

# *Basin Environmental Service Technologies, LLC*

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P. O. Box 301  
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Office: (575) 396-2378 Fax: (575) 396-1429



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

**BOPCO, LP  
BIG EDDY UNIT #148  
Eddy County, New Mexico  
Unit Letter "J" (NW/SE), Section 6, Township 22 South, Range 28 East  
Latitude 32.418965° North, Longitude 104.124415° West  
NMOCD Reference #2RP-2165**

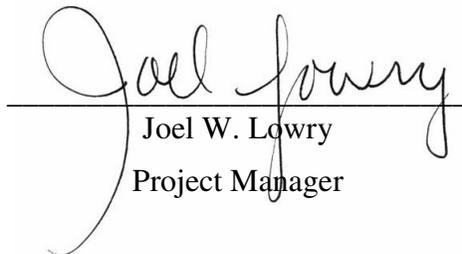
Prepared For:

**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 2014**

  
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 Big Eddy Unit #148 (BEU #148). The legal description of the release site is Unit Letter "J" (NW/SE), Section 6, Township 22 South, Range 28 East, in Eddy County, New Mexico. The geographic coordinates of the release site are 32.418965° North latitude and 104.124415° West longitude. The property affected by the release is owned by the United States Department of the Interior - Bureau of Land Management (BLM). A "Site Location Map" is provided as Figure 1.

On January 7, 2014, BOPCO discovered a release at the BEU #148 Tank Battery. The release was attributed to an unknown person having opened the truck load line valve and emptying the entire contents of the produced water tank. It is estimated that approximately three (3) barrels of crude oil and one hundred thirty-two barrels (132) of produced water were released. The New Mexico Oil Conservation Division (NMOCD) Artesia District Office was notified immediately upon discovery. The "Release Notification and Corrective Action" (Form C-141) indicated approximately ten thousand, six hundred and three square feet (10,603 ft<sup>2</sup>) of the tank battery pad was affected by the release. During initial response activities, a backhoe was used to scrape up the heavily saturated soil. The soil was transported to Lea Land, Inc. (NMOCD Permit #WM-01-035), for disposal. The Form C-141 is provided as Appendix A. General photographs of the release site are provided as Appendix B.

## 2.0 NMOCD SITE CLASSIFICATION

A search of the New Mexico Water Rights Reporting System (NMWRRS) database maintained by the New Mexico Office of the State Engineer (NMOSE) indicated information was unavailable for Section 6, Township 22 South, Range 28 East. A depth to groundwater reference map utilized by the NMOCD indicates groundwater should be encountered at approximately fifty feet (50') below ground surface (bgs). Based on the NMOCD ranking system, ten (10) 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 BEU #148 release site has an initial ranking score of ten (10) points. The soil remediation levels for a site with a ranking score of ten (10) points are as follows:

- Benzene – 10 mg/Kg (ppm)
- Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX) – 50 mg/Kg (ppm)
- Total Petroleum Hydrocarbons (TPH) – 1,000 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 11, 2014, Basin conducted an initial investigation at the release site. During the initial investigation six (6) test trenches (TT-1, TT-2, TT-3, TT-4, TT-5 and TT-6) were advanced in an effort to determine the nature and extent of soil impact.

Test Trench TT-1 was advanced to approximately six inches (6") bgs. During the advancement of the test trench, two (2) soil samples (TT-1 @ Surf. and TT-1 @ 6") were collected and submitted to the laboratory for analysis of chloride concentrations. Laboratory analytical results indicated chloride concentrations ranged from less than the laboratory method detection limit (MDL) for soil sample TT-1 @ 6" to 48.0 ppm for soil sample TT-1 @ Surf. Soil sample TT-1 @ Surf. was also analyzed for concentrations of BTEX and TPH, which were determined to be less than the appropriate laboratory MDL. A summary of "Concentrations of Benzene, BTEX, TPH and Chloride in Soil" is provided in Table 1. A "Site and Sample Location Map" is provided as Figure 2. Laboratory analytical reports are provided as Appendix C.

Test Trench TT-2 was advanced to approximately six inches (6") bgs. During the advancement of the test trench, two (2) soil samples (TT-2 @ Surf. and TT-2 @ 6") were collected and submitted to the laboratory for analysis of chloride concentrations. Laboratory analytical results indicated chloride concentrations ranged from 32.0 ppm for soil sample TT-2 @ 6" to 256 ppm for soil sample TT-2 @ Surf.

Test Trench TT-3 was advanced to approximately three feet (3') bgs. During the advancement of the test trench, four (4) soil samples (TT-3 @ Surf., TT-3 @ 6", TT-3 @ 18" and TT-3 @ 3') were collected and submitted to the laboratory for analysis of chloride concentrations. Laboratory analytical results indicated chloride concentrations ranged from 64.0 ppm for soil sample TT-3 @ 3' to 416 ppm for soil sample TT-3 @ 18".

Test Trench TT-4 was advanced to approximately six inches (6") bgs. During the advancement of the test trench, two (2) soil samples (TT-4 @ Surf. and TT-4 @ 6") were collected and submitted to the laboratory for analysis of chloride concentrations. Laboratory analytical results indicated chloride concentrations ranged from less than the laboratory MDL for soil sample TT-4 @ 6" to 16.0 ppm for soil sample TT-4 @ Surf.

Test Trench TT-5 was advanced to approximately six inches (6") bgs. During the advancement of the test trench, two (2) soil samples (TT-5 @ Surf. and TT-5 @ 6") were collected and submitted to the laboratory for analysis of chloride concentrations. Laboratory analytical results indicated chloride concentrations ranged from 128 ppm for soil sample TT-5 @ Surf. to 160 ppm for soil sample TT-5 @ 6".

Test Trench TT-6 was advanced to approximately three feet (3') bgs. During the advancement of the test trench, four (4) soil samples (TT-6 @ Surf., TT-6 @ 6", TT-6 @ 18" and TT-6 @ 3') were collected and submitted to the laboratory for analysis of chloride concentrations. Laboratory

analytical results indicated chloride concentrations ranged from 112 ppm for soil sample TT-6 @ 3' to 288 ppm for soil sample TT-6 @ 18".

#### **4.0 QA/QC PROCEDURES**

##### **4.1 Soil Sampling**

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

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

##### **4.2 Decontamination of Equipment**

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

##### **4.3 Laboratory Protocol**

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

#### **5.0 SITE CLOSURE REQUEST**

Confirmation soil samples collected from the BEU #148 release site indicated soil remaining in-situ had not been impacted above NMOCD regulatory guidelines. Based on these laboratory analytical results, Basin recommends BOPCO provide the NMOCD-Artesia District Office and the BLM a copy of this *Remediation Summary and Site Closure Request* and request the NMOCD grant site closure to the BEU #148 release site.

## 6.0 LIMITATIONS

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

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

**7.0 DISTRIBUTION:**

Copy 1: Mike Bratcher  
New Mexico Energy, Minerals and Natural Resources Department  
Oil Conservation Division (District 2)  
1301 E. Grand Avenue  
Artesia, NM 88210

Copy 2: James Amos  
Bureau of Land Management  
602 E. Greene Street  
Carlsbad, New Mexico 88220

Copy 3: Tony Savoie  
BOPCO, LP  
522 W. Mermod, Suite 704  
Carlsbad, NM 88220

Copy 4: Basin Environmental Service Technologies, LLC  
P.O. Box 301  
Lovington, NM 88260

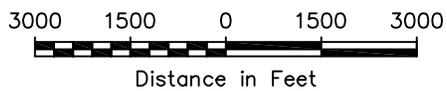
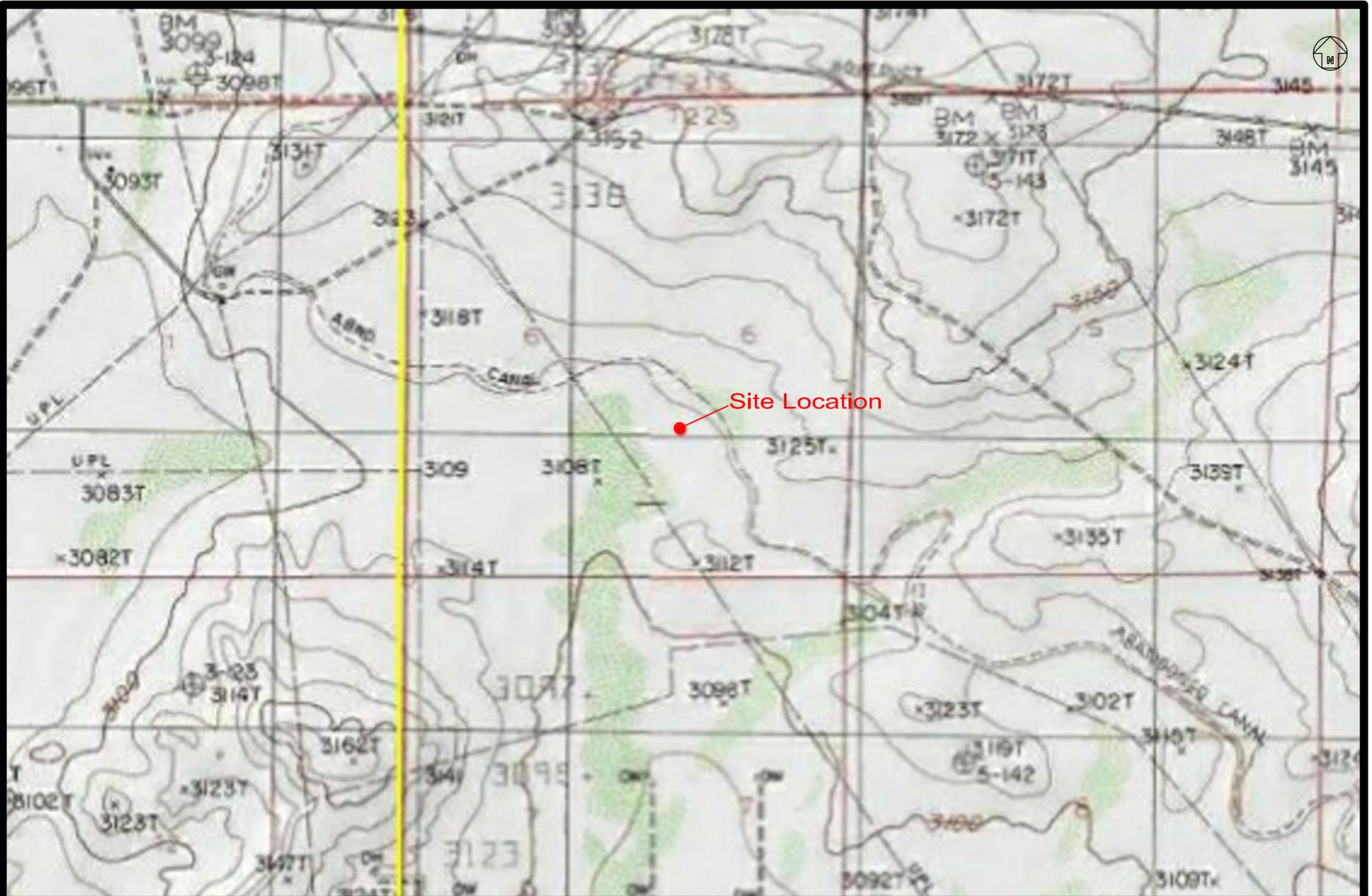


Figure 1  
 Site Location Map  
 BOPCO, LP  
 Big Eddy Unit #148  
 Eddy County, New Mexico  
 NMOCD Ref# 2RP-2165

## Basin Environmental Service Technologies

Prep By: JWL

Checked By: BJA

December 11, 2014

Scale 1"=3000'



**Legend:**

- - - - - Inferred Release Margins
- Test Trench

**Figure 2**  
 Site & Sample Location Map  
 BOPCO, L.P.  
 Big Eddy Unit #148  
 Eddy County, New Mexico  
 NMOCD Ref # 2RP-2165

**Basin Environmental Services**

Prep By: JWL	Checked By: BJA
December 1, 2014	Scale 1"=50'

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

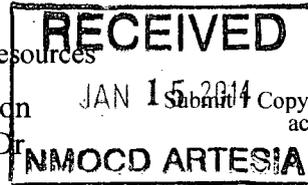
**BOPCO, LP  
BIG EDDY UNIT #148  
EDDY COUNTY, NEW MEXICO  
NMOCD REFERENCE #: 2RP-2165**

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)		
TT-1 @ Surf.	Surface	11/20/2014	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<10.0	48.0
TT-1 @ 6"	6"	11/20/2014	In-Situ	-	-	-	-	-	-	-	-	-	<16.0
TT-2 @ Surf.	Surface	11/20/2014	In-Situ	-	-	-	-	-	-	-	-	-	256
TT-2 @ 6"	6"	11/20/2014	In-Situ	-	-	-	-	-	-	-	-	-	32.0
TT-3 @ Surf.	Surface	11/20/2014	In-Situ	-	-	-	-	-	-	-	-	-	128
TT-3 @ 6"	6"	11/20/2014	In-Situ	-	-	-	-	-	-	-	-	-	384
TT-3 @ 18"	18"	11/20/2014	In-Situ	-	-	-	-	-	-	-	-	-	416
TT-3 @ 3'	3'	11/20/2014	In-Situ	-	-	-	-	-	-	-	-	-	64.0
TT-4 @ Surf.	Surface	11/20/2014	In-Situ	-	-	-	-	-	-	-	-	-	16.0
TT-4 @ 6"	6"	11/20/2014	In-Situ	-	-	-	-	-	-	-	-	-	<16.0
TT-5 @ Surf.	Surface	11/20/2014	In-Situ	-	-	-	-	-	-	-	-	-	128
TT-5 @ 6"	6"	11/20/2014	In-Situ	-	-	-	-	-	-	-	-	-	160
TT-6 @ Surf.	Surface	11/20/2014	In-Situ	-	-	-	-	-	-	-	-	-	128
TT-6 @ 6"	6"	11/20/2014	In-Situ	-	-	-	-	-	-	-	-	-	192
TT-6 @ 18"	18"	11/20/2014	In-Situ	-	-	-	-	-	-	-	-	-	288
TT-6 @ 3'	3'	11/20/2014	In-Situ	-	-	-	-	-	-	-	-	-	112
<b>NMOCD Criteria</b>				<b>10</b>				<b>50</b>				<b>1,000</b>	<b>500</b>

- = Not analyzed.

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



Form C-141  
Revised August 8, 2011

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

**Release Notification and Corrective Action**

**JMW1402928174** OPERATOR  Initial Report  Final Report

Name of Company: BOPCO, L.P. <b>260737</b>	Contact: Tony Savoie
Address: 522 W. Mermod, Suite 704 Carlsbad, N.M. 88220	Telephone No. 575-887-7329
Facility Name: Big Eddy Unit 148	Facility Type: Exploration and Production
Surface Owner: U.S.A. ( <u>State or Fed.?</u> ) Mineral Owner: U.S.A.	API No. 30-015-35146

**LOCATION OF RELEASE**

Unit Letter J	Section 6	Township 22S	Range 28E	Feet from the 1450	North/South Line South	Feet from the 1980	East/West Line East	County: Eddy
------------------	--------------	-----------------	--------------	-----------------------	---------------------------	-----------------------	------------------------	-----------------

Latitude N 32.418965 Longitude W 104.124415

**NATURE OF RELEASE**

Type of Release: Crude oil and produced water	Volume of Release: 3 bbls oil and 132 bbls produced water	Volume Recovered: None
Source of Release: Produced water tank	Date and Hour of Occurrence: 1/7/14 Time unknown	Date and Hour of Discovery: 1/7/14 at 8:00 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? Jody Walters	Date and Hour: 1/7/14 1:30 p.m.	
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.* An unknown person opened the truck load line valve and emptied the entire contents of the produced water tank. The valve was shut and locked at the tank.		
Describe Area Affected and Cleanup Action Taken.* The release impacted approximately 10,603 sq.ft. of the tank battery pad. A backhoe was used to scrape up the heavily saturated soil the day of discovery. The soil was transported to Lea Lands. The remainder of the remediation will be done in accordance with the NMOCD and BLM remediation guidelines.		
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: <u>Tony Savoie</u>	<b>OIL CONSERVATION DIVISION</b>	
Printed Name: Tony Savoie	Approved by Environmental Specialist	Signed By: <u>Mike Brandon</u>
Title: Waste Management and Remediation Specialist	Approval Date: <b>JAN 29 2014</b>	Expiration Date:
E-mail Address: <u>tasavoie@basspet.com</u>	Conditions of Approval:	Attached <input type="checkbox"/>

Date: 1/14/14 Phone: 432-556-8730  
\* Attach Additional Sheets If Necessary

Remediation per OCD Rule & Guidelines, & like approval by BLM. **SUBMIT REMEDIATION PROPOSAL NO LATER THAN: March 1, 2014**

**2RP-2165**



Photograph of the affected area after initial response activities at the BEU #148 release site.



Photograph of the affected area after initial response activities at the BEU #148 release site.



Photograph of the affected area after initial response activities at the BEU #148 release site.



Photograph of the initial investigation at the BEU #148 release site.



Photograph of the initial investigation at the BEU #148 release site.



Photograph of the initial investigation at the BEU #148 release site.



December 04, 2014

JOEL LOWRY

Basin Environmental Service

P.O. Box 301

Lovington, NM 88260

RE: BEU #148

Enclosed are the results of analyses for samples received by the laboratory on 11/21/14 13:20.

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,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is fluid and cursive.

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: 11/21/2014  
 Reported: 12/04/2014  
 Project Name: BEU #148  
 Project Number: NONE GIVEN  
 Project Location: EDDY COUNTY, NM

 Sampling Date: 11/20/2014  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Celey D. Keene

**Sample ID: TT-1 @ SURFACE (H403602-01)**

BTEX 8021B		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	12/03/2014	ND	1.96	97.8	2.00	2.18	
Toluene*	<0.050	0.050	12/03/2014	ND	1.93	96.5	2.00	1.89	
Ethylbenzene*	<0.050	0.050	12/03/2014	ND	1.83	91.7	2.00	1.94	
Total Xylenes*	<0.150	0.150	12/03/2014	ND	5.63	93.8	6.00	2.05	
Total BTEX	<0.300	0.300	12/03/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 99.8 % 61-154

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	11/24/2014	ND	416	104	400	0.00	

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	12/03/2014	ND	199	99.7	200	0.672	
DRO >C10-C28	<10.0	10.0	12/03/2014	ND	205	102	200	1.18	
EXT DRO >C28-C35	<10.0	10.0	12/03/2014	ND					

Surrogate: 1-Chlorooctane 135 % 47.2-157

Surrogate: 1-Chlorooctadecane 154 % 52.1-176

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: 11/21/2014  
 Reported: 12/04/2014  
 Project Name: BEU # 148  
 Project Number: NONE GIVEN  
 Project Location: EDDY COUNTY, NM

 Sampling Date: 11/20/2014  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Celey D. Keene

**Sample ID: TT-1 @ 6" (H403602-02)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	11/24/2014	ND	416	104	400	0.00	

**Sample ID: TT-2 @ SURFACE (H403602-03)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	256	16.0	11/24/2014	ND	416	104	400	0.00	

**Sample ID: TT-2 @ 6" (H403602-04)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	11/24/2014	ND	416	104	400	0.00	

**Sample ID: TT-3 @ SURFACE (H403602-05)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	128	16.0	11/24/2014	ND	400	100	400	3.92	

**Sample ID: TT-3 @ 6" (H403602-06)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	384	16.0	11/24/2014	ND	400	100	400	3.92	

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: 11/21/2014  
 Reported: 12/04/2014  
 Project Name: BEU #148  
 Project Number: NONE GIVEN  
 Project Location: EDDY COUNTY, NM

 Sampling Date: 11/20/2014  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Celey D. Keene

**Sample ID: TT-3 @ 18" (H403602-07)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	416	16.0	11/24/2014	ND	400	100	400	3.92	

**Sample ID: TT-3 @ 3' (H403602-08)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	64.0	16.0	11/24/2014	ND	400	100	400	3.92	

**Sample ID: TT-4 @ SURFACE (H403602-09)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	16.0	16.0	11/24/2014	ND	400	100	400	3.92	

**Sample ID: TT-4 @ 6" (H403602-10)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	11/24/2014	ND	400	100	400	3.92	

**Sample ID: TT-5 @ SURFACE (H403602-11)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	128	16.0	11/24/2014	ND	400	100	400	3.92	

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\*=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: 11/21/2014  
 Reported: 12/04/2014  
 Project Name: BEU # 148  
 Project Number: NONE GIVEN  
 Project Location: EDDY COUNTY, NM

 Sampling Date: 11/20/2014  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Celey D. Keene

**Sample ID: TT-5 @ 6" (H403602-12)**

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	11/24/2014	ND	400	100	400	3.92	

**Sample ID: TT-6 @ SURFACE (H403602-13)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	128	16.0	11/24/2014	ND	400	100	400	3.92	

**Sample ID: TT-6 @ 6" (H403602-14)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	192	16.0	11/24/2014	ND	400	100	400	3.92	

**Sample ID: TT-6 @ 18" (H403602-15)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	288	16.0	11/24/2014	ND	400	100	400	3.92	

**Sample ID: TT-6 @ 3' (H403602-16)**

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	11/24/2014	ND	400	100	400	3.92	

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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**

*Dg 15/2*

Company Name: <b>Joel Lowry</b> Project Manager: <b>P.O. Box 301</b> Address: <b>State: NM Zip: 88260</b> City: <b> Lovington</b> Phone #: <b>(575)396-2378</b> Fax #: <b>(575)396-1429</b> Project #: <b> Project Owner:</b> Project Name: <b> BEU #148</b> Project Location: <b> Eddy Co., NM</b> Sampler Name:		<b>BILL TO</b> P.O. #: <b> BOPCO, LP</b> Company: <b> Tony Savoie</b> Attn: <b> Address:</b> Address: <b> City:</b> State: <b> NM</b> Zip: <b> Phone #:</b> Fax #:	
FOR LAB USE ONLY <b>Lab I.D.</b> <b>Sample I.D.</b>		MATRIX GROUNDWATER WASTEWATER SOIL OIL SLUDGE OTHER : ACID/BASE: ICE / COOL OTHER :	
H403602 1 TT-1 @ Surf. 2 TT-1 @ 6" 3 TT-2 @ Surf. 4 TT-2 @ 6" 5 TT-3 @ Surf. 6 TT-3 @ 6" 7 TT-3 @ 18" 8 TT-3 @ 3' 9 TT-4 @ Surf. 10 TT-4 @ 6"		(G)RAB OR (C)OMP. # CONTAINERS DATE TIME	
9 1 9 1 9 1 9 1 9 1 9 1 9 1 9 1 9 1 9 1		11/20/14 1100 11/20/14 1105 11/20/14 1110 11/20/14 1115 11/20/14 1120 11/20/14 1125 11/20/14 1130 11/20/14 1135 11/20/14 1140 11/20/14 1145	
Requisitioned By: <i>[Signature]</i> Delivered By: <i>[Signature]</i> Sampler - UPS - Bus - Other:		ANALYSIS REQUEST Chloride TPH (8015M) <i>added 12/3/14</i> BTEX (8021B) HOLD FOR TPH	
Relinquished By: <i>[Signature]</i> Date: <i>11-21-14</i> Time: <i>10:00</i> Received By: <i>[Signature]</i> Date: <i>11-21-14</i> Time: <i>1:20</i> Sample Condition: <input checked="" type="checkbox"/> Intact <input checked="" type="checkbox"/> Cool <input type="checkbox"/> Yes <input type="checkbox"/> No CHECKED BY: <i>[Signature]</i> REMARKS:		Run Highest TPH for BTEX Please email results to pm@basinenv.com, TASavoie@BassPet.com, acruth@basspet.com	

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

*#54*

