

# *Basin Environmental Service Technologies, LLC*

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

**BOPCO, LP  
Hudson Federal Battery #1  
Eddy County, New Mexico  
Unit Letter "F" (SE/NW), Section 1, Township 23 South, Range 30 East  
Latitude 32.336050° North, Longitude 103.836788° West  
NMOCD Reference # 2RP-1732**

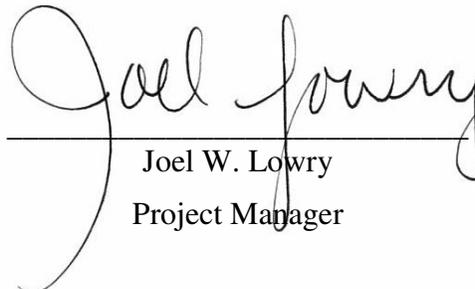
Prepared For:

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

Prepared By:

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**December 2014**

  
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Joel W. Lowry  
Project Manager

## TABLE OF CONTENTS

1.0 INTRODUCTION & BACKGROUND INFORMATION.....	1
2.0 NMOCD SITE CLASSIFICATION.....	1
3.0 SUMMARY OF SOIL REMEDIATION ACTIVITIES.....	2
4.0 QA/QC PROCEDURES.....	5
4.1 Soil Sampling.....	5
4.2 Decontamination of Equipment.....	6
4.3 Laboratory Protocol.....	6
5.0 SITE CLOSURE REQUEST.....	6
6.0 LIMITATIONS.....	6
7.0 DISTRIBUTION.....	7

## FIGURES

- Figure 1 – Site Location Map
- Figure 2 – Site & Sample Location Map
- Figure 3 – Site Overview Map

## TABLES

- Table 1 – Concentrations of Benzene, BTEX, TPH & Chloride in Soil

## APPENDICES

- Appendix A – Release Notification and Corrective Action (Form C-141)
- Appendix B – Pit, Below-Grade Tank, or Proposed Alternative Method Permit or Closure Plan Application (Form C-144)
- Appendix C – Well Completion or Recompletion Report and Log (Form C-105)
- Appendix D – Photographs
- Appendix E – Laboratory Analytical Reports

## 1.0 INTRODUCTION & BACKGROUND INFORMATION

Basin Environmental Service Technologies, LLC (Basin), on behalf of BOPCO, LP (BOPCO), has prepared this *Remediation Summary and Risk-Based Site Closure Request* for the release site known as Hudson Federal Battery #1. The legal description of the release site is Unit Letter "F" (SE/NW), Section 1, Township 23 South, Range 30 East, in Eddy County, New Mexico. The geographic coordinates of the release site are 32.336050° North latitude and 103.836788° West longitude. The property affected by the release is owned by the United States Department of the Interior and administered by the Bureau of Land Management (BLM). A "Site Location Map" is provided as Figure 1.

On May 17, 2013, BOPCO discovered a release at the Hudson Federal Battery #1. The "Release Notification and Corrective Action" (Form C-141) indicated a one quarter-inch (1/4") plug vibrated out of a water transfer pump resulting in the release of approximately fifteen barrels (15 bbls) of produced water. A majority of the release was confined to the zero-perm tank battery containment; approximately one thousand, eight hundred square feet (1,800 ft<sup>2</sup>) of tank battery pad and four hundred square feet (400 ft<sup>2</sup>) of pasture were affected by produced water that sprayed outside the containment. During initial response activities the plug was replaced, and approximately eight barrels (8 bbls) of free-standing fluid were recovered. The Form C-141 is provided as Appendix A.

While addressing the immediate release, a BOPCO drilling reserve pit that was installed in 1974 was discovered beneath the well pad immediately north of the release area. The drilling reserve pit cap was compromised in 2000, when BOPCO extended the well pad toward the north and drilled the Hudson Federal #7 within its central boundary. The reserve pit was further compromised when a pipeline was laid through the pit boundary in the pasture to the west of the site. Chloride migration from the reserve pit installed in 1974 has impacted the well pad above the pit and has washed into the pasture west of the location. Chloride field test results suggested affected soils were impacted above NMOCD regulatory guidelines and were in need of remediation. General photographs of the release site are provided as Appendix D.

In an email dated July 15, 2014, BOPCO representatives requested BLM permission to install a burial trench at the site to encapsulate a portion of the excavated reserve pit materials in accordance with 19.15.17 New Mexico Administrative Code (NMAC); the request was subsequently approved by a representative of the BLM's Carlsbad District Office.

On July 16, 2014, BOPCO submitted a *Proposal for Installation of Burial Trench (Work Plan)* to the NMOCD Artesia District Office, requesting permission to install a burial trench at the site to encapsulate a portion of the excavated reserve pit materials in accordance with 19.15.17 NMAC. In addition, BOPCO proposed to remediate affected areas on the well pad by excavating them to two feet (2') below ground surface (bgs), and installing a twenty-millimeter (20-millimeter) polyethylene liner on top of impacted soils left in-situ. This engineering control is designed to inhibit the vertical migration of contaminants left in-situ, as well as mitigate any future releases on the well pad. A "Pit, Below-Grade Tank, or Proposed Alternative Method Permit of Closure Plan Application" (Form C-144) is provided as Appendix B. The "Well Completion or Recompletion Report and Log" (Form C-105) is provided as Appendix C.

## **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 1, 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 (200) to two hundred and twenty-five feet (225') bgs. Based on the NMOCD ranking system, zero (0) points will be assigned to the site as a result of this criterion.

A search of the NMWRRS database indicated there are no water wells within one thousand (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 one thousand (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 Hudson Federal Battery #1 release site has an initial ranking score of zero (0) points. The soil remediation levels for a site with a ranking score of zero (0) points are as follows:

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

The 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 June 16, 2014, Basin began excavating impacted soil from the affected area on the caliche well pad. As per the NMOCD-approved Work Plan, the floor of the excavation was advanced to approximately two feet (2') bgs. The excavation sidewalls were advanced until concentrations of BTEX, TPH and chloride were less than NMOCD regulatory guidelines. Excavated material associated with the 1974 drilling reserve pit was segregated and stockpiled on-site for encapsulation within the burial trench. Excavated material associated with the immediate release and affected pasture area was hauled to an NMOCD-approved landfill.

On June 20, 2014, two (2) confirmation soil samples (ESW #1 and ESW #2) were collected from the sidewalls of the excavated area on the caliche well pad and submitted to Cardinal Laboratories, of Hobbs, New Mexico, for analysis of chloride concentrations. Laboratory analytical results indicated soil samples ESW #1 and ESW #2 exhibited chloride concentration of 576 ppm and 672 ppm, respectively. A summary of “Concentrations of Benzene, BTEX, TPH and Chloride in Soil” is provided in Table 1. Laboratory analytical reports are provided as Appendix E. Sample locations are depicted on Figure 2, “Site & Sample Location Map”. A “Site Overview Map” is provided as Figure 3.

On July 23, 2014, three (3) soil samples (ESW #3, ESW #4 and SSW #3) were collected from the sidewalls of the excavated area on the caliche well pad and submitted to the laboratory for analysis of chloride concentrations. Laboratory analytical results indicated chloride concentrations ranged from 1,250 ppm for soil sample ESW #3 to 3,600 ppm for soil sample SSW #3. Further excavation in the area represented by soil samples ESW #3 and ESW #4 was limited due to the presence of a widely used oilfield access road.

August 7, 2014, Basin constructed a deep burial trench at the location, west of the 1974 drilling reserve pit and the impacted well pad within the affected pasture. The final dimensions of the burial trench were one hundred feet (100') in length, thirty feet (30') in width and fourteen feet (14') in depth. The burial trench was fitted with a twenty-millimeter (20-millimeter), string reinforced linear low density polyethylene liner in accordance with Subsection K of 19.15.17.11 NMAC as outlined in Section 5.C of the approved work plan. The burial trench was placed in the southern portion of the affected pasture, in an area chloride field tests suggested had not been impacted above NMOCD regulatory guidelines beyond four feet (4') bgs. Displaced non-impacted soil was stockpiled on site for use as backfill. A "Site Overview Map" is provided as Figure 3.

On August 18, 2014, seven (7) soil samples [SSW #1, SSW #2 (In-Situ), SSW #3(b), SSW #4, WSW #1, WSW #2 and WSW #3] were collected from the sidewalls of the excavated area on the caliche well pad 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 SSW #1 and WSW #1 to 6,660 ppm for soil sample SSW #2 (In-Situ). Further excavation in the area represented by soil sample SSW #2 (In-Situ) was limited due to the presence of the Hudson Federal Battery #1 above-ground storage tanks and containment. Soil sample WSW #2 characterizes affected soil left in-situ were the release flow path crossed BOPCO's high pressure natural gas pipeline.

October 2, 2014, Basin began excavating impacted soil within the affected pasture area. The floor of the excavation was advanced to approximately four (4) to five feet (5') bgs. The excavation sidewalls were advanced until field test results suggested concentrations of BTEX, TPH and chloride were less than NMOCD regulatory guidelines. Excavated soils were hauled to an NMOCD-approved disposal facility.

On October 6, 2014, three (3) five-point composite soil samples (Burial Trench WC #1, Burial Trench WC #2 and Burial Trench WC #3) were collected from the stockpiled material excavated from the 1974 drilling reserve pit and submitted to the laboratory for analysis of BTEX, TPH and chloride concentrations. Laboratory analytical results indicated BTEX concentrations were less than the appropriate laboratory MDL in each of the submitted soil samples. Analytical results indicated TPH concentrations ranged from less than the laboratory MDL for soil samples Burial Trench WC #2 and Burial Trench WC #3 to 77.0 ppm for soil samples Burial Trench WC #1. Chloride concentrations ranged from 2,800 ppm for soil sample Burial Trench WC #3 to 5,440 ppm for soil sample Burial Trench WC #2. Based on laboratory analytical results, soil represented by soil samples Burial Trench WC #1, Burial Trench WC #2 and Burial Trench WC #3 was deemed suitable for on-site burial in accordance with 19.15.17.13 NMAC, as outlined Section 5.B of the approved Work Plan. Upon receiving laboratory analytical results, approximately one thousand, five hundred cubic yards (1,500 yd<sup>3</sup>) of material excavated from the top two feet (2') of

BOPCO's 1974 drilling reserve pit was placed within the burial trench for encapsulation. Upon filling the burial trench with the designated material, the outer edges of the liner were folded over, overlapping the waste material in the trench.

On October 8, 2014, seven (7) soil samples (Past. SSW#1, Past. SSW #2, Past. SSW #3, Past. ESW #1, Past. ESW #2, Past. WSW #1 and Past. WSW #2) were collected from the sidewalls of the excavated area within the pasture 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 samples Past. SSW #3 and Past. ESW #1 to 704 ppm for soil sample Past. ESW #2.

On October 16, 2014, five (5) soil samples (Past. NSW #1, Past. NSW #2, Past. NSW #3, Past. WSW #4 and Past. ESW #3) were collected from the sidewalls of the excavated area within the pasture and submitted to the laboratory for analysis of chloride concentrations. Laboratory analytical results indicated chloride concentrations ranged from 416 ppm for soil sample Past. ESW #3 to 735 ppm for soil sample Past. NSW #2.

On October 21, 2014, Basin advanced a delineation trench (TT-1) in the northern portion of the affected pasture within the area exhibiting the highest concentrations of chloride at four feet (4') bgs. During the advancement of the delineation trench, two (2) soil samples (TT-1a @ 8' and TT-1a @ 10') were collected and submitted to the laboratory for analysis of chloride concentrations. Laboratory analytical results indicated chloride concentrations ranged from 336 ppm for soil sample TT-1a @ 8' to 192 ppm for soil sample TT-1a @ 10'. Soil sample TT-1a @ 8' was also analyzed for concentrations of BTEX and TPH, which were determined to be less than the appropriate laboratory MDL. Based on laboratory analytical results, it was determined that vertical delineation had been achieved within the affected pasture area.

On October 22, 2014, Basin installed a twenty millimeter (20 mm) polyethylene liner over the overlapped trench liner at approximately four feet (4') bgs, as per Section 5.C of the approved Work Plan. The polyethylene liner was extended to the north, at the same grade, atop soils exhibiting chloride concentrations above NMOCD regulatory guidelines characterized by soil samples TT-1a @ 8' and TT-1a @ 10'. This engineering control was designed to prevent the infiltration of water into the burial trench and mitigate the vertical migration of contaminants left in-situ. Upon installing the NMOCD-approved liner, the excavation was backfilled with non-impacted material and contoured to match the surrounding topography.

On October 27, 2014, as per the NMOCD, the excavation on the caliche well pad was advanced toward the northeast. Two (2) soil samples [ESW #4(b) and NE Corner] were collected from the sidewalls of the excavated area on the caliche well pad and submitted to the laboratory for analysis of chloride concentrations. Laboratory analytical results indicated chloride concentrations ranged from 1,260 ppm for soil sample NW Corner to 1,440 ppm for soil sample ESW #4(b). Further excavation to the northeast was limited due to the presence of a widely used oilfield access road. NMOCD granted permission to leave the remaining affected soil in-situ.

On November 3, 2014, one (1) soil sample [1974 Pit Floor (In-Situ)] was collected from the floor of the excavation within the 1974 drilling reserve pit to characterize soils left in-situ. The collected

soil sample was submitted to the laboratory for analysis of BTEX, TPH and chloride concentrations. Laboratory analytical results indicated BTEX and TPH concentrations were less than the appropriate laboratory MDL. The concentration chloride was 5,730 ppm. In addition, one (1) five-point composite soil sample (B.T Stockpile) was collected from the stockpiled soil excavated from the burial trench location. The collected soil sample was submitted to the laboratory for analysis of BTEX, TPH and chloride concentrations. Laboratory analytical results indicated BTEX and TPH concentrations were less than the appropriate laboratory MDL. The concentration of chloride was 192 ppm. Based on laboratory analytical results, material represented by soil sample B.T. Stockpile was deemed suitable for use as backfill.

A twenty millimeter (20 mm) polyethylene liner was installed in the floor of the excavated area on the caliche well pad at approximately two feet (2') bgs. The liner was installed atop soils exhibiting chloride impact above NMOCD regulatory guidelines related to the May 17, 2013, release and extended toward the north to "re-cap" the 1974 drilling reserve pit and the southern portion of the 2000 drilling reserve pit. The engineering control was designed to mitigate the vertical migration of contaminants left in-situ as well as mitigate any future releases on the well pad. Upon installing the NMOCD-approved liner, the excavation was backfilled with non-impacted material and contoured to meet the needs of the well pad.

On November 19, 2014, as per the approved Work Plan, Basin recapped the barren area above the 2000 reserve pit. A twenty millimeter (20 mm) polyethylene liner was installed atop the barren area and anchored at its edges. This engineering control was designed to mitigate the vertical migration of contaminants left in-situ. Upon installing the liner, a one and one-half foot (1.5') layer of clean topsoil was installed above the liner and contoured to match the surrounding topography.

The excavated portion on the caliche well pad characterized by the original release and 2000 drilling reserve pit measured approximately one hundred and twenty (120) to two hundred and ten feet (210') in width, two hundred and forty feet (240') in length and two feet (2') in depth. The excavated area within the affected pasture measured approximately sixty-five (65) to one hundred and thirty feet (130') in width, one hundred and eighty feet (180') in length and four (4) to five feet (5') in depth. A barren area measuring approximately seventy-five feet (75') in width and one hundred and thirty feet (130') in length associated with the 2000 drilling reserve pit was lined and capped with approximately one and one half feet (1.5') of clean topsoil. Affected areas outside the well pad will be seeded in accordance with the BLM.

Between June 17 and November 3, 2014, approximately five thousand, six hundred and sixty cubic yards (5,660 yd<sup>3</sup>) of impacted material was transported to Lea Land, Inc. (NMOCD Permit #WM-01-035), for disposal.

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

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

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

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

## **4.2 Decontamination of Equipment**

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

## **4.3 Laboratory Protocol**

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

## **5.0 SITE CLOSURE REQUEST**

Remediation activities at the Hudson Federal #1 Tank Battery release site were conducted in accordance with the NMOCD-approved *Proposal for Installation of Burial Trench*. Confirmation soil samples were submitted to an NMOCD-approved laboratory. Based on the results of confirmation soil samples and the installation of approved engineering controls, Basin recommends BOPCO provide the NMOCD Artesia District Office and the BLM a copy of this *Remediation Summary and Risk-Based Site Closure Request* and request the NMOCD grant site closure to the Hudson Federal #1 Tank Battery release site.

## **6.0 LIMITATIONS**

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

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

**7.0 DISTRIBUTION:**

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

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

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

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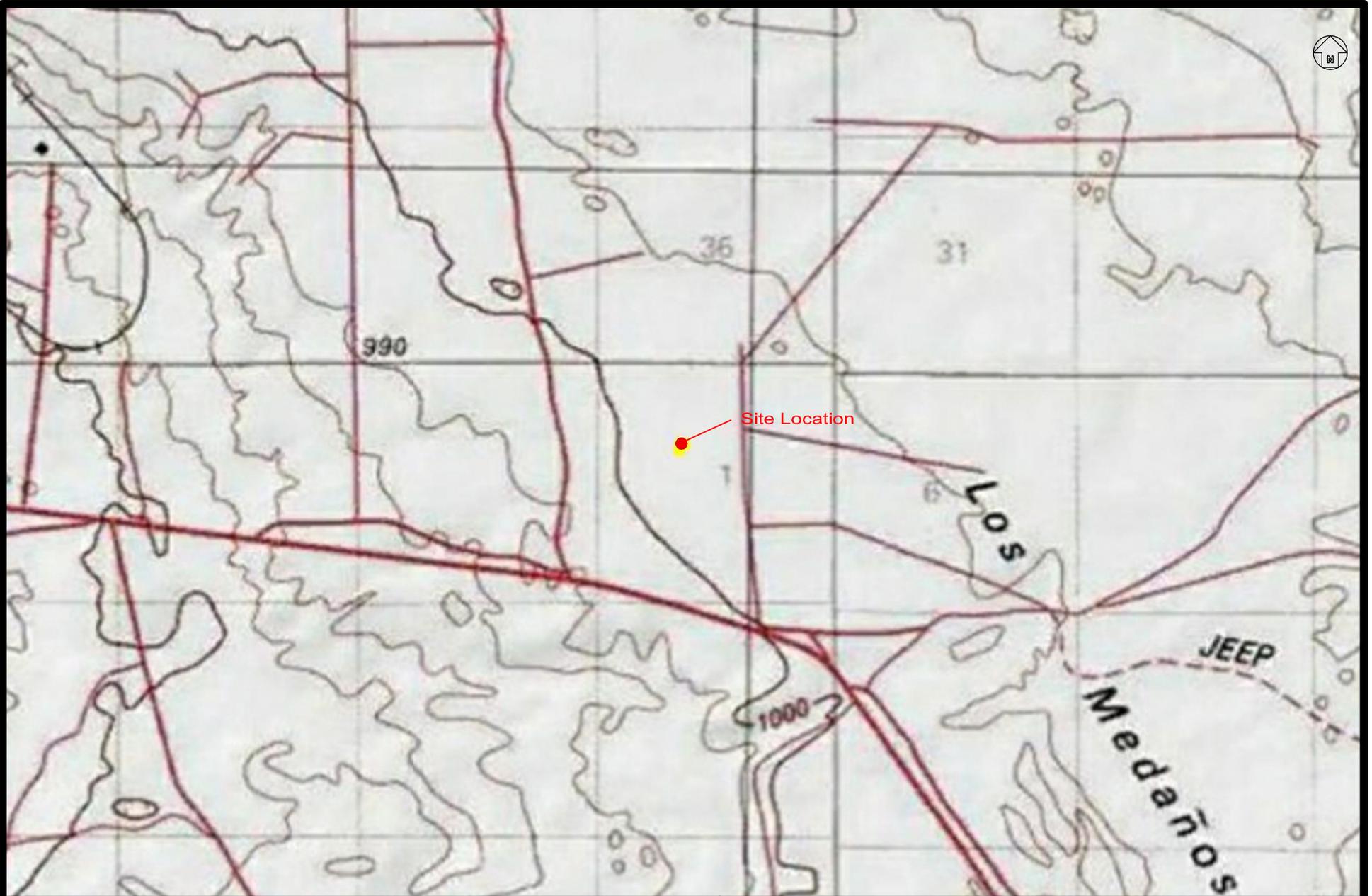
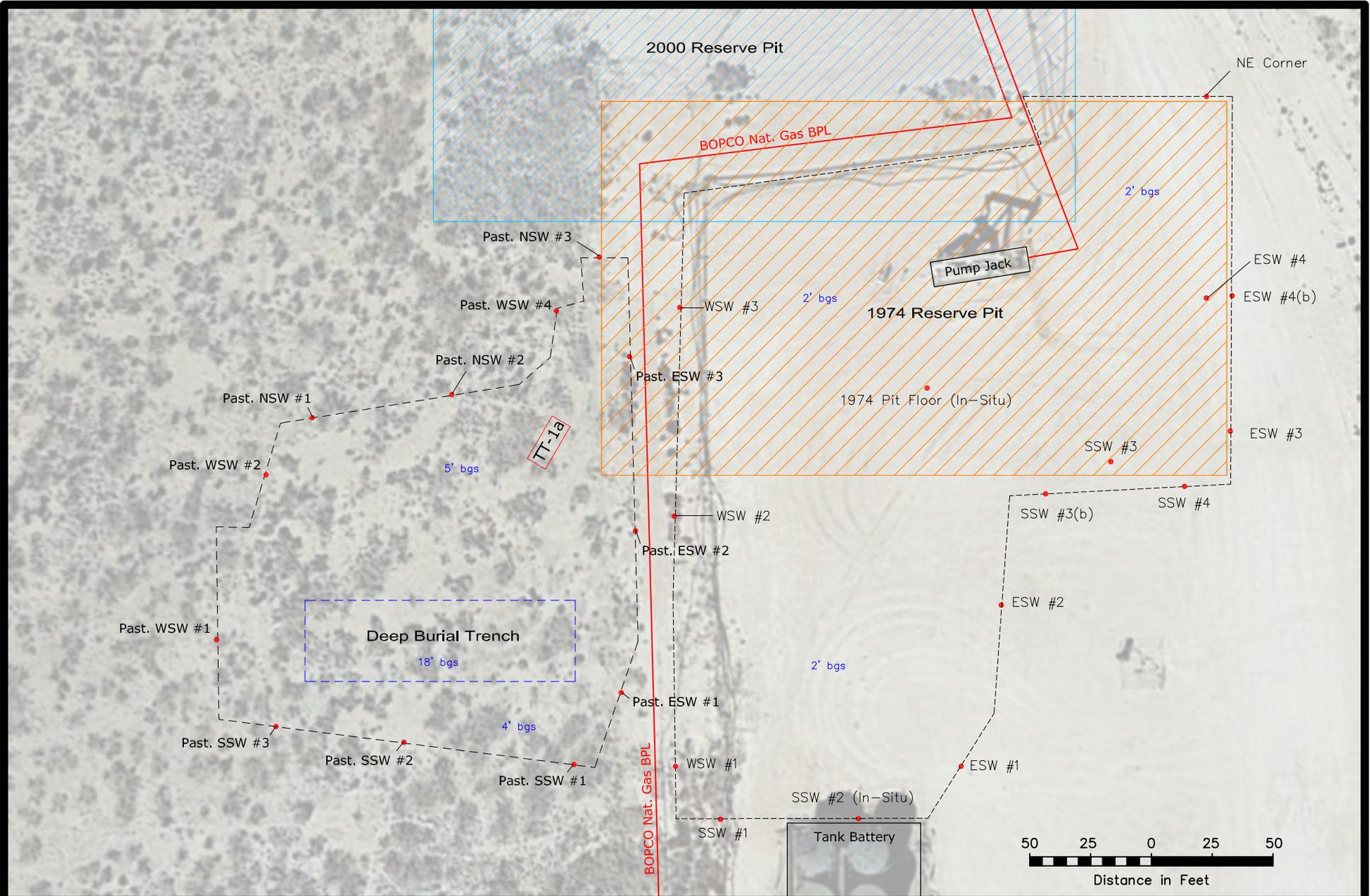


Figure 1  
 Site Location Map  
 BOPCO, LP  
 Hudson Federal Battery #1  
 Eddy County, New Mexico

## Basin Environmental Service Technologies

Prep By: JWL	Checked By: BJA
December 9, 2014	Scale 1"=3000'

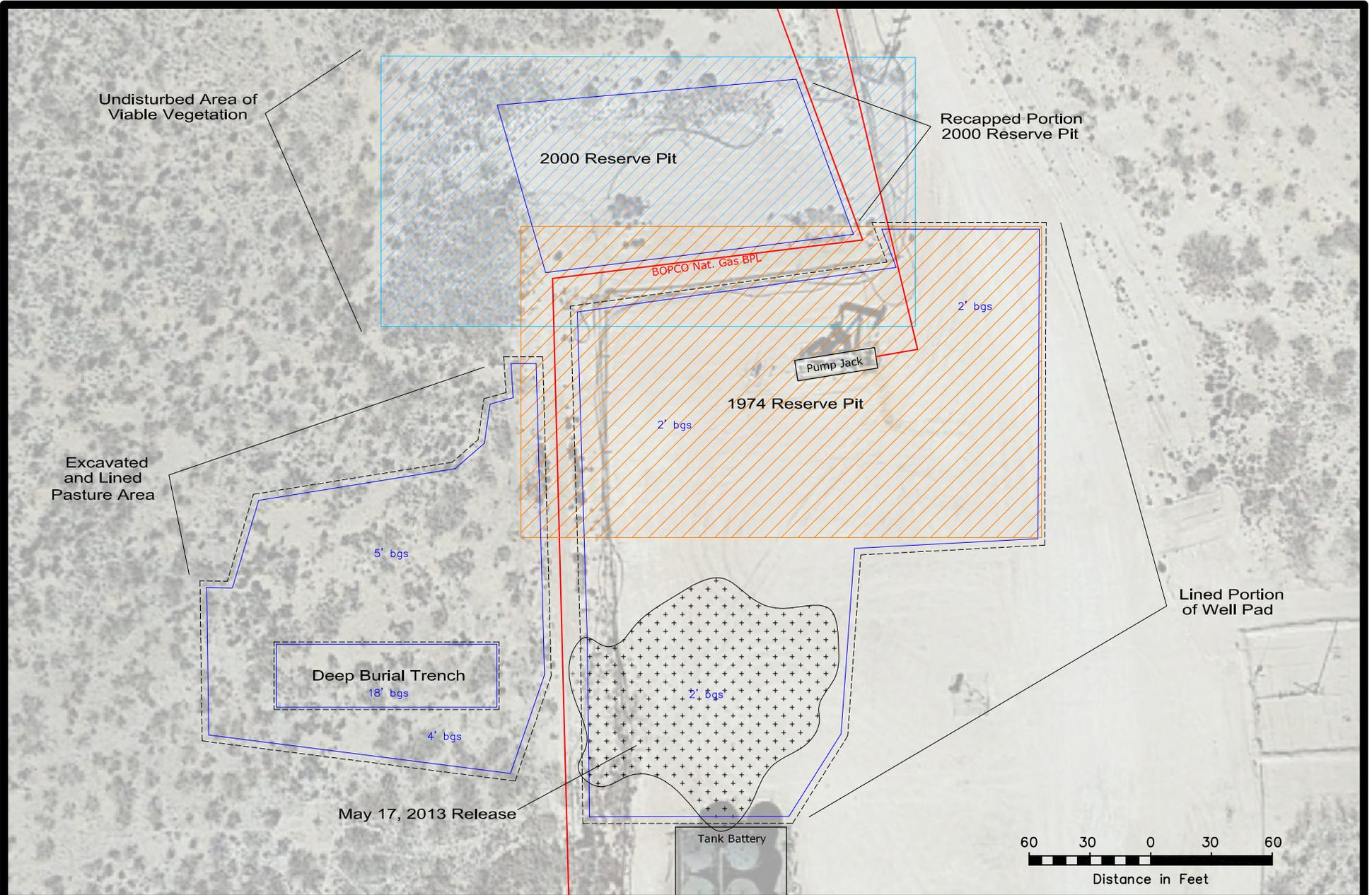


Legend:	
-----	Excavation Extent
-----	Pipeline
●	Sample Location
	2000 Reserve Pit
	1974 Reserve Pit
	Deep Burial Trench

**Figure 2**  
 Site & Sample Location Map  
 BOPCO, LP  
 Hudson Federal Battery  
 Eddy County, New Mexico  
 NMOCD Ref # 2RP-1732

**Basin Environmental Services**

Prep By: JWL	Checked By: BJA
October 30, 2014	Scale 1"=50'



**Legend:**

-----	Excavation Extent		2000 Reserve Pit
---	Pipeline		1974 Reserve Pit
	Original Release		Lined Portions of Site

**Figure 3**  
 Site Overview Map  
 BOPCO, LP  
 Hudson Federal Battery  
 Eddy County, New Mexico  
 NMOCD Ref # 2RP-1732

**Basin Environmental Services**

Prep By: JWL	Checked By: BJA
November 24, 2014	Scale 1"= 60'

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

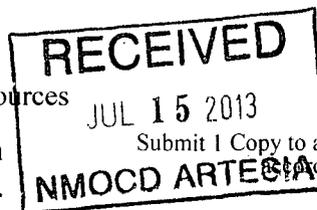
**BOPCO, LP  
HUDSON FEDERAL BATTERY  
EDDY COUNTY, NEW MEXICO  
NMOCD REF# 2RP-1732**

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)			
ESW #1	2'	6/20/2014	In-Situ	-	-	-	-	-	-	-	-	-	-	576
ESW #2	2'	6/20/2014	In-Situ	-	-	-	-	-	-	-	-	-	-	672
ESW #3	2'	7/23/2014	In-Situ	-	-	-	-	-	-	-	-	-	-	1,250
ESW #4	2'	7/23/2014	Excavated	-	-	-	-	-	-	-	-	-	-	2,360
SSW #3	2'	7/23/2014	Excavated	-	-	-	-	-	-	-	-	-	-	3,600
SSW #1	2'	8/18/2014	In-Situ	-	-	-	-	-	-	-	-	-	-	<16.0
SSW #2 (In-Situ)	2'	8/18/2014	In-Situ	-	-	-	-	-	-	-	-	-	-	6,660
SSW #3 (b)	2'	8/18/2014	In-Situ	-	-	-	-	-	-	-	-	-	-	864
SSW #4	2'	8/18/2014	In-Situ	-	-	-	-	-	-	-	-	-	-	656
WSW #1	2'	8/18/2014	In-Situ	-	-	-	-	-	-	-	-	-	-	<16.0
WSW #2	2'	8/18/2014	In-Situ	-	-	-	-	-	-	-	-	-	-	5,760
WSW #3	2'	8/18/2014	In-Situ	-	-	-	-	-	-	-	-	-	-	480
Burial Trench WC #1	N/A	10/6/2014	Encapsulated	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	58.3	18.7	77.0	-	5,360
Burial Trench WC #2	N/A	10/6/2014	Encapsulated	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<10.0	-	5,440
Burial Trench WC #3	N/A	10/6/2014	Encapsulated	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<10.0	-	2,800
Past. SSW #1	3'	10/8/2014	In-Situ	-	-	-	-	-	-	-	-	-	-	96.0
Past. SSW #2	3'	10/8/2014	In-Situ	-	-	-	-	-	-	-	-	-	-	144
Past. SSW #3	3'	10/8/2014	In-Situ	-	-	-	-	-	-	-	-	-	-	<16.0
Past. ESW #1	3'	10/8/2014	In-Situ	-	-	-	-	-	-	-	-	-	-	<16.0
Past. ESW #2	3'	10/8/2014	In-Situ	-	-	-	-	-	-	-	-	-	-	704
Past. WSW #1	3'	10/8/2014	In-Situ	-	-	-	-	-	-	-	-	-	-	160
Past. WSW #2	3'	10/8/2014	In-Situ	-	-	-	-	-	-	-	-	-	-	64.0
Past. NSW #1	3'	10/16/2014	In-Situ	-	-	-	-	-	-	-	-	-	-	608
Past. NSW #2	3'	10/16/2014	In-Situ	-	-	-	-	-	-	-	-	-	-	735
Past. NSW #3	3'	10/16/2014	In-Situ	-	-	-	-	-	-	-	-	-	-	688
Past. WSW #4	3'	10/16/2014	In-Situ	-	-	-	-	-	-	-	-	-	-	432
Past. ESW #3	3'	10/16/2014	In-Situ	-	-	-	-	-	-	-	-	-	-	416
TT-1a @ 8'	8'	10/21/2014	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<10.0	-	336
TT-1a @ 10'	10'	10/21/2014	In-Situ	-	-	-	-	-	-	-	-	-	-	192
ESW #4 (b)	2'	10/27/2014	In-Situ	-	-	-	-	-	-	-	-	-	-	1,440
NE Corner	2'	10/27/2014	In-Situ	-	-	-	-	-	-	-	-	-	-	1,260
1974 Pit Floor (In-Situ)	2'	11/3/2014	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<10.0	-	5,730
B.T. Stockpile	N/A	11/3/2014	Backfill	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<10.0	-	192
<b>NMOCD Criteria</b>				<b>10</b>				<b>50</b>				<b>5,000</b>		<b>1,000</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  
Oil Conservation Division  
1220 South St. Francis Dr.  
Santa Fe, NM 87505



Form C-141  
Revised August 8, 2011

**Release Notification and Corrective Action**

*NJMW 1319931142*

**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: Hudson Federal Battery #1 On Pad with Hudson Federal well #7	Facility Type: Exploration and Production

Surface Owner: Federal	Mineral Owner: Federal	API No. 30-015-31513
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**LOCATION OF RELEASE**

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
F	1	23S	30E					Eddy

**Latitude N 32.336050 Longitude W 103.836788**

**NATURE OF RELEASE**

Type of Release: Produced water	Volume of Release: 15 bbls	Volume Recovered: 8 bbls
Source of Release: Water transfer pump	Date and Hour of Occurrence: 5/17/13 time unknown	Date and Hour of Discovery: 5/17/13 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.\*

Describe Cause of Problem and Remedial Action Taken.\*  
A 1/4" plug vibrated out of a water transfer pump causing water to spill inside of the 0 perm containment and sprayed outside on the ground. The plug was replaced.

Describe Area Affected and Cleanup Action Taken.\*  
Approximately 1800 sq. ft of tank battery pad and approximately 400 sq. ft. of pasture. The free standing fluid was recovered. The spill area will be remediated according to 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: <i>Tony Savoie</i>	<b>OIL CONSERVATION DIVISION</b>	
Printed Name: Tony Savoie	Approved by Environmental Specialist	Signed By: <i>M/L/S Brandon</i>
Title: Waste Management and Remediation Specialist	Approval Date: <b>JUL 18 2013</b>	Expiration Date:
E-mail Address: <i>tasavoie@basspet.com</i>	Conditions of Approval: Remediation per OCD Rule & Guidelines, & <input type="checkbox"/> Attached <input type="checkbox"/> like approval by BLM. <b>SUBMIT REMEDIATION</b>	
Date: 7/14/13	Phone: 432-556-8730	

\* Attach Additional Sheets If Necessary

**PROPOSAL NO LATER THAN:**  
*August 18, 2013*      *2RP-1732*



6.

**Netting:** Subsection E of 19.15.17.11 NMAC (*Applies to permanent pits and permanent open top tanks*)

Screen  Netting  Other \_\_\_\_\_

Monthly inspections (If netting or screening is not physically feasible)

7.

**Signs:** Subsection C of 19.15.17.11 NMAC

12"x 24", 2" lettering, providing Operator's name, site location, and emergency telephone numbers

Signed in compliance with 19.15.16.8 NMAC

8.

**Variations and Exceptions:**

Justifications and/or demonstrations of equivalency are required. Please refer to 19.15.17 NMAC for guidance.

**Please check a box if one or more of the following is requested, if not leave blank:**

Variance(s): Requests must be submitted to the appropriate division district for consideration of approval.

Exception(s): Requests must be submitted to the Santa Fe Environmental Bureau office for consideration of approval.

9.

**Siting Criteria (regarding permitting):** 19.15.17.10 NMAC

**Instructions:** *The applicant must demonstrate compliance for each siting criteria below in the application. Recommendations of acceptable source material are provided below. Siting criteria does not apply to drying pads or above-grade tanks.*

**General siting**

**Ground water is less than 25 feet below the bottom of a low chloride temporary pit or below-grade tank.**

-  NM Office of the State Engineer - iWATERS database search;  USGS;  Data obtained from nearby wells

Yes  No  
 NA

**Ground water is less than 50 feet below the bottom of a Temporary pit, permanent pit, or Multi-Well Fluid Management pit.**

NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells

Yes  No  
 NA

Within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance adopted pursuant to NMSA 1978, Section 3-27-3, as amended. **(Does not apply to below grade tanks)**

- Written confirmation or verification from the municipality; Written approval obtained from the municipality

Yes  No

Within the area overlying a subsurface mine. **(Does not apply to below grade tanks)**

- Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division

Yes  No

Within an unstable area. **(Does not apply to below grade tanks)**

- Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; Topographic map

Yes  No

Within a 100-year floodplain. **(Does not apply to below grade tanks)**

- FEMA map

Yes  No

**Below Grade Tanks**

Within 100 feet of a continuously flowing watercourse, significant watercourse, lake bed, sinkhole, wetland or playa lake (measured from the ordinary high-water mark).

- Topographic map; Visual inspection (certification) of the proposed site

Yes  No

Within 200 horizontal feet of a spring or a fresh water well used for public or livestock consumption;

- NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site

Yes  No

**Temporary Pit using Low Chloride Drilling Fluid** (maximum chloride content 15,000 mg/liter)

Within 100 feet of a continuously flowing watercourse, or any other significant watercourse or within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark). (Applies to low chloride temporary pits.)

- Topographic map; Visual inspection (certification) of the proposed site

Yes  No

Within 300 feet from a occupied permanent residence, school, hospital, institution, or church in existence at the time of initial application.

- Visual inspection (certification) of the proposed site; Aerial photo; Satellite image

Yes  No

Within 200 horizontal feet of a spring or a private, domestic fresh water well used by less than five households for domestic or stock watering purposes, or 300feet of any other fresh water well or spring, in existence at the time of the initial application.

NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site

Yes  No

<p>Within 100 feet of a wetland.          - US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<p><b><u>Temporary Pit Non-low chloride drilling fluid</u></b></p>	
<p>Within 300 feet of a continuously flowing watercourse, or any other significant watercourse, or within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark).          - Topographic map; Visual inspection (certification) of the proposed site</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<p>Within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application.          - Visual inspection (certification) of the proposed site; Aerial photo; Satellite image</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<p>Within 500 horizontal feet of a spring or a private, domestic fresh water well used by less than five households for domestic or stock watering purposes, or 1000 feet of any other fresh water well or spring, in the existence at the time of the initial application;          - NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<p>Within 300 feet of a wetland.          - US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<p><b><u>Permanent Pit or Multi-Well Fluid Management Pit</u></b></p>	
<p>Within 300 feet of a continuously flowing watercourse, or 200 feet of any other significant watercourse, or lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark).          - Topographic map; Visual inspection (certification) of the proposed site</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<p>Within 1000 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application.          - Visual inspection (certification) of the proposed site; Aerial photo; Satellite image</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<p>Within 500 horizontal feet of a spring or a fresh water well used for domestic or stock watering purposes, in existence at the time of initial application.          - NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<p>Within 500 feet of a wetland.          - US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No

10.  
**Temporary Pits, Emergency Pits, and Below-grade Tanks Permit Application Attachment Checklist:** Subsection B of 19.15.17.9 NMAC  
*Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.*

Hydrogeologic Report (Below-grade Tanks) - based upon the requirements of Paragraph (4) of Subsection B of 19.15.17.9 NMAC  
 Hydrogeologic Data (Temporary and Emergency Pits) - based upon the requirements of Paragraph (2) of Subsection B of 19.15.17.9 NMAC  
 Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC  
 Design Plan - based upon the appropriate requirements of 19.15.17.11 NMAC  
 Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC  
 Closure Plan (Please complete Boxes 14 through 18, if applicable) - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC

Previously Approved Design (attach copy of design)    API Number: \_\_\_\_\_ or Permit Number: \_\_\_\_\_

11.  
**Multi-Well Fluid Management Pit Checklist:** Subsection B of 19.15.17.9 NMAC  
*Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.*

Design Plan - based upon the appropriate requirements of 19.15.17.11 NMAC  
 Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC  
 A List of wells with approved application for permit to drill associated with the pit.  
 Closure Plan (Please complete Boxes 14 through 18, if applicable) - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC  
 Hydrogeologic Data - based upon the requirements of Paragraph (4) of Subsection B of 19.15.17.9 NMAC  
 Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC

Previously Approved Design (attach copy of design)    API Number: \_\_\_\_\_ or Permit Number: \_\_\_\_\_

12.

**Permanent Pits Permit Application Checklist:** Subsection B of 19.15.17.9 NMAC

**Instructions:** Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.

- Hydrogeologic Report - based upon the requirements of Paragraph (1) of Subsection B of 19.15.17.9 NMAC
- Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC
- Climatological Factors Assessment
- Certified Engineering Design Plans - based upon the appropriate requirements of 19.15.17.11 NMAC
- Dike Protection and Structural Integrity Design - based upon the appropriate requirements of 19.15.17.11 NMAC
- Leak Detection Design - based upon the appropriate requirements of 19.15.17.11 NMAC
- Liner Specifications and Compatibility Assessment - based upon the appropriate requirements of 19.15.17.11 NMAC
- Quality Control/Quality Assurance Construction and Installation Plan
- Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC
- Freeboard and Overtopping Prevention Plan - based upon the appropriate requirements of 19.15.17.11 NMAC
- Nuisance or Hazardous Odors, including H<sub>2</sub>S, Prevention Plan
- Emergency Response Plan
- Oil Field Waste Stream Characterization
- Monitoring and Inspection Plan
- Erosion Control Plan
- Closure Plan - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC

13.

**Proposed Closure:** 19.15.17.13 NMAC

**Instructions:** Please complete the applicable boxes, Boxes 14 through 18, in regards to the proposed closure plan.

- Type:  Drilling  Workover  Emergency  Cavitation  P&A  Permanent Pit  Below-grade Tank  Multi-well Fluid Management Pit  
 Alternative
- Proposed Closure Method:  Waste Excavation and Removal  
 Waste Removal (Closed-loop systems only)  
 On-site Closure Method (Only for temporary pits and closed-loop systems)  
 In-place Burial  On-site Trench Burial  
 Alternative Closure Method

14.

**Waste Excavation and Removal Closure Plan Checklist:** (19.15.17.13 NMAC) **Instructions:** Each of the following items must be attached to the closure plan. Please indicate, by a check mark in the box, that the documents are attached.

- Protocols and Procedures - based upon the appropriate requirements of 19.15.17.13 NMAC
- Confirmation Sampling Plan (if applicable) - based upon the appropriate requirements of Subsection C of 19.15.17.13 NMAC
- Disposal Facility Name and Permit Number (for liquids, drilling fluids and drill cuttings)
- Soil Backfill and Cover Design Specifications - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC
- Re-vegetation Plan - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC
- Site Reclamation Plan - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC

15.

**Siting Criteria (regarding on-site closure methods only):** 19.15.17.10 NMAC

**Instructions:** Each siting criteria requires a demonstration of compliance in the closure plan. Recommendations of acceptable source material are provided below. Requests regarding changes to certain siting criteria require justifications and/or demonstrations of equivalency. Please refer to 19.15.17.10 NMAC for guidance.

Ground water is less than 25 feet below the bottom of the buried waste. - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA
Ground water is between 25-50 feet below the bottom of the buried waste - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA
Ground water is more than 100 feet below the bottom of the buried waste. - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
Within 100 feet of a continuously flowing watercourse, or 200 feet of any other significant watercourse, lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark). - Topographic map; Visual inspection (certification) of the proposed site	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application. - Visual inspection (certification) of the proposed site; Aerial photo; Satellite image	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within 300 horizontal feet of a private, domestic fresh water well or spring used for domestic or stock watering purposes, in existence at the time of initial application. - NM Office of the State Engineer - iWATERS database; Visual inspection (certification) of the proposed site	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Written confirmation or verification from the municipality; Written approval obtained from the municipality	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within 300 feet of a wetland. US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

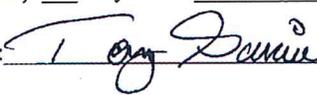
adopted pursuant to NMSA 1978, Section 3-27-3, as amended. - Written confirmation or verification from the municipality; Written approval obtained from the municipality	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within the area overlying a subsurface mine. - Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within an unstable area. - Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; Topographic map	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within a 100-year floodplain. - FEMA map	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

16. **On-Site Closure Plan Checklist:** (19.15.17.13 NMAC) *Instructions: Each of the following items must be attached to the closure plan. Please indicate, by a check mark in the box, that the documents are attached.*

- Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC
- Proof of Surface Owner Notice - based upon the appropriate requirements of Subsection E of 19.15.17.13 NMAC
- Construction/Design Plan of Burial Trench (if applicable) based upon the appropriate requirements of Subsection K of 19.15.17.11 NMAC
- Construction/Design Plan of Temporary Pit (for in-place burial of a drying pad) - based upon the appropriate requirements of 19.15.17.11 NMAC
- Protocols and Procedures - based upon the appropriate requirements of 19.15.17.13 NMAC
- Confirmation Sampling Plan (if applicable) - based upon the appropriate requirements of 19.15.17.13 NMAC
- Waste Material Sampling Plan - based upon the appropriate requirements of 19.15.17.13 NMAC
- Disposal Facility Name and Permit Number (for liquids, drilling fluids and drill cuttings or in case on-site closure standards cannot be achieved)
- Soil Cover Design - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC
- Re-vegetation Plan - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC
- Site Reclamation Plan - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC

17. **Operator Application Certification:**  
I hereby certify that the information submitted with this application is true, accurate and complete to the best of my knowledge and belief.

Name (Print): Tony Savoie Title: EH&S Specialist

Signature:  Date: 7/17/14

e-mail address: tasavoie@BassPet.com Telephone: 575-887-7329

18. **OCD Approval:**  Permit Application (including closure plan)  Closure Plan (only)  OCD Conditions (see attachment)

**OCD Representative Signature:** \_\_\_\_\_ **Approval Date:** \_\_\_\_\_

**Title:** \_\_\_\_\_ **OCD Permit Number:** \_\_\_\_\_

19. **Closure Report (required within 60 days of closure completion):** 19.15.17.13 NMAC  
*Instructions: Operators are required to obtain an approved closure plan prior to implementing any closure activities and submitting the closure report. The closure report is required to be submitted to the division within 60 days of the completion of the closure activities. Please do not complete this section of the form until an approved closure plan has been obtained and the closure activities have been completed.*

**Closure Completion Date:** \_\_\_\_\_

20. **Closure Method:**

Waste Excavation and Removal  On-Site Closure Method  Alternative Closure Method  Waste Removal (Closed-loop systems only)

If different from approved plan, please explain.

21. **Closure Report Attachment Checklist:** *Instructions: Each of the following items must be attached to the closure report. Please indicate, by a check mark in the box, that the documents are attached.*

- Proof of Closure Notice (surface owner and division)
- Proof of Deed Notice (required for on-site closure for private land only)
- Plot Plan (for on-site closures and temporary pits)
- Confirmation Sampling Analytical Results (if applicable)
- Waste Material Sampling Analytical Results (required for on-site closure)
- Disposal Facility Name and Permit Number
- Soil Backfilling and Cover Installation
- Re-vegetation Application Rates and Seeding Technique
- Site Reclamation (Photo Documentation)

On-site Closure Location: Latitude \_\_\_\_\_ Longitude \_\_\_\_\_ NAD:  1927  1983

**Operator Closure Certification:**

I hereby certify that the information and attachments submitted with this closure report is true, accurate and complete to the best of my knowledge and belief. I also certify that the closure complies with all applicable closure requirements and conditions specified in the approved closure plan.

Name (Print): \_\_\_\_\_ Title: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

e-mail address: \_\_\_\_\_ Telephone: \_\_\_\_\_

Submit To Appropriate District Office Two Copies District I 1625 N. French Dr., Hobbs, NM 88240 District II 811 S. First St., Artesia, NM 88210 District III 1000 Rio Brazos Rd., Aztec, NM 87410 District IV 1220 S. St. Francis Dr., Santa Fe, NM 87505	<b>State of New Mexico</b> <b>Energy, Minerals and Natural Resources</b>  <b>Oil Conservation Division</b> <b>1220 South St. Francis Dr.</b> <b>Santa Fe, NM 87505</b>	<b>Form C-105</b> Revised August 1, 2011  1. WELL API NO. 30-015-31513  2. Type of Lease <input type="checkbox"/> STATE <input type="checkbox"/> FEE <input checked="" type="checkbox"/> FED/INDIAN  3. State Oil & Gas Lease No.
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**WELL COMPLETION OR RECOMPLETION REPORT AND LOG**

4. Reason for filing:  <input type="checkbox"/> <b>COMPLETION REPORT</b> (Fill in boxes #1 through #31 for State and Fee wells only)  <input checked="" type="checkbox"/> <b>C-144 CLOSURE ATTACHMENT</b> (Fill in boxes #1 through #9, #15 Date Rig Released and #32 and/or #33; attach this and the plat to the C-144 closure report in accordance with 19.15.17.13.K NMAC)	5. Lease Name or Unit Agreement Name Hudson Federal Battery #1 on pad with Hudson Federal Well #7  6. Well Number:
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7. Type of Completion:  
 NEW WELL     WORKOVER     DEEPENING     PLUGBACK     DIFFERENT RESERVOIR     OTHER Trench burial of material from closed reserve pit

8. Name of Operator BOPCO, L.P.	9. OGRID
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10. Address of Operator 522 W. Mermod, Suite #704, Carlsbad, NM 88220	11. Pool name or Wildcat
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12. Location	Unit Ltr	Section	Township	Range	Lot	Feet from the	N/S Line	Feet from the	E/W Line	County
<b>Surface:</b>										
<b>BH:</b>										

13. Date Spudded	14. Date T.D. Reached	15. Date Rig Released N/A	16. Date Completed (Ready to Produce)	17. Elevations (DF and RKB, RT, GR, etc.)
18. Total Measured Depth of Well		19. Plug Back Measured Depth	20. Was Directional Survey Made?	21. Type Electric and Other Logs Run

22. Producing Interval(s), of this completion - Top, Bottom, Name

**23. CASING RECORD (Report all strings set in well)**

CASING SIZE	WEIGHT LB./FT.	DEPTH SET	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED

24. LINER RECORD					25. TUBING RECORD		
SIZE	TOP	BOTTOM	SACKS CEMENT	SCREEN	SIZE	DEPTH SET	PACKER SET

26. Perforation record (interval, size, and number)	27. ACID, SHOT, FRACTURE, CEMENT, SQUEEZE, ETC.
	DEPTH INTERVAL    AMOUNT AND KIND MATERIAL USED

**28. PRODUCTION**

Date First Production	Production Method ( <i>Flowing, gas lift, pumping - Size and type pump</i> )	Well Status ( <i>Prod. or Shut-in</i> )					
Date of Test	Hours Tested	Choke Size	Prod'n For Test Period	Oil - Bbl	Gas - MCF	Water - Bbl.	Gas - Oil Ratio
Flow Tubing Press.	Casing Pressure	Calculated 24-Hour Rate	Oil - Bbl.	Gas - MCF	Water - Bbl.	Oil Gravity - API - ( <i>Corr.</i> )	

29. Disposition of Gas ( <i>Sold, used for fuel, vented, etc.</i> )	30. Test Witnessed By
---	-----------------------

31. List Attachments  
NMOCD Form C-144

32. If a temporary pit was used at the well, attach a plat with the location of the temporary pit.

33. If an on-site burial was used at the well, report the exact location of the on-site burial:  
 Center of on-site burial    Latitude 32.336316°    Longitude -103.837358°    WGS84

*I hereby certify that the information shown on both sides of this form is true and complete to the best of my knowledge and belief*

Signature  Printed Name Tony Savoie    Title EH&S Specialist    Date 12/12/14

E-mail Address [TASavoie@BassPet.com](mailto:TASavoie@BassPet.com)





Photograph of the initial release at the Hudson Federal Battery #1 Remediation Site.



Photograph of the affected well pad and chloride leaching from the 1974 drilling reserve pit at the Hudson Federal Battery #1 Remediation Site.



Photograph of the barren area above the 2000 drilling reserve pit north of the well pad at the Hudson Federal Battery #1 Remediation Site.



Photograph of the affected pasture at the Hudson Federal Battery #1 Remediation Site.



Photograph excavation activities on the caliche well pad at the Hudson Federal Battery #1 Remediation Site.



Photograph excavation activities on the caliche well pad at the Hudson Federal Battery #1 Remediation Site.



Photograph of the excavated area within the affected pasture at the Hudson Federal Battery #1 Remediation Site.



Photograph of the deep burial trench at the Hudson Federal Battery #1 Remediation Site.



Photograph of the installation of the felt liner within the deep burial trench at the Hudson Federal Battery #1 Remediation Site.



Photograph of the installation of the polyethylene liner within the deep burial trench at the Hudson Federal Battery #1 Remediation Site.



Photograph of the disposition of material generated from the 2000 drilling reserve pit into the deep burial trench at the Hudson Federal Battery #1 Remediation Site.



Photograph of the encapsulated material from the 2000 drilling reserve pit at the Hudson Federal Battery #1 Remediation Site.



Photograph of the installation of polyethylene liner over the deep burial trench and risked-out portion of the affected pasture.



Photograph of the installation of polyethylene liner over the deep burial trench and risked-out portion of the affected pasture.



Photograph of the installation of the soil cover over the deep burial trench at the Hudson Federal Battery #1 Remediation Site.



Photograph of the installation of polyethylene liner over the 1974 drilling reserve pit on the caliche well pad at the Hudson Federal Battery #1 Remediation Site.



Photograph of the installation of the polyethylene liner over the barren area above the 2000 drilling reserve pit at the Hudson Federal Battery #1 Remediation Site.



Photograph of the installation of the polyethylene liner over the barren area above the 2000 drilling reserve pit at the Hudson Federal Battery #1 Remediation Site.



Photograph of the deep burial trench and affected pasture area after remediation activities at the Hudson Federal Battery #1 Remediation Site.



Photograph of the affected well pad area at the Hudson Federal Battery #1 after remediation activities.



Photograph of the affected well pad area at the Hudson Federal Battery #1 after remediation activities.



Photograph of the reclaimed area north of the caliche well pad at the Hudson Federal Battery #1 Remediation Site.



June 26, 2014

JOEL LOWRY

Basin Environmental Service

P.O. Box 301

Lovington, NM 88260

RE: HUDSON FEDERAL BATTERY

Enclosed are the results of analyses for samples received by the laboratory on 06/23/14 11:40.

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,

A handwritten signature in cursive script that reads "Celey D. Keene".

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:	06/23/2014	Sampling Date:	06/20/2014
Reported:	06/26/2014	Sampling Type:	Soil
Project Name:	HUDSON FEDERAL BATTERY	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	EDDY COUNTY, NM		

**Sample ID: ESW #1 (H401873-01)**

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>576</b>	16.0	06/24/2014	ND	416	104	400	0.00	

**Sample ID: ESW #2 (H401873-02)**

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>672</b>	16.0	06/24/2014	ND	416	104	400	0.00	

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

**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



---

Celey D. Keene, Lab Director/Quality Manager



July 31, 2014

JOEL LOWRY

Basin Environmental Service

P.O. Box 301

Lovington, NM 88260

RE: HUDSON FEDERAL BATTERY

Enclosed are the results of analyses for samples received by the laboratory on 07/24/14 11:30.

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

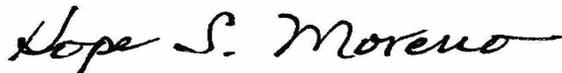
Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

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

Accreditation applies to public drinking water matrices.

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

Sincerely,



Hope S. Moreno For 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:	07/24/2014	Sampling Date:	07/23/2014
Reported:	07/31/2014	Sampling Type:	Soil
Project Name:	HUDSON FEDERAL BATTERY	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	EDDY COUNTY, NM		

**Sample ID: ESW #3 (H402268-01)**

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>1250</b>	16.0	07/29/2014	ND	384	96.0	400	4.08	

**Sample ID: ESW #4 (H402268-02)**

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>2360</b>	16.0	07/29/2014	ND	384	96.0	400	4.08	

**Sample ID: SSW #3 (H402268-03)**

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>3600</b>	16.0	07/29/2014	ND	384	96.0	400	4.08	

Cardinal Laboratories

\*=Accredited Analyte

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Hope S. Moreno For 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



---

Hope S. Moreno For 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

Company Name: Basin Environmental Service Technologies, LLC		<b>BILL TO</b>				<b>ANALYSIS REQUEST</b>																	
Project Manager: Joel Lowry		P.O. #:				Chloride	TPH (8015M)	BTEX (8021B)	HOLD FOR TPH														
Address: P.O. Box 301		Company: BOPCO, LP																					
City: Lovington State: NM Zip: 88260		Attn: Tony Savoie																					
Phone #: (575)396-2378 Fax #: (575)396-1429		Address: 522 W. Marland																					
Project #: Project Owner:		City: Carlsbad																					
Project Name: Hudson Federal Battery		State: NM Zip: 88220																					
Project Location: Eddy Co., NM		Phone #: (432)556-8730																					
Sampler Name: <i>Soil Layer</i>		Fax #:																					
FOR LAB USE ONLY		(G)RAB OR (C)OMP. # CONTAINERS	MATRIX					PRESERV.		SAMPLING													
Lab I.D.	Sample I.D.		GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	ACID/BASE:	ICE / COOL	OTHER:	DATE	TIME										
<i>H402268</i>																							
<i>1</i>	ESW #3	g	1		x				x		7/23/14	1200	x										
<i>2</i>	ESW #4	g	1		x				x		7/23/14	1300	x										
<i>3</i>	SSW #3	g	1		x				x		7/23/14	1230	x										

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Relinquished By: <i>Joel Lowry</i>	Date: <i>7/24/14</i>	Received By: <i>Jodi Henson</i>	Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Phone #:
Relinquished By:	Time: <i>11:30</i>	Received By:	Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Fax #:
Delivered By: (Circle One)	Date:	Time:	REMARKS:	
Sampler - UPS - Bus - Other:	5.7°	Sample Condition	HOLD FOR TPH	
		Cool Intact	Please email results to pm@basinenv.com, TASavoie@BassPet.com & ACRuth@BassPet.com	
		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
		<input type="checkbox"/> No <input checked="" type="checkbox"/> No		
		CHECKED BY: <i>JH</i>		

*#54*



August 22, 2014

BEN J. ARGUIJO

Basin Environmental Service

P.O. Box 301

Lovington, NM 88260

RE: HUDSON FEDERAL BATTERY

Enclosed are the results of analyses for samples received by the laboratory on 08/20/14 10:30.

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

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is written in a cursive style with a large, flowing "C" and "K".

Celey D. Keene

Lab Director/Quality Manager

**Analytical Results For:**

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

Received:	08/20/2014	Sampling Date:	08/18/2014
Reported:	08/22/2014	Sampling Type:	Soil
Project Name:	HUDSON FEDERAL BATTERY	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	EDDY COUNTY, NM		

**Sample ID: SSW #1 (H402549-01)**

Chloride, SM4500CI-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	08/21/2014	ND	416	104	400	3.92	

**Sample ID: SSW #2 (IN-SITU) (H402549-02)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<b>6660</b>	16.0	08/21/2014	ND	416	104	400	3.92	

**Sample ID: SSW #3 (H402549-03)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<b>864</b>	16.0	08/21/2014	ND	416	104	400	3.92	

**Sample ID: SSW #4 (H402549-04)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<b>656</b>	16.0	08/21/2014	ND	416	104	400	3.92	

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received:	08/20/2014	Sampling Date:	08/18/2014
Reported:	08/22/2014	Sampling Type:	Soil
Project Name:	HUDSON FEDERAL BATTERY	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	EDDY COUNTY, NM		

**Sample ID: WSW #1 (H402549-05)**

Chloride, SM4500CI-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	08/21/2014	ND	416	104	400	3.92	

**Sample ID: WSW #2 (H402549-06)**

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>5760</b>	16.0	08/21/2014	ND	400	100	400	0.00	

**Sample ID: WSW #3 (H402549-07)**

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	08/21/2014	ND	400	100	400	0.00	

Cardinal Laboratories

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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





October 13, 2014

JOEL LOWRY

Basin Environmental Service

P.O. Box 301

Lovington, NM 88260

RE: HUDSON FEDERAL BATTERY #1

Enclosed are the results of analyses for samples received by the laboratory on 10/08/14 11:25.

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

A handwritten signature in black ink that reads "Celey D. Keene". The signature is written in a cursive style.

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:	10/08/2014	Sampling Date:	10/06/2014
Reported:	10/13/2014	Sampling Type:	Soil
Project Name:	HUDSON FEDERAL BATTERY #1	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Kathy Perez
Project Location:	EDDY CO. NM		

**Sample ID: BURIAL TRENCH WC #1 (H403077-01)**

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	10/09/2014	ND	1.67	83.4	2.00	11.5	
Toluene*	<0.050	0.050	10/09/2014	ND	1.64	82.0	2.00	8.86	
Ethylbenzene*	<0.050	0.050	10/09/2014	ND	1.55	77.3	2.00	10.8	
Total Xylenes*	<0.150	0.150	10/09/2014	ND	4.57	76.2	6.00	11.0	
Total BTEX	<0.300	0.300	10/09/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 103 % 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>5360</b>	16.0	10/08/2014	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/08/2014	ND	181	90.6	200	2.75	
<b>DRO &gt;C10-C28</b>	<b>58.3</b>	10.0	10/08/2014	ND	184	92.1	200	4.38	
<b>EXT DRO &gt;C28-C35</b>	<b>18.7</b>	10.0	10/08/2014	ND					

Surrogate: 1-Chlorooctane 99.9 % 47.2-157

Surrogate: 1-Chlorooctadecane 101 % 52.1-176

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:	10/08/2014	Sampling Date:	10/06/2014
Reported:	10/13/2014	Sampling Type:	Soil
Project Name:	HUDSON FEDERAL BATTERY #1	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Kathy Perez
Project Location:	EDDY CO. NM		

**Sample ID: BURIAL TRENCH WC #2 (H403077-02)**

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	10/09/2014	ND	1.67	83.4	2.00	11.5	
Toluene*	<0.050	0.050	10/09/2014	ND	1.64	82.0	2.00	8.86	
Ethylbenzene*	<0.050	0.050	10/09/2014	ND	1.55	77.3	2.00	10.8	
Total Xylenes*	<0.150	0.150	10/09/2014	ND	4.57	76.2	6.00	11.0	
Total BTEX	<0.300	0.300	10/09/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 103 % 61-154

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	5440	16.0	10/08/2014	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/08/2014	ND	181	90.6	200	2.75	
DRO >C10-C28	<10.0	10.0	10/08/2014	ND	184	92.1	200	4.38	
EXT DRO >C28-C35	<10.0	10.0	10/08/2014	ND					

Surrogate: 1-Chlorooctane 101 % 47.2-157

Surrogate: 1-Chlorooctadecane 101 % 52.1-176

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:	10/08/2014	Sampling Date:	10/06/2014
Reported:	10/13/2014	Sampling Type:	Soil
Project Name:	HUDSON FEDERAL BATTERY #1	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Kathy Perez
Project Location:	EDDY CO. NM		

**Sample ID: BURIAL TRENCH WC #3 (H403077-03)**

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	10/09/2014	ND	1.67	83.4	2.00	11.5	
Toluene*	<0.050	0.050	10/09/2014	ND	1.64	82.0	2.00	8.86	
Ethylbenzene*	<0.050	0.050	10/09/2014	ND	1.55	77.3	2.00	10.8	
Total Xylenes*	<0.150	0.150	10/09/2014	ND	4.57	76.2	6.00	11.0	
Total BTEX	<0.300	0.300	10/09/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 103 % 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>2800</b>	16.0	10/08/2014	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/08/2014	ND	181	90.6	200	2.75	
DRO >C10-C28	<10.0	10.0	10/08/2014	ND	184	92.1	200	4.38	
EXT DRO >C28-C35	<10.0	10.0	10/08/2014	ND					

Surrogate: 1-Chlorooctane 104 % 47.2-157

Surrogate: 1-Chlorooctadecane 109 % 52.1-176

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



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

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

**BILL TO**

**ANALYSIS REQUEST**

Company Name: Basin Environmental Service Technologies  
 Project Manager: Joel Lowry  
 Address: P.O. Box 301  
 City: Lovington State: NM Zip: 88260  
 Phone #: (575)396-2378 Fax #: (575)396-1429  
 Project #: Project Owner:  
 Project Name: Hudson Federal Battery #1  
 Project Location: Eddy Co., NM  
 Sampler Name: Joel Lowry  
 P.O. #: Company: BOPCO, LP  
 Attn: Tony Saviole  
 Address: City:  
 State: NM Zip:  
 Phone #: 432-556-8730  
 Fax #:

Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX						DATE	TIME	Chloride	TPH (8015M)	BTEX (8021B)	HOLD FOR TPH
				GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :						
H408077	Burial Trench WC #1	g	1			x				10/6/14	1300	x	x	x	
	Burial Trench WC #2	g	1			x				10/6/14	1310	x	x	x	
	Burial Trench WC #3	g	1			x				10/6/14	1320	x	x	x	

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Relinquished By: *Joel Lowry* Date: 10/8/14 Received By: *Joel Lowry* Date: 10/8/14  
 Reacquired By: *Joel Lowry* Date: 11/25/14  
 Delivered By: (Circle One)  UPS  Bus  Other: 5.40  
 Sample Condition:  Cool  Intact  Yes  No  
 CHECKED BY: *Joel Lowry*  
 HOLD FOR TPH  
 Please email results to pm@basinenv.com, TASaviole@BassPet.com & SJWalters@BassPet.com  
 Phone Result:  Yes  No Add'l Phone #:  
 Fax Result:  Yes  No Add'l Fax #:  
 REMARKS:  
 FORM-006  
 Revision 1.0  
 † Cardinal cannot accept verbal changes. Please fax written changes to 575-393-2476



October 14, 2014

JOEL LOWRY

Basin Environmental Service

P.O. Box 301

Lovington, NM 88260

RE: HUDSON FEDERAL BATTERY #1

Enclosed are the results of analyses for samples received by the laboratory on 10/09/14 16:11.

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".

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:	10/09/2014	Sampling Date:	10/08/2014
Reported:	10/14/2014	Sampling Type:	Soil
Project Name:	HUDSON FEDERAL BATTERY #1	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Kathy Perez
Project Location:	EDDY CO. NM		

**Sample ID: PAST SSW #1 (H403113-01)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	96.0	16.0	10/13/2014	ND	400	100	400	0.00	

**Sample ID: PAST SSW #2 (H403113-02)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	144	16.0	10/13/2014	ND	400	100	400	0.00	

**Sample ID: PAST SSW #3 (H403113-03)**

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	10/13/2014	ND	400	100	400	0.00	

**Sample ID: PAST ESW #1 (H403113-04)**

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	10/13/2014	ND	400	100	400	0.00	

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received:	10/09/2014	Sampling Date:	10/08/2014
Reported:	10/14/2014	Sampling Type:	Soil
Project Name:	HUDSON FEDERAL BATTERY #1	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Kathy Perez
Project Location:	EDDY CO. NM		

**Sample ID: PAST ESW #2 (H403113-05)**

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>704</b>	16.0	10/13/2014	ND	400	100	400	0.00	

**Sample ID: PAST WSW #1 (H403113-06)**

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>160</b>	16.0	10/13/2014	ND	400	100	400	0.00	

**Sample ID: PAST WSW #2 (H403113-07)**

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>64.0</b>	16.0	10/13/2014	ND	400	100	400	0.00	

Cardinal Laboratories

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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

Company Name:				<b>BILL TO</b>				<b>ANALYSIS REQUEST</b>																		
Project Manager: Joel Lowry				P.O. #:				Chloride	TPH (8015M)	BTEX (8021B)	HOLD FOR TPH															
Address: P.O. Box 301				Company: BOPCO, LP																						
City: Lovington State: NM Zip: 88260				Attn: Tony Savoie																						
Phone #: (575)396-2378 Fax #: (575)396-1429				Address:																						
Project #: Project Owner:				City:																						
Project Name: Hudson Federal #1 Battery				State: NM Zip:																						
Project Location: Eddy Co., NM				Phone #:																						
Sampler Name: <i>Mrdt Taylor</i>				Fax #:																						
FOR LAB USE ONLY	Lab I.D.	Sample I.D.	(G/RAB OR (C)OMP. # CONTAINERS	MATRIX								PRESERV.		SAMPLING												
				GROUNDWATER	WASTEWATER	SOIL	OIL					SLUDGE	OTHER:	ACID/BASE:	ICE / COOL	OTHER:	DATE	TIME								
	<i>H403113</i>																									
		Past. SSW #1	g 1			x				x			10/8/14	1100	x											
		Past. SSW #2	g 1			x				x			10/8/14	1115	x											
		Past. SSW #3	g 1			x				x			10/8/14	1200	x											
		Past. ESW #1	g 1			x				x			10/8/14	1230	x											
		Past. ESW #2	g 1			x				x			10/8/14	1240	x											
		Past WSW #1	g 1			x				x			10/8/14	1310	x											
		Past WSW #2	g 1			x				x			10/8/14	1320	x											

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Relinquished By: <i>Joel Lowry</i>	Date: <i>10/9/14</i>	Received By: <i>Danudley</i>	Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Phone #:
Time: <i>3:25</i>			Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Fax #:
Relinquished By: <i>Danudley</i>	Date: <i>10/9/14</i>	Received By: <i>Anthony</i>	REMARKS:	
Time: <i>2:11</i>			HOLD FOR TPH	
Delivered By: (Circle One)		Sample Condition	Please email results to pm@basinenv.com, TASavoie@BassPet.com & SJWalters@BassPet.com	
Sampler - UPS - Bus - Other:	<i>-1.8°C</i>	Cool Intact		
		<input type="checkbox"/> Yes <input type="checkbox"/> No		
		<input type="checkbox"/> No <input type="checkbox"/> No		
		CHECKED BY: <i>KP</i>		



October 21, 2014

JOEL LOWRY

Basin Environmental Service

P.O. Box 301

Lovington, NM 88260

RE: HUDSON FEDERAL BATTERY #1

Enclosed are the results of analyses for samples received by the laboratory on 10/17/14 15:35.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [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,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is written in a cursive style.

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:	10/17/2014	Sampling Date:	10/16/2014
Reported:	10/21/2014	Sampling Type:	Soil
Project Name:	HUDSON FEDERAL BATTERY #1	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	EDDY CO. NM		

**Sample ID: PAST. NSW #1 (H403206-01)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	608	16.0	10/20/2014	ND	416	104	400	0.00	

**Sample ID: PAST. NSW #2 (H403206-02)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	735	16.0	10/20/2014	ND	416	104	400	0.00	

**Sample ID: PAST. NSW #3 (H403206-03)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	688	16.0	10/20/2014	ND	416	104	400	0.00	

**Sample ID: PAST. WSW #4 (H403206-04)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	432	16.0	10/20/2014	ND	416	104	400	0.00	

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received:	10/17/2014	Sampling Date:	10/16/2014
Reported:	10/21/2014	Sampling Type:	Soil
Project Name:	HUDSON FEDERAL BATTERY #1	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	EDDY CO. NM		

**Sample ID: PAST. ESW #1 (H403206-05)**
**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>416</b>	16.0	10/20/2014	ND	416	104	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



---

Celey D. Keene, Lab Director/Quality Manager



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

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

**BILL TO**

**ANALYSIS REQUEST**

Company Name: Bassin  
 Project Manager: Joel Lowry  
 Address: P.O. Box 301 State: NM Zip: 88260  
 City: Lovington Attn: Tony Savole  
 Phone #: (575)396-2378 Fax #: (575)396-1429  
 Project #: \_\_\_\_\_ Project Owner: \_\_\_\_\_  
 Project Name: Hudson Federal #1 Battery State: NM Zip: \_\_\_\_\_  
 Project Location: Eddy Co., NM Phone #: \_\_\_\_\_  
 Sampler Name: Joel Lowry Fax #: \_\_\_\_\_

Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX						DATE	TIME	Chloride	TPH (8015M)	BTEX (8021B)	HOLD FOR TPH
				GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :						
<u>H403206</u>															
	<u>1</u>	<u>g</u>	<u>1</u>			<u>X</u>				<u>10/16/14</u>	<u>1320</u>	<u>X</u>			
	<u>2</u>	<u>g</u>	<u>1</u>			<u>X</u>				<u>10/16/14</u>	<u>1325</u>	<u>X</u>			
	<u>3</u>	<u>g</u>	<u>1</u>			<u>X</u>				<u>10/16/14</u>	<u>1330</u>	<u>X</u>			
	<u>4</u>	<u>g</u>	<u>1</u>			<u>X</u>				<u>10/16/14</u>	<u>1335</u>	<u>X</u>			
	<u>5</u>	<u>g</u>	<u>1</u>			<u>X</u>				<u>10/16/14</u>	<u>1340</u>	<u>X</u>			

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Relinquished By: Joel Lowry Date: 10/17/14 Time: 3:35  
 Received By: Joel Savole

Delivered By: (Circle One) UPS - Bus - Other: \_\_\_\_\_  
 Sample Condition: Intact (Initials) JS  
 Cool  Yes  No  
 Intact  Yes  No

Phone Result:  Yes  No Add'l Phone #: \_\_\_\_\_  
 Fax Result:  Yes  No Add'l Fax #: \_\_\_\_\_  
 REMARKS: HOLD FOR TPH

Please email results to pm@basinenv.com, TASavole@BassPet.com & SJWalters@BassPet.com

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

#54



October 27, 2014

JOEL LOWRY

Basin Environmental Service

P.O. Box 301

Lovington, NM 88260

RE: HUDSON FEDERAL BATTERY #1

Enclosed are the results of analyses for samples received by the laboratory on 10/22/14 13:25.

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

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:	10/22/2014	Sampling Date:	10/21/2014
Reported:	10/27/2014	Sampling Type:	Soil
Project Name:	HUDSON FEDERAL BATTERY #1	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Kathy Perez
Project Location:	EDDY CO. NM		

**Sample ID: TT - 1A @ 8' (H403254-01)**

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	10/24/2014	ND	1.99	99.3	2.00	2.06		
Toluene*	<0.050	0.050	10/24/2014	ND	1.89	94.6	2.00	1.81		
Ethylbenzene*	<0.050	0.050	10/24/2014	ND	1.79	89.3	2.00	2.72		
Total Xylenes*	<0.150	0.150	10/24/2014	ND	5.33	88.9	6.00	2.78		
Total BTEX	<0.300	0.300	10/24/2014	ND						

*Surrogate: 4-Bromofluorobenzene (PID) 100 % 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>336</b>	16.0	10/23/2014	ND	400	100	400	0.00		

TPH 8015M		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	10/23/2014	ND	179	89.6	200	4.26		
DRO >C10-C28	<10.0	10.0	10/23/2014	ND	195	97.5	200	7.17		
EXT DRO >C28-C35	<10.0	10.0	10/23/2014	ND						

*Surrogate: 1-Chlorooctane 97.2 % 47.2-157*
*Surrogate: 1-Chlorooctadecane 140 % 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:	10/22/2014	Sampling Date:	10/21/2014
Reported:	10/27/2014	Sampling Type:	Soil
Project Name:	HUDSON FEDERAL BATTERY #1	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Kathy Perez
Project Location:	EDDY CO. NM		

**Sample ID: TT - 1A @ 10' (H403254-02)**

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>192</b>	16.0	10/23/2014	ND	400	100	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



---

Celey D. Keene, Lab Director/Quality Manager



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

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

**BILL TO**

**ANALYSIS REQUEST**

Company Name: Joel Lowry  
 Project Manager: P.O. Box 301  
 Address: Lovington State: NM Zip: 88260  
 City: Lovington Fax #: (575)396-2378  
 Phone #: (575)396-2378 Fax #: (575)396-1429  
 Project #: Project Owner:  
 Project Name: Hudson Federal Battery #1  
 Project Location: Eddy Co., NM  
 Sampler Name: Joel Lowry  
 P.O. #: Company: BOPCO, LP  
 Attn: Tony Saviole  
 Address: City:  
 State: NM Zip: Phone #:  
 Fax #:

Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX							DATE	TIME	Chloride	TPH (8015M)	BTEX (8021B)	HOLD FOR TPH
				GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	PRESERV.						
H4033254	TT-1a @ 8'	g	1			x					10/21/14	1100	x	x	x	
	TT-1a @ 10'	g	1			x					10/21/14	1105	x			

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Relinquished By: *Joel Lowry* Date: 10/29/14 Time: 0700  
 Received By: *Blb* Date: 10/29/14 Time: 1230  
 Delivered By: (Circle One) *UPS*  
 Sample Condition:  Intact  Cool  Yes  No  
 Checked By: *WJ*  
 Phone Result:  Yes  No Add'l Phone #: \_\_\_\_\_  
 Fax Result:  Yes  No Add'l Fax #: \_\_\_\_\_  
 REMARKS: HOLD FOR TPH  
 Please email results to pm@basinenv.com, TASaviole@BassPet.com, Acruith@basspet.com, Bblevins@basspet.com

FORM-006  
 Revision 10  
 Cardinal cannot accept verbal changes. Please fax written changes to 575-393-2476  
 Blb Barbera 1:25 #24  
 Tony Saviole



October 31, 2014

JOEL LOWRY

Basin Environmental Service

P.O. Box 301

Lovington, NM 88260

RE: HUDSON FEDERAL BATTERY #1

Enclosed are the results of analyses for samples received by the laboratory on 10/28/14 15:40.

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,

A handwritten signature in black ink that reads "Celey D. Keene".

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:	10/28/2014	Sampling Date:	10/27/2014
Reported:	10/31/2014	Sampling Type:	Soil
Project Name:	HUDSON FEDERAL BATTERY #1	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	EDDY CO. NM		

**Sample ID: ESW #4 (H403314-01)**

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>1440</b>	16.0	10/29/2014	ND	400	100	400	0.00	

**Sample ID: NE CORNER (H403314-02)**

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>1260</b>	16.0	10/29/2014	ND	400	100	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



---

Celey D. Keene, Lab Director/Quality Manager



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

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

**BILL TO**

**ANALYSIS REQUEST**

Company Name: Basin  
 Project Manager: Joel Lowry  
 Address: P.O. Box 301  
 City: Lovington State: NM Zip: 88260  
 Phone #: (575)396-2378 Fax #: (575)396-1429  
 Project #: Project Owner:  
 Project Name: Hudson Federal Battery #1  
 Project Location: Eddy Co., NM  
 Sampler Name: Joel Lowry  
 P.O. #: Company: BOPCO, LP  
 Attn: Tony Saviole  
 Address: City: State: NM Zip:  
 Phone #: Fax #:

FOR LAB USE ONLY	Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX						PRESERV.	SAMPLING	DATE	TIME	Chloride	TPH (8015M)	BTEX (8021B)	HOLD FOR TPH
					GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :								
	#403314		g	1			X					10/29/14	1150	X				
		ESW #4	g	1			X					10/29/14	1155	X				
		NE Corner	g	1			X											

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Relinquished By: Joel Lowry Date: 10/20/14 Received By: Joel Lowry  
 Date: 10/20/14 Time: 5:00  
 Date: 10/29/14 Time: 5:40  
 Delivered By: (Circle One) UPS -0.40  Yes  No  Intact  Yes  No

Phone Result:  Yes  No Add'l Phone #:  
 Fax Result:  Yes  No Add'l Fax #:  
 REMARKS:  
 HOLD FOR TPH  
 Please email results to pm@basinenv.com,  
 TASaviole@BassPet.com & SJWalters@BassPet.com



November 14, 2014

JOEL LOWRY

Basin Environmental Service

P.O. Box 301

Lovington, NM 88260

RE: HUDSON FEDERAL BATTERY #1

Enclosed are the results of analyses for samples received by the laboratory on 11/11/14 13:15.

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

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is written in a cursive style.

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:	11/11/2014	Sampling Date:	11/03/2014
Reported:	11/14/2014	Sampling Type:	Soil
Project Name:	HUDSON FEDERAL BATTERY #1	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Kathy Perez
Project Location:	EDDY CO. NM		

**Sample ID: 1974 PIT FLOOR (IN-SITU) (H403455-01)**

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	11/13/2014	ND	1.80	90.1	2.00	5.78		
Toluene*	<0.050	0.050	11/13/2014	ND	1.71	85.5	2.00	6.87		
Ethylbenzene*	<0.050	0.050	11/13/2014	ND	1.65	82.7	2.00	9.28		
Total Xylenes*	<0.150	0.150	11/13/2014	ND	4.94	82.3	6.00	9.77		
Total BTEX	<0.300	0.300	11/13/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 98.6 % 61-154

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	5730	16.0	11/12/2014	ND	400	100	400	3.92		

TPH 8015M		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	11/12/2014	ND	188	93.9	200	0.555		
DRO >C10-C28	<10.0	10.0	11/12/2014	ND	196	98.2	200	2.55		
EXT DRO >C28-C35	<10.0	10.0	11/12/2014	ND						

Surrogate: 1-Chlorooctane 106 % 47.2-157

Surrogate: 1-Chlorooctadecane 114 % 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:	11/11/2014	Sampling Date:	11/03/2014
Reported:	11/14/2014	Sampling Type:	Soil
Project Name:	HUDSON FEDERAL BATTERY #1	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Kathy Perez
Project Location:	EDDY CO. NM		

**Sample ID: B.T. STOCKPILE (H403455-02)**

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	11/13/2014	ND	1.74	87.0	2.00	10.0		
Toluene*	<0.050	0.050	11/13/2014	ND	1.65	82.6	2.00	10.2		
Ethylbenzene*	<0.050	0.050	11/13/2014	ND	1.61	80.5	2.00	10.3		
Total Xylenes*	<0.150	0.150	11/13/2014	ND	4.82	80.4	6.00	10.9		
Total BTEX	<0.300	0.300	11/13/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 94.1 % 61-154

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>192</b>	16.0	11/12/2014	ND	400	100	400	3.92		

TPH 8015M		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	11/14/2014	ND	188	93.9	200	0.555		
DRO >C10-C28	<10.0	10.0	11/14/2014	ND	196	98.2	200	2.55		
EXT DRO >C28-C35	<10.0	10.0	11/14/2014	ND						

Surrogate: 1-Chlorooctane 119 % 47.2-157

Surrogate: 1-Chlorooctadecane 129 % 52.1-176

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

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- RPD Relative Percent Difference
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- \*\*\* 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



---

Celey D. Keene, Lab Director/Quality Manager

