

Basin Environmental Service Technologies, LLC

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Lovington, New Mexico 88260

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REMEDIATION SUMMARY & RISK-BASED SITE CLOSURE REQUEST

**BOPCO, LP
INDIAN FLATS BASS FEDERAL WELL #3
Eddy County, New Mexico
Unit Letter "L" (NW/SW), Section 35, Township 21 South, Range 28 East
Latitude 32.434079° North, Longitude 104.064599° West
NMOCD Reference #: 2RP-2191**

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**

October 2014

**Ben J. Arguijo
Project Manager**

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1.0 INTRODUCTION & BACKGROUND INFORMATION

Basin Environmental Service Technologies, LLC (Basin Environmental), on behalf of BOPCO, LP (BOPCO), has prepared this *Remediation Summary & Risk-Based Site Closure Request* for the release site known as Indian Flats Bass Federal Well #3 (Indian Flats #3). The legal description of the release site is Unit Letter "L" (NW/SW), Section 35, Township 21 South, Range 28 East, in Eddy County, New Mexico. The geographic coordinates of the release site are 32.434079° North latitude and 104.064599° West longitude. The property affected by the release is owned by the United States Department of the Interior - Bureau of Land Management (BLM). Please reference Figure 1 for a "Site Location Map".

On January 21, 2014, BOPCO discovered a release had occurred at the Indian Flats #3 well site. A three-inch (3") polyurethane flow line had split, resulting in a release of produced water and crude oil. The release was immediately reported to the New Mexico Oil Conservation Division (NMOCD) Artesia District Office. The "Release Notification and Corrective Action" (Form C-141) indicated approximately eight barrels (8 bbls) of produced water and approximately two barrels (2 bbls) of crude oil were released, with no recovery. During initial response activities, the damaged section of pipeline was removed and replaced. The Form C-141 is provided as Appendix A. General photographs of the release site are provided in Appendix B.

The release impacted an area of the caliche well pad and adjacent drilling reserve pit measuring approximately three thousand, two hundred square feet (3,200 ft²). A portion of the release comingled with an area of historical contamination associated with the reserve pit. Prior to the release, BOPCO had requested and received NMOCD approval to cap the reserve pit with an impermeable, polyurethane liner. Remediation of the release site and capping of the liner were performed concurrently.

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 35, Township 21 South, Range 28 East. A depth-to-groundwater reference map utilized by the NMOCD indicates groundwater should be encountered approximately one hundred and forty feet (140') 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 Indian Flats #3 release site has an initial ranking score of zero (0) points. The soil remediation levels for a site with a ranking score of zero (0) points are as follows:

- Benzene – 10 mg/kg (ppm)
- Benzene, ethylbenzene, toluene, and 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 July 28, 2014, excavation of impacted soil commenced at the site. A chloride test kit was used to field-screen the horizontal extent of impacted soil and to guide the excavation. From July 28 through July 30, 2014, excavated soil was stockpiled on-site, pending final disposition.

On July 29, 2014, a series of five (5) hand-augered soil borings were advanced in the area of the reserve pit to investigate the horizontal and vertical extent of contaminated soil. Soil samples collected at the ground surface and at approximately three feet (3') bgs were field-screened with a chloride test kit. Approximately one foot (1') of impacted topsoil was removed from the reserve pit area and stockpiled on-site with the impacted soil removed from the primary excavation.

From July 30 through August 5, 2014, approximately five hundred and sixty cubic yards (560 yd³) of impacted soil was excavated and transported to Lea Land, Inc. (NMOCD Permit # WM-01-035), for disposal.

On July 30, 2014, five (5) soil samples (East Wall #1, West Wall #1, South Wall #1B, Floor #1, and Floor #2B) were collected from the floor and sidewalls of the excavation and submitted to Cardinal Laboratories in Hobbs, New Mexico, for analysis of chloride concentrations in accordance with Environmental Protection Agency (EPA) Method 4500 Cl-B. Soil sample Floor #1 was also analyzed for concentrations of TPH and BTEX in accordance with EPA Methods SW-846 8015M and SW-846 8021b, respectively. Laboratory analytical results indicated chloride concentrations ranged from 112 mg/kg in soil sample Floor #1 to 1,680 mg/kg in soil sample West Wall #1. TPH and BTEX constituent concentrations in soil sample Floor #1 were less than the appropriate laboratory method detection limit (MDL). Table 1 summarizes the "Concentrations of Benzene, BTEX, TPH & Chloride in Soil". A "Site & Sample Location Map" is provided as Figure 2. Laboratory analytical reports are provided as Appendix C.

Further excavation in the area represented by soil sample West Wall #1 was precluded by the presence of the Indian Flats #3 well and pumping unit.

Based on laboratory analytical results and field-screens, from August 1 through August 8, 2014, the excavation was backfilled with non-impacted soil, compacted, and contoured to fit the surrounding topography. Prior to backfilling, final dimensions of the excavation were approximately seventy feet (70') in length, varying in width from approximately twenty feet (20') to approximately thirty feet (30'), and averaging approximately seven feet (7') in depth.

On August 7, 2014, a twenty-millimeter (20mm), impermeable, polyurethane liner measuring approximately one hundred and fifty feet (150') in length and approximately one hundred and twenty-six feet (126') in width was installed atop the reserve pit area. Following installation, the liner was covered with non-impacted material, and the area was compacted and contoured to fit the surrounding topography.

On August 28, 2014, the excavation and reserve pit area were seeded with a BLM-approved seed mixture. Post-seeding photographs of the site are included in Appendix B.

4.0 QA/QC PROCEDURES

4.1 Soil Sampling

Soil samples were delivered to Cardinal Laboratories 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 Methods 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

The Indian Flats #3 release site was excavated to the extent practicable. Soil samples collected from the floor and sidewalls of the excavation were analyzed by an NMOCD-approved laboratory, and concentrations of benzene, BTEX, and TPH were below the regulatory remediation action levels established for the site by the NMOCD. In-situ soil exhibiting chloride contamination above the regulatory remediation action level established for the site will be remediated upon decommission and/or abandonment of the currently active well and/or pumping unit.

The reserve pit area was capped with a twenty-millimeter (20mm), impermeable, polyurethane liner. This engineered control will help mitigate future releases and effectively inhibit vertical migration of contaminants to groundwater.

Basin Environmental recommends BOPCO provide the NMOCD Artesia District Office and BLM a copy of this *Remediation Summary & Risk-Based Site Closure Request* and request the NMOCD grant site closure to the Indian Flats #3 release site.

6.0 LIMITATIONS

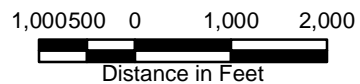
Basin Environmental Service Technologies, LLC, has prepared this *Remediation Summary & Risk-Based Site Closure Request* to the best of its ability. No other warranty, expressed or implied, is made or intended. Basin Environmental has examined and relied upon documents referenced in the report and on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

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

7.0 DISTRIBUTION:

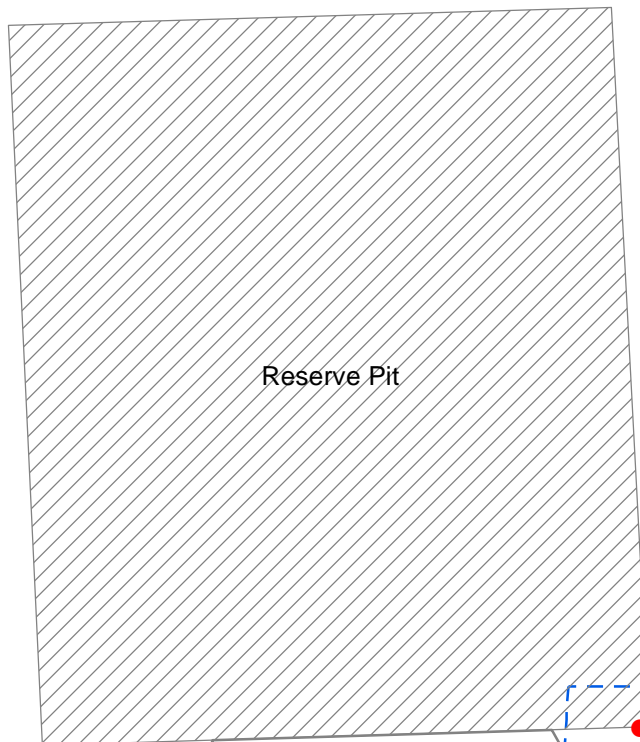
- Copy 1: Mike Bratcher
New Mexico Energy, Minerals and Natural Resources Department
Oil Conservation Division (District 2)
1301 E. Grand Avenue
Artesia, NM 88210
- Copy 2: James Amos
Bureau of Land Management
602 E. Greene Street
Carlsbad, NM 88220
- Copy 3: Tony Savoie
BOPCO, LP
522 W. Mermod, Suite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

Figures



Basin Environmental
Effective Solutions
Service Technologies

Drawn By: BJA	Checked By: BRB
August 6, 2014	Scale: 1" = 2000'



Reserve Pit

Pumping
Unit

Well

West Wall #1

Floor #1

7' bgs

East Wall #1

7' bgs

Floor #2B

South Wall #1B

10 5 0 10 20 30 40



Distance In Feet

Legend:


- - - Excavation Extent
- Pipeline
- Caliche Road/Pad
-  Reserve Pit Liner
- Sample Location

Figure 2
Site & Sample Location Map
BOPCO, LP
Indian Flats Bass Federal Well #3
Eddy County, New Mexico
NMOCD Ref. #: 2RP-2191



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

Drawn By: BJA

Checked By: BRB

November 6, 2014

Scale: 1" = 40'

Tables

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

BOPCO, LP
INDIAN FLATS BASS FEDERAL WELL #3
EDDY COUNTY, NEW MEXICO
NMOCD REFERENCE #: 2RP-2191

SAMPLE LOCATION	SAMPLE DEPTH (BGS)	SAMPLE DATE	SOIL STATUS	METHOD: EPA SW 846-8021B, 5030					METHOD: 8015M			TPH C ₆ -C ₃₅ (mg/Kg)	4500 Cl-B
				BENZENE (mg/Kg)	TOLUENE (mg/Kg)	ETHYL- BENZENE (mg/Kg)	TOTAL XYLENES (mg/Kg)	TOTAL BTEX (mg/Kg)	GRO C ₆ -C ₁₂ (mg/Kg)	DRO C ₁₂ -C ₂₈ (mg/Kg)	ORO C ₂₈ -C ₃₅ (mg/Kg)		CHLORIDE (mg/Kg)
East Wall #1	6.5'	7/30/2014	In-Situ	-	-	-	-	-	-	-	-	-	144
West Wall #1	5'	7/30/2014	In-Situ	-	-	-	-	-	-	-	-	-	1,680
South Wall #1B	5'	7/30/2014	In-Situ	-	-	-	-	-	-	-	-	-	560
Floor #1	7'	7/30/2014	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<10.0	112
Floor #2B	7'	7/30/2014	In-Situ	-	-	-	-	-	-	-	-	-	272
NMOCD Criteria				10					50			5,000	1,000

- = Not analyzed.

Appendices

Appendix A

Release Notification &

Corrective Action (Form C-141)

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 8, 2011

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

Release Notification and Corrective Action

nHMP1406926753 OPERATOR ☒ Initial Report ☐ Final Report

Name of Company: BOPCO, L.P. <u>260737</u>	Contact: Tony Savoie
Address: 522 W. Mermod, Suite 704 Carlsbad, N.M. 88220	Telephone No. 575-887-7329
Facility Name: Indian Flats Bass Federal Well#3	Facility Type: Exploration and Production

Surface Owner: Federal	Mineral Owner: Federal	API No. 30-015-21853
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LOCATION OF RELEASE

Unit Letter L	Section 35	Township 21S	Range 28E	Feet from the 1650	North/South Line South	Feet from the 330	East/West Line West	County: Eddy
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Latitude N. 32.434079 Longitude W 104.064599

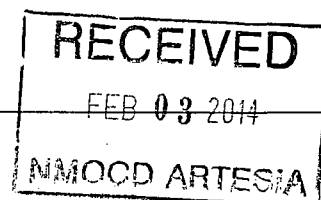
NATURE OF RELEASE

Type of Release: Crude oil and produced water	Volume of Release: 2 Bbl. Of crude oil and 8 Bbls of water	Volume Recovered: None
Source of Release: 3" poly flow line	Date and Hour of Occurrence: Date 1/24/14 Hour unknown	Date and Hour of Discovery: 1/24/14 at 11:00 a.m.
Was Immediate Notice Given? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Required	If YES, To Whom? Jim Amos with the BLM	
By Whom? Tony Savoie	Date and Hour 1/24/14 at 3:30 p.m.	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

The 3" poly flow line split, the damaged area was cut out and the pipe was fused back together.



Describe Area Affected and Cleanup Action Taken.*

The spill impacted an area measuring approximately 3200 sq.ft. on the well pad and adjacent drilling reserve pit. All of the fluid had soaked into the ground at the time of the site review.

The spill will be remediated using the NMOCD recommended guidelines for the remediation of leaks.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature: <u>Tony Savoie</u>		OIL CONSERVATION DIVISION	
Printed Name: Tony Savoie		Approved by Environmental Specialist: <u>[Signature]</u>	
Title: Waste Management and Remediation Specialist		Approval Date: <u>3/10/14</u>	Expiration Date: <u>NA</u>
E-mail Address: <u>tasavoie@basspet.com</u>		Conditions of Approval: Remediation per OCD Rule & Guidelines, & like approval by BLM. SUBMIT REMEDIATION	
Date: 2/3/14 Phone: 432-556-8730		Attached <input type="checkbox"/>	

* Attach Additional Sheets If Necessary

PROPOSAL NO LATER THAN:

4/10/14

2RP 2191

Appendix B

Photographs



Indian Flats Bass Federal Well #3 - Release Site



Indian Flats Bass Federal Well #3 - Release Site



Indian Flats Bass Federal Well #3 - Excavation



Indian Flats Bass Federal Well #3 - Excavation



Indian Flats Bass Federal Well #3 – Liner Installation, Reserve Pit Area



Indian Flats Bass Federal Well #3 - Liner Installation, Reserve Pit Area



Indian Flats Bass Federal Well #3 – Excavation & Reserve Pit Area
(Following Backfilling; Looking Northwest)



Indian Flats Bass Federal Well #3 – Reserve Pit Area
(Following Backfilling; Looking West-Northwest)



Indian Flats Bass Federal Well #3 – Excavation & Reserve Pit Area
(Following Backfilling; Looking North)



Indian Flats Bass Federal Well #3 – Excavation & Reserve Pit Area
(Following Seeding; Looking East-Northeast)



Indian Flats Bass Federal Well #3 – Reserve Pit Area
(Following Seeding; Looking North-Northeast)



Indian Flats Bass Federal Well #3 – Reserve Pit Area
(Following Seeding; Looking North-Northwest)

Appendix C

Laboratory Analytical Reports



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

July 31, 2014

BEN J. ARGUIJO

Basin Environmental Service

P.O. Box 301

Lovington, NM 88260

RE: INDIAN FLATS BASS FED #3 FLOWLINE

Enclosed are the results of analyses for samples received by the laboratory on 07/30/14 16:01.

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.

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

Received:	07/30/2014	Sampling Date:	07/30/2014
Reported:	07/31/2014	Sampling Type:	Soil
Project Name:	INDIAN FLATS BASS FED #3 FLOWLINE	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Kathy Perez
Project Location:	EDDY COUNTY, NM		

Sample ID: FLOOR #1 (H402354-01)

BTX 8021B		mg / kg		Analyzed By: MS				A-01	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/31/2014	ND	1.91	95.7	2.00	0.259	
Toluene*	<0.050	0.050	07/31/2014	ND	1.93	96.7	2.00	0.366	
Ethylbenzene*	<0.050	0.050	07/31/2014	ND	1.98	98.8	2.00	0.934	
Total Xylenes*	<0.150	0.150	07/31/2014	ND	6.04	101	6.00	0.928	
Total BTX	<0.300	0.300	07/31/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 128 % 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	112	16.0	07/31/2014	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	07/31/2014	ND	155	77.3	200	7.73	
DRO >C10-C28	<10.0	10.0	07/31/2014	ND	167	83.6	200	6.45	
EXT DRO >C28-C35	<10.0	10.0	07/31/2014	ND					

Surrogate: 1-Chlorooctane 84.8 % 65.2-140

Surrogate: 1-Chlorooctadecane 94.9 % 63.6-154

Cardinal Laboratories

*=Accredited Analyte

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Hope S. Moreno For 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:	07/30/2014	Sampling Date:	07/30/2014
Reported:	07/31/2014	Sampling Type:	Soil
Project Name:	INDIAN FLATS BASS FED #3 FLOWLINE	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Kathy Perez
Project Location:	EDDY COUNTY, NM		

Sample ID: EAST WALL #1 (H402354-02)

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	07/31/2014	ND	416	104	400	0.00	

Sample ID: WEST WALL #1 (H402354-03)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1680	16.0	07/31/2014	ND	416	104	400	0.00	

Sample ID: SOUTH WALL #1B (H402354-04)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	560	16.0	07/31/2014	ND	416	104	400	0.00	

Sample ID: FLOOR #2B (H402354-05)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	272	16.0	07/31/2014	ND	416	104	400	0.00	

Cardinal Laboratories

*=Accredited Analyte

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Hope S. Moreno For Celey D. Keene, Lab Director/Quality Manager

Notes and Definitions

A-01	Surrogate recovery was marginally high. Target analytes were non-detect. Sample data not negatively affected
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

Cardinal Laboratories

*=Accredited Analyte

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Hope S. Moreno For Celey D. Keene, Lab Director/Quality Manager



(575) 393-2326 FAX (575) 393-2476

Page 5 of 5

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