Cardinal Laboratories

\* = Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Notes and Definitions**

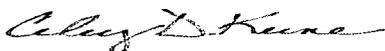
- ND Analyte NOT DETECTED at or above the reporting limit
- RPD Relative Percent Difference
- \*\* Samples not received at proper temperature of 6°C or below.
- \*\*\* Insufficient time to reach temperature.
- Chloride by SM4500Cl-B does not require samples be received at or below 6°C  
Samples reported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

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Cardinal Laboratories

\*=Accredited Analyte

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---

Celey D. Keene, Lab Director/Quality Manager



December 04, 2013

JOEL LOWRY

Basin Environmental Service

P.O. Box 301

Lovington, NM 88260

RE: POKER LAKE 140

Enclosed are the results of analyses for samples received by the laboratory on 11/21/13 12:55.

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:	11/21/2013	Sampling Date:	11/20/2013
Reported:	12/04/2013	Sampling Type:	Soil
Project Name:	POKER LAKE 140	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	EDDY CO, NM		

**Sample ID: CENTER ROAD (H302855-01)**

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	11/25/2013	ND	2.14	107	2.00	0.779		
Toluene*	<0.050	0.050	11/25/2013	ND	2.10	105	2.00	0.448		
Ethylbenzene*	<0.050	0.050	11/25/2013	ND	2.05	103	2.00	0.544		
Total Xylenes*	<0.150	0.150	11/25/2013	ND	6.00	99.9	6.00	0.513		
Total BTEX	<0.300	0.300	11/25/2013	ND						

Surrogate: 4-Bromofluorobenzene (PIL) 111 % 89.4-126

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>752</b>	16.0	11/26/2013	ND	416	104	400	3.92		

TPH 8015M		mg/kg		Analyzed By: ck						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	12/03/2013	ND	192	96.2	200	3.40		
DRO >C10-C28	<10.0	10.0	12/03/2013	ND	197	98.6	200	2.56		
EXT DRO >C28-C35	<10.0	10.0	12/03/2013	ND						

Surrogate: 1-Chlorooctane 117 % 65.2-140

Surrogate: 1-Chlorooctadecane 118 % 63.6-154

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:	11/21/2013	Sampling Date:	11/20/2013
Reported:	12/04/2013	Sampling Type:	Soil
Project Name:	POKER LAKE 140	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	EDDY CO, NM		

**Sample ID: RAVINE TRENCH FLOOR (H302855-02)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	11/25/2013	ND	2.14	107	2.00	0.779		
Toluene*	<0.050	0.050	11/25/2013	ND	2.10	105	2.00	0.448		
Ethylbenzene*	<0.050	0.050	11/25/2013	ND	2.05	103	2.00	0.544		
Total Xylenes*	<0.150	0.150	11/25/2013	ND	6.00	99.9	6.00	0.513		
Total BTEX	<0.300	0.300	11/25/2013	ND						

Surrogate: 4-Bromofluorobenzene (PII) 114 % 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	1230	16.0	11/26/2013	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: ck						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	12/03/2013	ND	192	96.2	200	3.40		
DRO >C10-C28	<10.0	10.0	12/03/2013	ND	197	98.6	200	2.56		
EXT DRO >C28-C35	<10.0	10.0	12/03/2013	ND						

Surrogate: 1-Chlorooctane 119 % 65.2-140

Surrogate: 1-Chlorooctadecane 119 % 63.6-154

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Notes and Definitions**

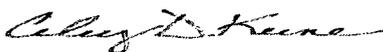
- ND Analyte NOT DETECTED at or above the reporting limit
- RPD Relative Percent Difference
- \*\* Samples not received at proper temperature of 6°C or below.
- \*\*\* Insufficient time to reach temperature.
- Chloride by SM4500Cl-B does not require samples be received at or below 6°C  
Samples reported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

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Celey D. Keene, Lab Director/Quality Manager



December 05, 2013

JOEL LOWRY

Basin Environmental Service

P.O. Box 301

Lovington, NM 88260

RE: POKER LAKE 140

Enclosed are the results of analyses for samples received by the laboratory on 11/27/13 8:20.

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).

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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. 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:	11/27/2013	Sampling Date:	11/26/2013
Reported:	12/05/2013	Sampling Type:	Soil
Project Name:	POKER LAKE 140	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	EDDY CO, NM		

**Sample ID: 50' SOUTH (H302903-01)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>272</b>	16.0	12/04/2013	ND	416	104	400	3.92		

**Sample ID: 100' FLOOR (H302903-02)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>768</b>	16.0	12/04/2013	ND	416	104	400	3.92		

**Sample ID: 150' FLOOR (H302903-03)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>480</b>	16.0	12/04/2013	ND	416	104	400	3.92		

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

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Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



December 17, 2013

JOEL LOWRY

Basin Environmental Service

P.O. Box 301

Lovington, NM 88260

RE: POKER LAKE UNIT #140

Enclosed are the results of analyses for samples received by the laboratory on 12/10/13 11:00.

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).

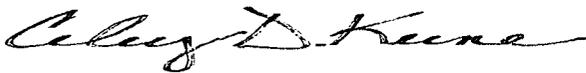
Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

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:	12/10/2013	Sampling Date:	12/09/2013
Reported:	12/17/2013	Sampling Type:	Soil
Project Name:	POKER LAKE UNIT #140	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	EDDY CO, NM		

**Sample ID: NORTH WALL (H302973-01)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>80.0</b>	16.0	12/16/2013	ND	432	108	400	3.77		

**Sample ID: SOUTH WALL (H302973-02)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>288</b>	16.0	12/16/2013	ND	432	108	400	3.77		

**Sample ID: EAST WALL (H302973-03)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>32.0</b>	16.0	12/16/2013	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:	12/10/2013	Sampling Date:	12/09/2013
Reported:	12/17/2013	Sampling Type:	Soil
Project Name:	POKER LAKE UNIT #140	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	EDDY CO, NM		

**Sample ID: FLOOR (H302973-04)**

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	12/11/2013	ND	1.95	97.3	2.00	2.59		
Toluene*	<0.050	0.050	12/11/2013	ND	1.93	96.3	2.00	2.40		
Ethylbenzene*	<0.050	0.050	12/11/2013	ND	1.88	93.9	2.00	2.90		
Total Xylenes*	<0.150	0.150	12/11/2013	ND	5.47	91.1	6.00	3.41		
Total BTEX	<0.300	0.300	12/11/2013	ND						

Surrogate: 4-Bromofluorobenzene (PIE) 96.2 % 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	592	16.0	12/16/2013	ND	432	108	400	3.77		

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	12/11/2013	ND	184	92.1	200	0.824		
DRO >C10-C28	<10.0	10.0	12/11/2013	ND	183	91.5	200	4.56		
EXT DRO >C28-C35	<10.0	10.0	12/11/2013	ND						

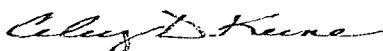
Surrogate: 1-Chlorooctane 100 % 65.2-140

Surrogate: 1-Chlorooctadecane 100 % 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

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Cardinal Laboratories

\*=Accredited Analyte

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---

Celey D. Keene, Lab Director/Quality Manager



December 18, 2013

JOEL LOWRY

Basin Environmental Service

P.O. Box 301

Lovington, NM 88260

RE: POKER LAKE UNIT #140

Enclosed are the results of analyses for samples received by the laboratory on 12/12/13 9:59.

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).

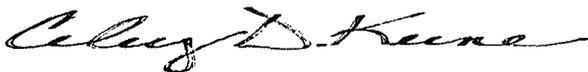
Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

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:	12/12/2013	Sampling Date:	12/11/2013
Reported:	12/18/2013	Sampling Type:	Soil
Project Name:	POKER LAKE UNIT #140	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Celey D. Keene
Project Location:	EDDY CO, NM		

**Sample ID: FLOOR #2 (H303003-01)**

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	12/13/2013	ND	1.94	96.9	2.00	1.16		
Toluene*	<0.050	0.050	12/13/2013	ND	1.95	97.5	2.00	0.216		
Ethylbenzene*	<0.050	0.050	12/13/2013	ND	1.95	97.6	2.00	1.18		
Total Xylenes*	<0.150	0.150	12/13/2013	ND	5.83	97.2	6.00	2.07		
Total BTEX	<0.300	0.300	12/13/2013	ND						

Surrogate: 4-Bromofluorobenzene (PIE) 99.5 % 89.4-126

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>288</b>	16.0	12/18/2013	ND	416	104	400	3.92		

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	12/17/2013	ND	157	78.5	200	4.34			
<b>DRO &gt;C10-C28</b>	<b>771</b>	50.0	12/17/2013	ND	194	96.8	200	2.72			
<b>EXT DRO &gt;C28-C35</b>	<b>435</b>	50.0	12/17/2013	ND							

Surrogate: 1-Chlorooctane 129 % 65.2-140

Surrogate: 1-Chlorooctadecane 202 % 63.6-154

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: 12/12/2013  
 Reported: 12/18/2013  
 Project Name: POKER LAKE UNIT #140  
 Project Number: NONE GIVEN  
 Project Location: EDDY CO, NM

 Sampling Date: 12/11/2013  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Celey D. Keene

**Sample ID: FLOOR #3 (H303003-02)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/13/2013	ND	1.94	96.9	2.00	1.16	
Toluene*	<0.050	0.050	12/13/2013	ND	1.95	97.5	2.00	0.216	
Ethylbenzene*	<0.050	0.050	12/13/2013	ND	1.95	97.6	2.00	1.18	
Total Xylenes*	<0.150	0.150	12/13/2013	ND	5.83	97.2	6.00	2.07	
Total BTEX	<0.300	0.300	12/13/2013	ND					

Surrogate: 4-Bromofluorobenzene (PIC) 97.4 % 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
<b>Chloride</b>	<b>480</b>	16.0	12/18/2013	ND	416	104	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	12/17/2013	ND	157	78.5	200	4.34	
<b>DRO &gt;C10-C28</b>	<b>81.4</b>	10.0	12/17/2013	ND	194	96.8	200	2.72	
<b>EXT DRO &gt;C28-C35</b>	<b>37.7</b>	10.0	12/17/2013	ND					

Surrogate: 1-Chlorooctane 102 % 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**

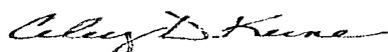
- S-06 The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interference's.
- ND Analyte NOT DETECTED at or above the reporting limit
- RPD Relative Percent Difference
- \*\* Samples not received at proper temperature of 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

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Celey D. Keene, Lab Director/Quality Manager

