

# *Basin Environmental Service Technologies, LLC*

3100 Plains Highway  
P. O. Box 301  
Lovington, New Mexico 88260

[bjarguijo@basinenv.com](mailto:bjarguijo@basinenv.com)

Office: (575) 396-2378 Fax: (575) 396-1429



## **REMEDIATION SUMMARY & SITE CLOSURE REQUEST**

**BOPCO, LP  
BIG EDDY UNIT DI-4  
API 30-015-42479  
Eddy County, New Mexico  
Unit Letter "O" (SW/SE), Section 32, Township 19 South, Range 31 East  
Latitude 32.6105800° North, Longitude 103.8893365° West  
NMOCD Reference #2RP-2757**

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  
*Edited and completed by BOPCO, L.P.  
Tony Savoie***

**September 2015**

**Ben J. Arguijo  
Project Manager**

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## 1.0 INTRODUCTION & BACKGROUND INFORMATION

Basin Environmental Service Technologies, LLC (Basin Environmental), on behalf of BOPCO, LP (BOPCO), has prepared this *Remediation Summary & Site Closure Request* for the release site known as Big Eddy Unit DI-4. The legal description of the release site is Unit Letter "O" (SW/SE), Section 32, Township 19 South, Range 31 East, in Eddy County, New Mexico. The geographic coordinates of the release site are 32.6105800° North latitude and 103. 103.8893365° 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 1/15/15, BOPCO discovered a release had occurred approximately 1120 feet north of the Big Eddy Unit (BEU) Drilling Island (DI) #4 tank battery. The release was due to a gas poly-line rupture and subsequent fire that melted a temporary produced water transfer line, resulting in the release of approximately 88 bbls) of produced water, and 4.9 MCH natural gas. The gas line and produced water line were shut in, replaced and re-routed around the spill area. A vacuum truck was utilized to recover approximately 15 bbls. of produced water. There was a fresh water line in the vicinity that melted due to the fire. It was also replaced and re-routed.

The release was immediately reported to the New Mexico Oil Conservation Division's (NMOCD) Artesia District Office. The "Release Notification and Corrective Action" (Form C-141) indicated the release affected approximately four thousand, one hundred square feet (4,100 ft<sup>2</sup>) of the adjacent pastureland.

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 32, Township 19 South, Range 31 East. A depth to groundwater reference map utilized by the NMOCD indicates groundwater should be encountered approximately ninety feet (90') 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 one thousand feet (1,000') of the release. Based on the NMOCD ranking system, zero (0) points will be assigned to the site as a result of this criterion.

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

NMOCD guidelines indicate the BEU-DI-4 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 January 20, 2015, Basin Environmental commenced delineation activities at the release site. A series of hand-augered soil borings were advanced at the site to investigate the vertical and horizontal extent of impacted soil.

A sample of produced water from the BEU-DI-4 facility was also collected to determine the baseline concentration of chloride in the released fluid. The sample was submitted to Cardinal Laboratories in Hobbs, New Mexico, for analysis using the Environmental Protection Agency (EPA) analytical method listed in Section 4.1, “Sampling”, below. Laboratory analytical results indicated the baseline concentration of chloride in the produced water was 45,000. The analytical report is provided in Appendix C.

On February 24, 2015, excavation of impacted soil commenced. A chloride field-test kit and olfactory/visual senses were utilized to determine the vertical and horizontal extent of impacted soil and to guide the excavation. From February 24 through March 4, 2015, excavated soil was stockpiled on plastic adjacent to the excavation, pending final disposition.

Two (2) soil samples (SW Corner Wall, and SW Corner Floor) were collected from the floor and sidewalls of the excavation and submitted to Cardinal Laboratories in Hobbs, New Mexico, for analysis of TPH, BTEX, and/or chloride concentrations using the EPA analytical methods listed in Section 4.1. Laboratory analytical results indicated TPH and BTEX constituent concentrations were less than the appropriate laboratory method detection limit (MDL) in both soil samples. Chloride concentrations ranged from 32.0 mg/kg in sample SW Corner Wall to 128 mg/kg in sample SW Corner Floor.

A summary of “Concentrations of Benzene, BTEX, TPH & Chloride in Soil” is provided in Table 1. A “Sample Location Map” is provided as Figure 2. Laboratory analytical reports are provided in Appendix C.

On March 2, 2015, four (4) soil samples (W. Sidewall, S. Center Sidewall, NW Floor, and Release Point Floor) were collected from the floor and sidewalls of the excavation and submitted to the laboratory for analysis of chloride concentrations. Sample Release Point Floor was also analyzed for concentrations of TPH and BTEX. Laboratory analytical results indicated chloride concentrations ranged 48.0 mg/kg in sample Release Point Floor to 160 mg/kg in sample W. Sidewall. TPH and BTEX constituent concentrations in sample Release Point Floor were less than the appropriate laboratory MDL.

On March 3, 2015, nine (9) soil samples (NW Sidewall, NE Sidewall, E. Sidewall, SE Sidewall, SE Floor, NE Floor, Center Floor, N. Center Floor, and N. Center Wall) were collected from the floor and sidewalls of the excavation and submitted to the laboratory for analysis of chloride concentrations. Sample Center Floor was also analyzed for concentrations of TPH and BTEX. Laboratory analytical results indicated chloride concentrations ranged from less than the laboratory MDL in samples NE Sidewall, E Sidewall, SE Sidewall, and N. Center Floor to 144 mg/kg in samples NW Sidewall and SE Floor. TPH and BTEX constituent concentrations in sample Center Floor were less than the appropriate laboratory MDL.

From March 4 through March 9, 2015, approximately five hundred sixty cubic yards (560 yd<sup>3</sup>) of impacted soil was transported to Lea Land, Inc. (NMOCD Permit # WM-01-035), for disposal.

Based on laboratory analytical results, field-screens, and olfactory/visual senses, from March 6 through March 10, 2015, the excavation was backfilled with locally acquired, non-impacted material, compacted, and contoured to fit the surrounding topography. Prior to backfilling, the final dimensions of the excavation were approximately seventy feet (70') in length, twenty-one (21) to fifty-five feet (55') in width, and one (1) to four feet (4') in depth.

The site was re-seeded with the appropriate BLM seed mix and photographed for compliance on 9/28/15

#### **4.0 QUALITY ASSURANCE/QUALITY CONTROL (QA/QC) PROCEDURES**

##### **4.1 Sampling**

Soil and produced water 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 SM4500 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 the BEU-DI-4 excavation were analyzed by an NMOCD-approved laboratory, and concentrations of benzene, BTEX, TPH, and chloride

were below the recommended remediation action levels established for the site by the NMOCD. Basin Environmental recommends BOPCO provide the NMOCD Artesia District Office and the NMSLO a copy of this *Remediation Summary & Site Closure Request* and request the NMOCD grant site closure to the BEU-DI-4 release site.

## **6.0 LIMITATIONS**

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

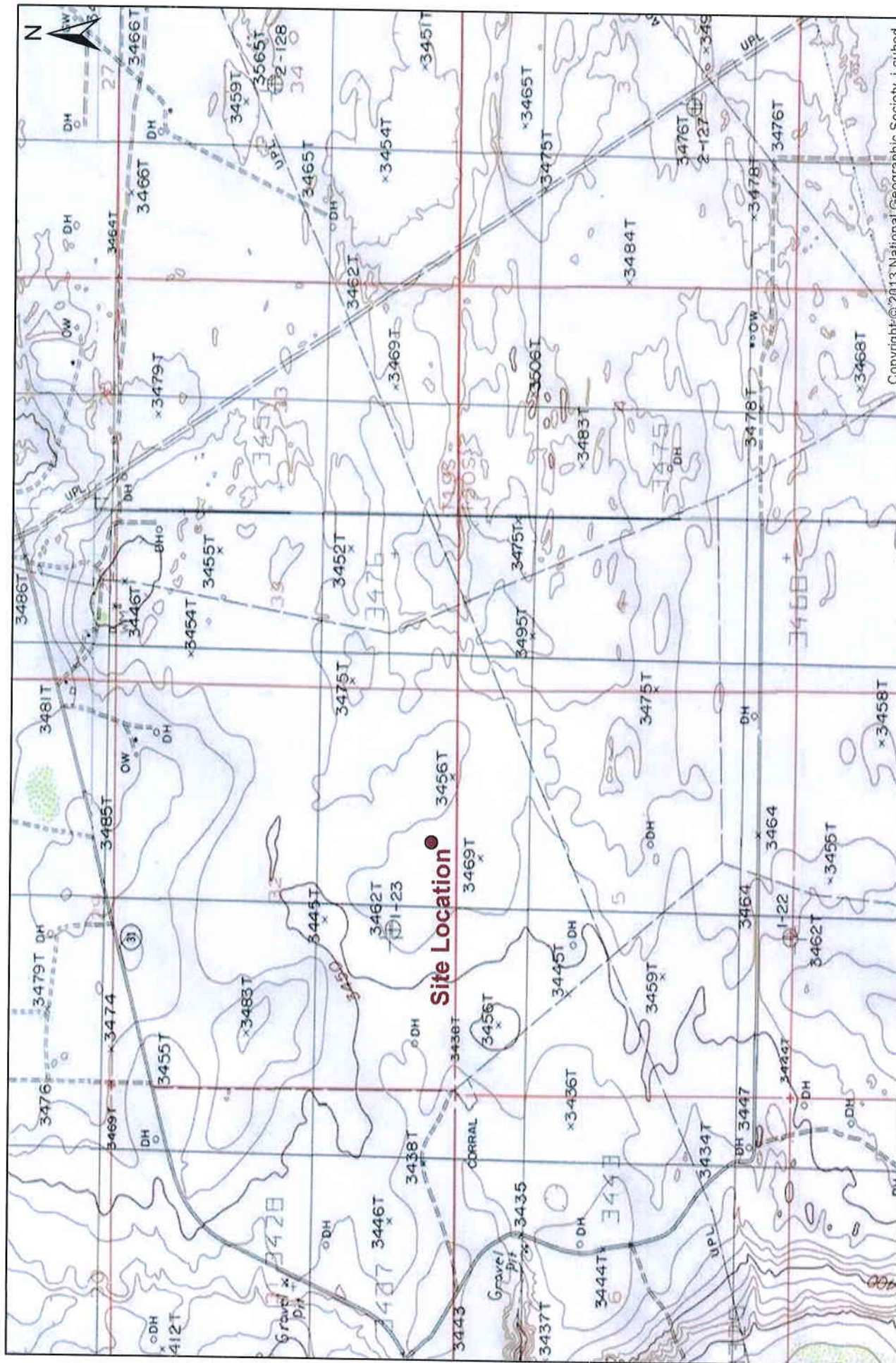
This report has been prepared for the benefit of BOPCO, LP. The information contained in this report, including all exhibits and attachments, may not be used by any other party without the express consent of Basin Environmental Service Technologies, LLC, and/or BOPCO, LP.

## **7.0 DISTRIBUTION:**

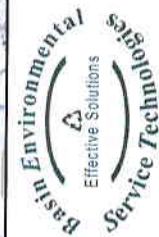
- Copy 1: Mike Bratcher  
New Mexico Energy, Minerals and Natural Resources Department  
Oil Conservation Division (District 2)  
1301 E. Grand Avenue  
Artesia, NM 88210
- Copy 2: Ian Dolly  
New Mexico State Land Office  
602 N. Canal, Suite B  
Carlsbad, NM 88220
- Copy 3: James Amos  
United States Department of the Interior  
Bureau of Land Management  
602 E. Greene Street  
Carlsbad, NM 88220
- Copy 4: Tony Savoie  
BOPCO, LP  
522 W. Mermod, Suite 704  
Carlsbad, NM 88220
- Copy 5: Basin Environmental Service Technologies, LLC  
P.O. Box 301  
Lovington, NM 88260

# Figures





**Figure 1**  
**Site Location Map**  
**BOPCO, LP**  
**Big Eddy Unit DI-4**  
**Eddy County, New Mexico**

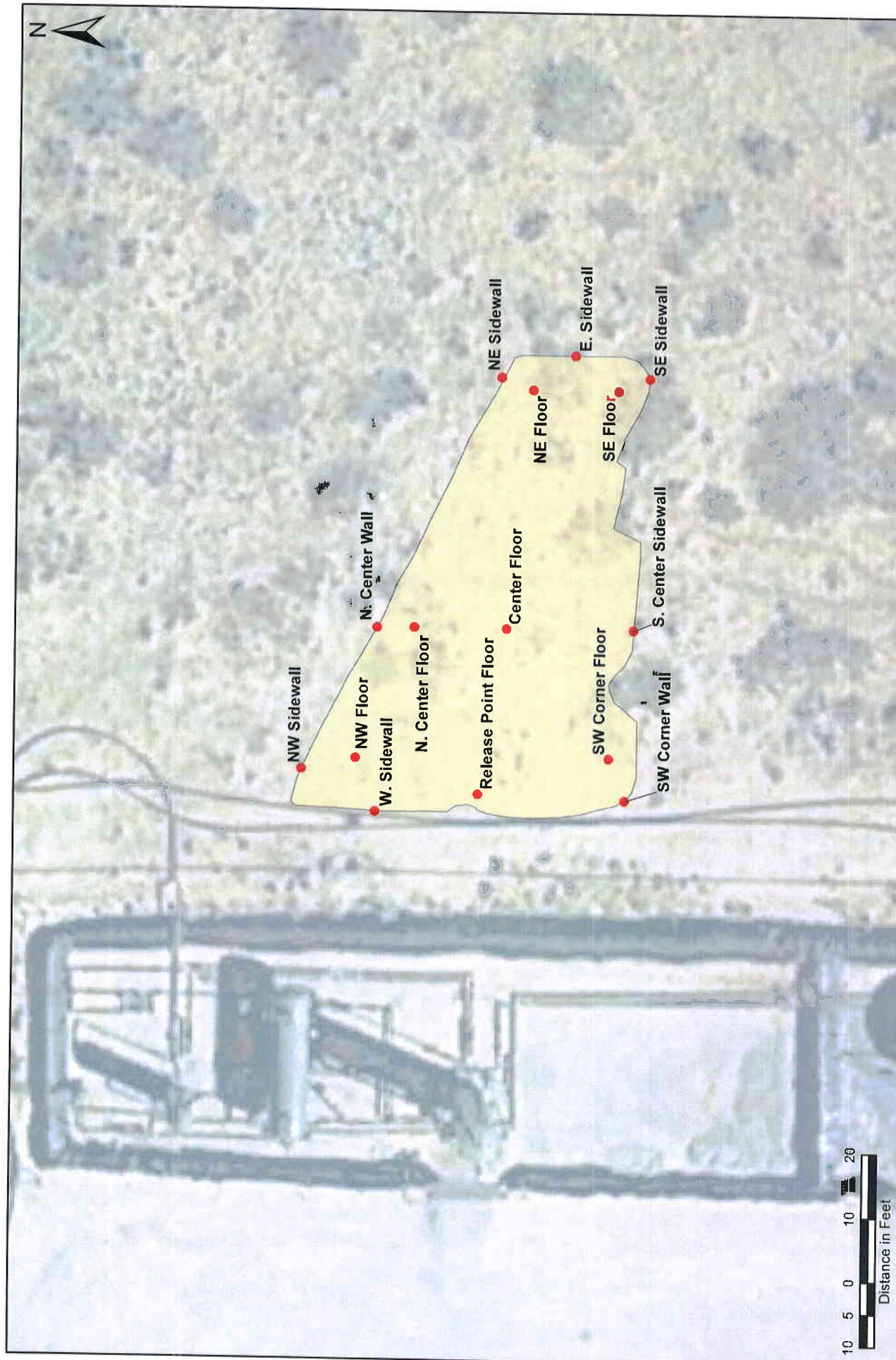


Basin Environmental Service Technologies, LLC  
 3100 Plains Hwy.  
 Lovington, NM 88260

Drawn By: BJA	Checked By: BRB
September 25, 2015	Scale: 1" = 2000'

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# **Legend**

- Excavation
- Sample Location

**Figure 2**  
**Sample Location Map**  
**BOPCO, LP**  
**Big Eddy Unit DI-4**  
**Eddy County, New Mexico**

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

Drawn By: BJA	Checked By: BRB
Sept. 25, 2015	Scale: 1" = 20'



# Tables

**TABLE 1**  
**CONCENTRATIONS OF BENZENE, BTEX, TPH & CHLORIDE IN SOIL**  
**BOPCO, LP**  
**BIG EDDY UNIT DI-4**  
**EDDY COUNTY, NEW MEXICO**

SAMPLE LOCATION	SAMPLE DEPTH (BGS)	SAMPLE DATE	SOIL STATUS	METHOD: EPA SW 846-8021B, 5030					METHOD: 8015M				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)			
SW Corner Wall	0.5'	2/24/2015	In-Situ	-	-	-	-	-	-	-	-	-	-	32.0
SW Corner Floor	1'	2/24/2015	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	128
W. Sidewall	4'	3/2/2015	In-Situ	-	-	-	-	-	-	-	-	-	-	160
S. Center Sidewall	4'	3/2/2015	In-Situ	-	-	-	-	-	-	-	-	-	-	112
NW Floor	4'	3/2/2015	In-Situ	-	-	-	-	-	-	-	-	-	-	144
Release Point Floor	4'	3/2/2015	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	48.0
NW Sidewall	3.5'	3/3/2015	In-Situ	-	-	-	-	-	-	-	-	-	-	144
NE Sidewall	3.5'	3/3/2015	In-Situ	-	-	-	-	-	-	-	-	-	-	<16.0
E. Sidewall	3.5'	3/3/2015	In-Situ	-	-	-	-	-	-	-	-	-	-	<16.0
SE Sidewall	3.5'	3/3/2015	In-Situ	-	-	-	-	-	-	-	-	-	-	<16.0
SE Floor	4'	3/3/2015	In-Situ	-	-	-	-	-	-	-	-	-	-	144
NE Floor	4'	3/3/2015	In-Situ	-	-	-	-	-	-	-	-	-	-	64.0
Center Floor	4'	3/3/2015	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	32.0
N. Center Floor	4'	3/3/2015	In-Situ	-	-	-	-	-	-	-	-	-	-	<16.0
N. Center Wall	3.5'	3/3/2015	In-Situ	-	-	-	-	-	-	-	-	-	-	64.0
NMOCD Criteria				10				50					1,000	500

- = Not analyzed.

# **Appendices**

**Appendix A**  
**Release Notification &**  
**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

NM OIL CONSERVATION  
ARTESIA DISTRICT

Form C-141  
Revised August 8, 2011  
JAN 21 2015  
Submit 1 Copy to appropriate District Office in  
accordance with 19.15.29 NMAC.  
RECEIVED

Release Notification and Corrective Action

NAB1502335947

Name of Company: BOPCO, L.P. <u>210737</u>		OPERATOR	<input checked="" type="checkbox"/> Initial Report <input type="checkbox"/> Final Report
Address: 522 W. Mermod, Suite 704 Carlsbad, N.M. 88220		Contact: Tony Savoie	
Facility Name: BEU-DI-4 Oil Production Battery (Used the DI-4-270H for reference API#) Spill was 1120 ft. North of well		Telephone No. 575-887-7329	
		Facility Type: Exploration and Production	
Surface Owner: State		Mineral Owner:	API No. 30-015-42479

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
O	32	19S	31E					Eddy

Latitude N 32.610702 Longitude W 103.889497

NATURE OF RELEASE

Type of Release: Natural gas, produced and fresh water	Volume of Release: 4.9 MCF Natural Gas and 88 bbls Fresh and Produced water combined.	Volume Recovered: 15 bbls of water, tested at 48,000 mg/kg chlorides
Source of Release: Three-4" poly lines	Date and Hour of Occurrence: 1/15/16 at approx. 10:15 a.m.	Date and Hour of Discovery: 1/15/16 at approx. 10:15 a.m.
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? Mike Bratcher, Heather Patterson, and Jim Amos "BLM"	
By Whom? Tony Savoie	Date and Hour: 1/16/15 at 10:55 a.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.\* A 4" poly line used to transfer natural gas from the DI-4 battery to the Hackberry 34 Tank battery ruptured and caught on fire. The gas was immediately switched to the flare, the fire burned its self out, the burning pasture and lines were put out with a fire extinguisher. The fire melted a 4" poly fresh water line and a 4" poly produced water transfer line. The produced water line was initially clamped off, then later that day all three lines were repaired by replacing the damaged sections of pipe. A local fire department was notified and dispatched to the site.

Describe Area Affected and Cleanup Action Taken.\* The spills impacted approximately 4,100 sq.ft. of pasture, all of the free standing fluid was recovered with a vacuum truck, a sample was collected from the water in the truck and sent to a lab for analysis. On 1/20/15, Basin Environmental collected soil samples from the 2 main pooling areas, one soil sample hit refusal at 18" the field test for chlorides was 6,484 mg/kg, the other sample hit refusal at 36" and field tested at 8,232 mg/kg chlorides. BOPCO is in the process of initiating the one-call to clean up the spill area in accordance to the NMOCD 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>		OIL CONSERVATION DIVISION	
Printed Name: Tony Savoie		Approved by Environmental Specialist: <u>[Signature]</u>	
Title: Waste Management and Remediation Specialist		Approval Date: <u>1/23/15</u>	Expiration Date: <u>NA</u>
E-mail Address: <u>tasavoie@basspet.com</u>		Conditions of Approval:	
Date: <u>1/21/15</u>	Phone: 432-556-8730	Remediation per O.C.D. Rules & Guidelines SUBMIT REMEDIATION PROPOSAL NO LATER THAN: <u>2/23/15</u>	

\* Attach Additional Sheets If Necessary

2RP-2757

# **Appendix B**

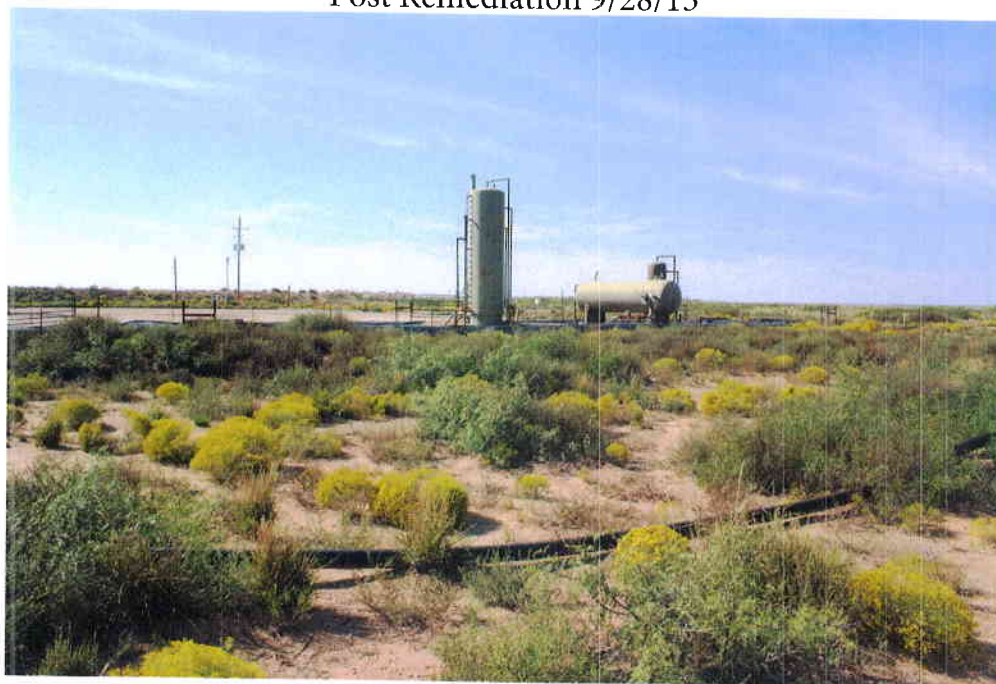
## **Photographs**



Initial Photo 1/15/15



Post Remediation 9/28/15



Initial Photo 1/15/15



Post Remediation 9/28/15





Initial Photo 1/15/15



Post Remediation 9/28/15

