

# *Basin Environmental Service Technologies, LLC*

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Lovington, New Mexico 88260

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

**BOPCO, LP  
POKER LAKE UNIT #59 TANK BATTERY  
Eddy County, New Mexico  
Unit Letter "F" (SE/NW), Section 17, Township 24 South, Range 30 East  
Latitude 32.219106° North, Longitude 103.908567° West  
NMOCD Reference #2RP-2217**

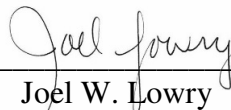
Prepared For:

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

Prepared By:

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

**November 2014**



Joel W. Lowry

Project Manager

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## 1.0 INTRODUCTION & BACKGROUND INFORMATION

Basin Environmental Service Technologies, LLC (Basin), on behalf of BOPCO, LP (BOPCO), has prepared this *Remediation Summary and Site Closure Request* for the release site known as Poker Lake Unit #59 Tank Battery (PLU #59 Tank Battery). The legal description of the release site is Unit Letter "F" (SE/NW), Section 17, Township 24 South, Range 30 East, in Eddy County, New Mexico. The geographic coordinates of the release site are 32.219106° North latitude and 103.908567° West longitude. The property affected by the release is owned by the United States Department of the Interior - Bureau of Land Management (BLM). A "Site Location Map" is provided as Figure 1.

On March 14, 2014, BOPCO discovered a release had occurred at the PLU #59 Tank Battery. The "Release Notification and Corrective Action" (Form C-141) indicated failure of a production tank resulted in the release of approximately ten barrels (10 bbls) of produced water; the failure was attributed to internal corrosion. The Form C-141 indicated the release affected approximately nine hundred square feet (900 ft<sup>2</sup>) of an area inside the earthen containment around the tank. During initial response activities, the tank was emptied and approximately five barrels (5 bbls) of free-standing fluid was recovered. The compromised tank was isolated and has since been removed. The Form C-141 is provided as Appendix A. General photographs of the release site are provided as Appendix B.

## 2.0 NMOCD SITE CLASSIFICATION

A search of the New Mexico Water Rights Reporting System (NMWRRS) database maintained by the New Mexico Office of the State Engineer (NMOSE) indicated information was unavailable for Section 17, Township 24 South, Range 30 East. A depth to groundwater reference map utilized by the New Mexico Oil Conservation Division (NMOCD) indicates groundwater should be encountered at approximately two hundred feet (200') below ground surface (bgs). Based on the NMOCD ranking system, zero (0) points will be assigned to the site as a result of this criterion.

A search of the NMWRRS database indicated there are no water wells within one thousand feet (1,000') of the release. Based on the NMOCD ranking system, zero (0) points will be assigned to the site as a result of this criterion.

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

NMOCD guidelines indicate the PLU #59 Tank Battery release site has an initial ranking score of zero (0) points. The soil remediation levels for a site with a ranking score of zero (0) points are as follows:

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

The New Mexico Administrative Code (NMAC) does not currently specify a remediation level for chloride concentrations in soil. Chloride remediation levels are set by the NMOCD on a site-specific basis.

### **3.0 SUMMARY OF SOIL REMEDIATION ACTIVITIES**

On April 1, 2014, Basin advanced a delineation trench within the footprint of the former production tank in an effort to determine the vertical extent of soil impact. During the advancement of the delineation trench, six soil samples (TT @ 2', TT @ 4', TT @ 6', TT @ 8', TT @ 10' and TT @ 12') were collected and submitted to Cardinal Laboratories of Hobbs, New Mexico, for analysis of chloride concentrations. Laboratory analytical results indicated chloride concentrations ranged from 2,320 ppm for soil sample TT @ 8' to 1,250 ppm for soil sample TT @ 2'. Soil sample TT @ 2' was also analyzed for concentrations of BTEX and TPH, which were determined to be less than the laboratory method detection limit (MDL) and 155 ppm, respectively. A summary of "Concentrations of Benzene, BTEX, TPH & Chloride in Soil" is provided in Table 1. A "Site & Sample Location Map" is provided as Figure 2. Laboratory analytical reports are provided as Appendix C.

On October 2, 2014, Basin began excavating impacted soil at the release site. The floor of the excavation was advanced to approximately five feet (5') bgs to allow for the advancement of an additional delineation trench. The sidewalls of the excavation were advanced until field tests suggested concentrations of BTEX, TPH and chloride were below NMOCD regulatory standards. Excavated soil was stockpiled on-site, pending final disposition.

On October 6, 2014, Basin advanced an additional delineation trench (TT-1a) within the floor of the excavated area in an effort to determine the vertical extent of soil impact. During the advancement of the delineation trench, six soil samples (TT-1a @ 14', TT-1a @ 16', TT-1a @ 18', TT-1a @ 20', TT-1a @ 22' and TT-1a @ 24') were collected and submitted to the laboratory for analysis of chloride concentrations. Laboratory analytical results indicated chloride concentrations ranged from 736 ppm for soil sample TT-1a @ 18' to 336 ppm for soil sample TT-1a @ 24'. Soil sample TT-1a @ 14' was also analyzed for concentrations of BTEX and TPH, which were determined to be less than the appropriate laboratory MDL.

On October 7, 2014, excavation activities resumed at the release site. The floor of the excavation was advanced to approximately fourteen feet (14') bgs. Excavation sidewalls were advanced until field test results suggested concentrations of BTEX, TPH and chloride were less than NMOCD regulatory standards. Eight (8) confirmation soil samples (NSW @ 10', SSW @ 4', SSW @ 10', ESW @ 4', ESW @ 10', WSW @ 4', WSW @ 10' and NSW @ 4') were collected from the excavation sidewalls and submitted to the laboratory for analysis of chloride concentrations. Laboratory analytical reports indicated chloride concentrations ranged from less than the laboratory MDL for soil samples SSW @ 10', ESW @ 4' and WSW @ 4' to 640 ppm for soil sample WSW @ 10'. Soil samples NSW @ 10', SSW @ 10', ESW @ 10' and WSW @ 10' were also analyzed for concentrations of TPH. Analytical results indicated TPH concentrations were less than the laboratory MDL for each of the submitted soil samples with the exception of soil sample SSW @ 10', which exhibited a TPH concentration of 20.6 ppm.

Between October 7 and 21, 2014, approximately one thousand, four hundred cubic yards (1,400 yd<sup>3</sup>) of impacted material was transported to Lea Land, Inc. (NMOCD Permit #WM-01-035) for

disposal. The final dimensions of the excavation were approximately thirty-eight feet (38') in width, fifty feet (50') in length and fourteen feet (14') in depth. Upon receiving laboratory analytical results from confirmation soil samples, the excavated area was backfilled with locally purchased, non-impacted material. Following backfilling, areas affected by the remediation activities were contoured to meet the needs of the well pad.

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

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

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

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

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

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

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

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

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

Confirmation soil samples collected from the floor and sidewalls of the environmental excavation at the PLU # 59 Tank Battery were analyzed by an NMOCD-approved laboratory, which determined concentrations of BTEX, TPH and chloride were less than NMOCD regulatory standards in each of the submitted soil samples. Based on these laboratory analytical results, Basin recommends BOPCO provide the NMOCD-Artesia District Office and the BLM a copy of this *Remediation Summary and Site Closure Request* and request the NMOCD grant site closure to the PLU #59 Tank Battery release site.

## 6.0 LIMITATIONS

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

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

## **7.0 DISTRIBUTION:**

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





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

**Figure 1**  
**Site Location Map**  
**BOPCO, LP**  
**PLU #59 Tank Battery**  
**Eddy County, New Mexico**



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

Drawn By: BJA      Checked By: BRB

November 18, 2014      Scale: 1" = 2000'





Legend:

- Excavation Extent  
 — Pipeline  
 • Sample Location  
 - - - - - Test Trench

Figure 2  
 Site & Sample Location Map  
 BOPCO, L.P.  
 PLU #59 Tank Battery  
 Eddy County, New Mexico  
 NMOCD Ref # 2RP-2217

Basin Environmental Services

Prep By: JWL

Checked By: BJA

November 17, 2014

Scale 1"=20'

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

**BOPCO, LP**  
**PLU #59 TANK BATTERY**  
**EDDY COUNTY, NEW MEXICO**  
**NMOCD REFERENCE #: 2RP-2217**

SAMPLE LOCATION	SAMPLE DEPTH (BGS)	SAMPLE DATE	SOIL STATUS	METHOD: EPA SW 846-8021B, 5030					METHOD: 8015M			TOTAL TPH	4500 Cl-B
				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)	C <sub>6</sub> -C <sub>35</sub> (mg/Kg)	CHLORIDE (mg/Kg)
TT @ 2'	2'	4/1/2014	Excavated	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	155	<10.0	155	1,250
TT @ 4'	4'	4/1/2014	Excavated	-	-	-	-	-	-	-	-	-	1,360
TT @ 6'	6'	4/1/2014	Excavated	-	-	-	-	-	-	-	-	-	2,000
TT @ 8'	8'	4/1/2014	Excavated	-	-	-	-	-	-	-	-	-	2,320
TT @ 10'	10'	4/1/2014	Excavated	-	-	-	-	-	-	-	-	-	1,840
TT @ 12'	12'	4/1/2014	Excavated	-	-	-	-	-	-	-	-	-	2,160
TT-1a @ 14'	14'	10/6/2014	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<10.0	544
TT-1a @ 16'	16'	10/6/2014	In-Situ	-	-	-	-	-	-	-	-	-	448
TT-1a @ 18'	18'	10/6/2014	In-Situ	-	-	-	-	-	-	-	-	-	736
TT-1a @ 20'	20'	10/6/2014	In-Situ	-	-	-	-	-	-	-	-	-	688
TT-1a @ 22'	22'	10/6/2014	In-Situ	-	-	-	-	-	-	-	-	-	640
TT-1a @ 24'	24'	10/6/2014	In-Situ	-	-	-	-	-	-	-	-	-	336
NSW @ 10'	4'	10/7/2014	In-Situ	-	-	-	-	-	<10.0	<10.0	<10.0	<10.0	48.0
SSW @ 4'	4'	10/7/2014	In-Situ	-	-	-	-	-	-	-	-	-	128
SSW @ 10'	10'	10/7/2014	In-Situ	-	-	-	-	-	<10.0	20.6	<10.0	20.6	<16.0
ESW @ 4'	4'	10/7/2014	In-Situ	-	-	-	-	-	-	-	-	-	<16.0
ESW @ 10'	4'	10/7/2014	In-Situ	-	-	-	-	-	<10.0	<10.0	<10.0	<10.0	192
WSW @ 4'	4'	10/7/2014	In-Situ	-	-	-	-	-	-	-	-	-	<16.0
WSW @ 10'	4'	10/7/2014	In-Situ	-	-	-	-	-	<10.0	<10.0	<10.0	<10.0	640
NSW @ 4'	10'	10/8/2014	In-Situ	-	-	-	-	-	-	-	-	-	336
<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

Form C-141  
Revised August 8, 2011

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

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

**Release Notification and Corrective Action**

n HMP 1407731743		OPERATOR	<input checked="" type="checkbox"/> Initial Report	<input type="checkbox"/> Final Report
Name of Company: BOPCO, L.P. 260737		Contact: Tony Savoie		
Address: 522 W. Mermod, Suite 704 Carlsbad, N.M. 88220		Telephone No. 575-887-7329		
Facility Name: PLU-59 Tank Battery. The tank is located on the PLU-49 well pad 2960 ft. S.W. of the gas well		Facility Type: Exploration and Production		

Surface Owner: USA	Mineral Owner: USA	API No. 30-015-24196
--------------------	--------------------	----------------------

PLU-49 API 30-015-23430 LOCATION OF RELEASE

Unit Letter F	Section 17	Township 24S	Range 30E	Feet from the	North/South Line	Feet from the	East/West Line	County Eddy
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Latitude N 32.219106 Longitude W 103.908567

**NATURE OF RELEASE**

Type of Release: Produced Water	Volume of Release: 10 bbls	Volume Recovered: 5 bbls
Source of Release: Leaking production tank	Date and Hour of Occurrence: 3/14/14 time unknown	Date and Hour of Discovery: 3/14/14 at 9:50 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.\*

The tank was leaking due to internal corrosion. The tank was emptied and isolated.

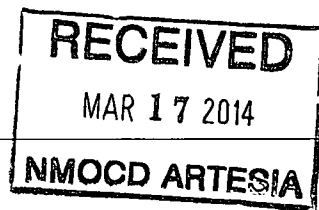
Describe Area Affected and Cleanup Action Taken.\*

The spill impacted approximately 900 sq. ft. of an area inside the earthen containment around the tank.

All of the free standing fluid was removed with a vacuum truck.

The spill will be cleaned up in accordance 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: Tony Savoie		OIL CONSERVATION DIVISION	
Printed Name: Tony Savoie		Approved by Environmental Specialist: [Signature]	
Title: Waste Management and Remediation Specialist		Approval Date: 3-18-14	Expiration Date:
E-mail Address: tasavoie@basspet.com		Conditions of Approval:	
Date: 3/17/14 Phone: 432-556-8730		Remediation per OCD Rule & Guidelines, & like approval by BLM. SUBMIT REMEDIATION PROPOSAL NO LATER THAN: 4-18-14	

\* Attach Additional Sheets If Necessary

2RP-2217





Photograph of the stained area beneath the former production tank at the PLU #59 Tank Battery.



Photograph of the affected area beneath the former production tank at the PLU #59 Tank Battery.





Photograph of excavation activities at the PLU #59 Tank Battery.



Photograph of excavation activities at the PLU #59 Tank Battery.





Photograph of excavation activities at the PLU #59 Tank Battery.



Photograph of backfilling activities at the PLU #59 Tank Battery.



Photograph of the PLU #59 Tank Battery release site after remediation activities.



Photograph of the PLU #59 Tank Battery release site after remediation activities.



April 08, 2014

JOEL LOWRY

Basin Environmental Service

P.O. Box 301

Lovington, NM 88260

RE: PLU #59 TANK BATTERY

Enclosed are the results of analyses for samples received by the laboratory on 04/02/14 12:35.

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).

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,



Celey D. Keene

Lab Director/Quality Manager

**Analytical Results For:**

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

Received: 04/02/2014  
Reported: 04/08/2014  
Project Name: PLU #59 TANK BATTERY  
Project Number: NONE GIVEN  
Project Location: EDDY COUNTY, NM

Sampling Date: 04/01/2014  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: TT @ 2' (H400974-01)**

BTX 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	04/04/2014	ND	2.01	100	2.00	1.39	
Toluene*	<0.050	0.050	04/04/2014	ND	1.92	95.8	2.00	2.21	
Ethylbenzene*	<0.050	0.050	04/04/2014	ND	1.91	95.3	2.00	0.140	
Total Xylenes*	<0.150	0.150	04/04/2014	ND	5.49	91.6	6.00	0.369	
Total BTX	<0.300	0.300	04/04/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 114 % 89.4-126

Chloride, SM4500Cl-B			mg/kg		Analyzed By: AP				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1250	16.0	04/04/2014	ND	432	108	400	7.69	

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	04/03/2014	ND	183	91.4	200	1.10	
DRO >C10-C28	155	10.0	04/03/2014	ND	203	101	200	5.74	
EXT DRO >C28-C35	<10.0	10.0	04/03/2014	ND					

Surrogate: 1-Chlorooctane 94.5 % 65.2-140

Surrogate: 1-Chlorooctadecane 107 % 63.6-154

Cardinal Laboratories

\*=Accredited Analyte

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



Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received:	04/02/2014	Sampling Date:	04/01/2014
Reported:	04/08/2014	Sampling Type:	Soil
Project Name:	PLU #59 TANK BATTERY	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	EDDY COUNTY, NM		

**Sample ID: TT @ 4' (H400974-02)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	1360	16.0	04/04/2014	ND	432	108	400	7.69		

**Sample ID: TT @ 6' (H400974-03)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2000	16.0	04/04/2014	ND	432	108	400	7.69	

**Sample ID: TT @ 8' (H400974-04)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	2320	16.0	04/04/2014	ND	432	108	400	7.69		

**Sample ID: TT @ 10' (H400974-05)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	1840	16.0	04/04/2014	ND	432	108	400	7.69		

**Sample ID: TT @ 12' (H400974-06)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2160	16.0	04/04/2014	ND	432	108	400	7.69	

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

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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.



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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

<b>Company Name:</b> Basin Environmental Service Technologies, LLC				<b>BILL TO</b>				<b>ANALYSIS REQUEST</b>																																							
<b>Project Manager:</b> Joel Lowry				<b>P.O. #:</b>				<div style="display: flex; flex-direction: column; align-items: center;"> <div>Chloride</div> <div>TPH (8015M)</div> <div>BTEX (8021B)</div> <div>HOLD FOR TPH</div> </div>																																							
<b>Address:</b> P.O. Box 301				<b>Company:</b> BOPCO, LP																																											
<b>City:</b> Lovington <b>State:</b> NM <b>Zip:</b> 88260				<b>Attn:</b> Tony Savoie																																											
<b>Phone #:</b> (575)396-2378 <b>Fax #:</b> (575)396-1429				<b>Address:</b> 522 W. Marland																																											
<b>Project #:</b> <b>Project Owner:</b>				<b>City:</b> Carlsbad																																											
<b>Project Name:</b> PLU #59 Tank Battery				<b>State:</b> NM <b>Zip:</b> 88220																																											
<b>Project Location:</b> Eddy Co., NM				<b>Phone #:</b> (432)556-8730																																											
<b>Sampler Name:</b>				<b>Fax #:</b>																																											
FOR LAB USE ONLY						MATRIX		PRESERV.		SAMPLING																																					
<b>Lab I.D.</b>		<b>Sample I.D.</b>		(G)RAB OR (C)OMP.		# CONTAINERS		GROUNDWATER		WASTEWATER		SOIL		OIL		SLUDGE		OTHER :		ACID/BASE:		ICE / COOL		OTHER :		DATE		TIME																			
H400974				G		1						x								x						4/1/14		1000		x		x		x													
1		TT @ 2'		G		1						x								x						4/1/14		1015		x				x													
2		TT @ 4'		G		1						x								x						4/1/14		1030		x				x													
3		TT @ 6'		G		1						x								x						4/1/14		1045		x				x													
4		TT @ 8'		G		1						x								x						4/1/14		1055		x				x													
5		TT @ 10'		G		1						x								x						4/1/14		1100		x				x													
6		TT @ 12'		G		1						x								x						4/1/14		1100		x				x													

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<b>Relinquished By:</b>		<b>Date:</b> 4-2-14		<b>Received By:</b>		<b>Phone Result:</b> <input type="checkbox"/> Yes <input type="checkbox"/> No		<b>Add'l Phone #:</b>	
		<b>Time:</b> 10:30				<b>Fax Result:</b> <input type="checkbox"/> Yes <input type="checkbox"/> No		<b>Add'l Fax #:</b>	
<b>Relinquished By:</b>		<b>Date:</b> 4/2/14		<b>Received By:</b>		<b>REMARKS:</b>  HOLD FOR TPH Please email results to pm@basinenv.com, TASavoie@BassPet.com & SJWalters@BassPet.com			
		<b>Time:</b> 10:35							
<b>Delivered By: (Circle One)</b>									
<b>Sampler - UPS - Bus - Other:</b>		5.62		<b>Sample Condition</b>		<b>CHECKED BY:</b>			
FORM-006				Cool Intact		(Initials)			
				<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No					
				<input type="checkbox"/> No <input type="checkbox"/> No					

Revision 1.0

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

#54

October 15, 2014

JOEL LOWRY

Basin Environmental Service

P.O. Box 301

Lovington, NM 88260

RE: PLU #59 TANK BATTERY

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,



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  
Reported: 10/15/2014  
Project Name: PLU #59 TANK BATTERY  
Project Number: NONE GIVEN  
Project Location: EDDY COUNTY, NM

Sampling Date: 10/06/2014  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Kathy Perez

**Sample ID: TT-1A@ 14' (H403116-01)**

BTX 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	10/14/2014	ND	1.88	93.9	2.00	4.94	
Toluene*	<0.050	0.050	10/14/2014	ND	1.79	89.4	2.00	4.98	
Ethylbenzene*	<0.050	0.050	10/14/2014	ND	1.70	85.1	2.00	4.62	
Total Xylenes*	<0.150	0.150	10/14/2014	ND	5.06	84.3	6.00	4.69	
Total BTX	<0.300	0.300	10/14/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 101 % 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	544	16.0	10/13/2014	ND	416	104	400	3.92		

TPH 8015M		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/13/2014	ND	173	86.4	200	3.06	
DRO >C10-C28	<10.0	10.0	10/13/2014	ND	173	86.6	200	4.38	
EXT DRO >C28-C35	<10.0	10.0	10/13/2014	ND					

Surrogate: 1-Chlorooctane 94.1 % 47.2-157

Surrogate: 1-Chlorooctadecane 103 % 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: 10/09/2014  
Reported: 10/15/2014  
Project Name: PLU #59 TANK BATTERY  
Project Number: NONE GIVEN  
Project Location: EDDY COUNTY, NM

Sampling Date: 10/06/2014  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Kathy Perez

**Sample ID: TT-1A@ 16' (H403116-02)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	448	16.0	10/13/2014	ND	416	104	400	3.92		

**Sample ID: TT-1A@ 18' (H403116-03)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	736	16.0	10/13/2014	ND	416	104	400	3.92	

**Sample ID: TT-1A@ 20' (H403116-04)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	688	16.0	10/13/2014	ND	416	104	400	3.92	

**Sample ID: TT-1A@ 22' (H403116-05)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	640	16.0	10/13/2014	ND	416	104	400	3.92	

**Sample ID: TT-1A@ 24' (H403116-06)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	336	16.0	10/13/2014	ND	416	104	400	3.92	

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



**Notes and Definitions**

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

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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**

1041

BILL TO										ANALYSIS REQUEST																											
Company Name:					P.O. #:																																
Project Manager:					Company:																																
Address: P.O. Box 301					Attn:																																
City: Lovington					Address:																																
State: NM Zip: 88260					City:																																
Phone #: (575)396-2378					Fax #:																																
Project #: (575)396-1429					State: NM Zip:																																
Project Owner:					Phone #:																																
Project Name: PLU #59 Tank Battery					Fax #:																																
Project Location: Eddy Co., NM																																					
Sampler Name:																																					
FOR LAB USE ONLY																																					
Lab I.D.		Sample I.D.		(G)RAB OR (C)OMP.		# CONTAINERS		GROUNDWATER		WASTEWATER		SOIL		OIL		SLUDGE		OTHER :		ACID/BASE:		ICE / COOL		OTHER :		DATE		TIME		Chloride		TPH (8015M)		BTEX (8021B)		HOLD FOR TPH	
H4031K		TT-1a @ 14'		g		1		x																		10/6/14		900		x		x		x			
		TT-1a @ 16'		g		1		x																		10/6/14		910		x							
		TT-1a @ 18'		g		1		x																		10/6/14		920		x							
		TT-1a @ 20'		g		1		x																		10/6/14		930		x							
		TT-1a @ 22'		g		1		x																		10/8/14		1245		x							
		TT-1a @ 24'		g		1		x																		10/8/14		1255		x							

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Relinquished By: *Joel Lowry* Date: *10/9/14* Time: *3:25* Received By: *Angela Jones* Date: *10/9/14* Time: *4:11*

Refrigerated By: *Angela Jones* Date: *10/9/14* Time: *4:11* Received By: *Angela Jones* Date: *10/9/14* Time: *4:11*

Delivered By: (Circle One) *Angela Jones* Date: *10/9/14* Time: *4:11* Received By: *Angela Jones* Date: *10/9/14* Time: *4:11*

Sample: *RM-2006 Bus - Other: -180e* Sample Condition: ☒ Yes ☐ No ☐ Intact ☐ No

Checkered By: *Angela Jones* (Initials)

REMARKS: **HOLD FOR TPH**

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

Revision: 1.0



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

---

October 14, 2014

JOEL LOWRY

Basin Environmental Service

P.O. Box 301

Lovington, NM 88260

RE: PLU #59 TANK BATTERY

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". The signature is written in a cursive style with a large, stylized 'C' and 'K'.

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  
Reported: 10/14/2014  
Project Name: PLU #59 TANK BATTERY  
Project Number: NONE GIVEN  
Project Location: EDDY COUNTY, NM

Sampling Date: 10/07/2014  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Kathy Perez

**Sample ID: NSW @ 10' (H403115-01)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	48.0	16.0	10/13/2014	ND	416	104	400	3.92	
TPH 8015M		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/13/2014	ND	173	86.4	200	3.06	
DRO >C10-C28	<10.0	10.0	10/13/2014	ND	173	86.6	200	4.38	
EXT DRO >C28-C35	<10.0	10.0	10/13/2014	ND					
Surrogate: 1-Chlorooctane	92.5 %	47.2-157							
Surrogate: 1-Chlorooctadecane	99.1 %	52.1-176							

**Sample ID: SSW @ 4' (H403115-02)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	128	16.0	10/13/2014	ND	416	104	400	3.92	

Cardinal Laboratories

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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:	10/07/2014
Reported:	10/14/2014	Sampling Type:	Soil
Project Name:	PLU #59 TANK BATTERY	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Kathy Perez
Project Location:	EDDY COUNTY, NM		

**Sample ID: SSW @ 10' (H403115-03)**

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	416	104	400	3.92	
TPH 8015M		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/13/2014	ND	173	86.4	200	3.06	
<b>DRO &gt;C10-C28</b>	<b>20.6</b>	10.0	10/13/2014	ND	173	86.6	200	4.38	
EXT DRO >C28-C35	<10.0	10.0	10/13/2014	ND					
Surrogate: 1-Chlorooctane	95.2 %	47.2-157							
Surrogate: 1-Chlorooctadecane	103 %	52.1-176							

**Sample ID: ESW @ 4' (H403115-04)**

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

Received:	10/09/2014	Sampling Date:	10/07/2014
Reported:	10/14/2014	Sampling Type:	Soil
Project Name:	PLU #59 TANK BATTERY	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Kathy Perez
Project Location:	EDDY COUNTY, NM		

**Sample ID: ESW @ 10' (H403115-05)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	192	16.0	10/13/2014	ND	416	104	400	3.92		
TPH 8015M		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	10/13/2014	ND	173	86.4	200	3.06		
DRO >C10-C28	<10.0	10.0	10/13/2014	ND	173	86.6	200	4.38		
EXT DRO >C28-C35	<10.0	10.0	10/13/2014	ND						
Surrogate: 1-Chlorooctane	100 %	47.2-157								
Surrogate: 1-Chlorooctadecane	109 %	52.1-176								

**Sample ID: WSW @ 4' (H403115-06)**

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

Received:	10/09/2014	Sampling Date:	10/07/2014
Reported:	10/14/2014	Sampling Type:	Soil
Project Name:	PLU #59 TANK BATTERY	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Kathy Perez
Project Location:	EDDY COUNTY, NM		

**Sample ID: WSW @ 10' (H403115-07)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	640	16.0	10/13/2014	ND	416	104	400	3.92	
TPH 8015M		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/13/2014	ND	173	86.4	200	3.06	
DRO >C10-C28	<10.0	10.0	10/13/2014	ND	173	86.6	200	4.38	
EXT DRO >C28-C35	<10.0	10.0	10/13/2014	ND					
<hr/>									
Surrogate: 1-Chlorooctane	98.5 %	47.2-157							
Surrogate: 1-Chlorooctadecane	109 %	52.1-176							

**Sample ID: NSW @ 4' (H403115-08)**

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>336</b>	16.0	10/13/2014	ND	416	104	400	3.92		

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\*=Accredited Analyte

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**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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# CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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