Basin Environmental Service Technologies, LLC

3100 Plains Highway
P. O. Box 301
Lovington, New Mexico 88260
bjarguijo@basinenv.com
Office: (575) 396-2378 Fax: (575) 396-1429

Effective Solutions

REMEDIATION SUMMARY &
RISK-BASED SITE CLOSURE REQUEST

BOPCO, LP
POKER LAKE UNIT 140 TANK BATTERY
Eddy County, New Mexico
UNIT LTR "E" (SW/NW), Section 32, Township 23 South, Range 30 East
Latitude 32.263241° North, Longitude 103.910834° West

Prepared For:

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

Prepared By:

Basin Environmental Service Technologies, LLC
2800 Plains Highway
Lovington, New Mexico 88260

December 2011

Ben J. Arguijo
Project Manager

TABLE OF CONTENTS

FIGURES

TABLES

APPENDICES

1.0 INTRODUCTION & BACKGROUND INFORMATION

Basin Environmental Service Technologies, LLC (Basin), on behalf of BOPCO, LP (BOPCO), has prepared this *Remediation Summary & Risk-Based Site Closure Request* for the release site known as Poker Lake Unit 140 Tank Battery. The legal description of the release site is Unit Letter "E" (SW/NW), Section 32, Township 23 South, Range 30 East, in Eddy County, New Mexico. The geographic coordinates of the release site are 32.263241° North latitude and 103.910834° 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 May 5, 2010, BOPCO discovered a release had occurred at the Poker Lake Unit 140 Tank Battery. The pump on the produced water tank malfunctioned, resulting in a release of produced water and crude oil. The release was reported to the New Mexico Oil Conservation Division (NMOCD) Artesia District Office on May 5, 2010. The "Release Notification and Corrective Action" (Form C-141) indicated approximately twenty-five barrels (25 bbls) of produced water and approximately five barrels (5 bbls) of crude oil was released. The release was confined to the cinderblock containment area around the tank battery and affected an area measuring approximately three thousand, three hundred and twenty square feet (3,320 ft^2). Approximately twenty barrels (20 bbls) of free-standing fluid was recovered, including approximately fifteen barrels (15 bbls) of produced water and approximately five barrels (5 bbls) of crude oil.

The Form C-141 is provided as Appendix A. General photographs of the release site are provided as Appendix B.

2.0 NMOCD SITE CLASSIFICATION

A search of the New Mexico Water Rights Reporting System (NMWRRS) database maintained by the New Mexico Office of the State Engineer (NMOSE) indicated information was unavailable for Section 32, Township 23 South, Range 30 East. A depth-to-groundwater reference map utilized by the NMOCD indicates groundwater should be encountered at approximately two hundred and twenty-five feet (225') to two hundred and fifty feet (250') 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 1,000 feet of the release. Based on the NMOCD ranking system, zero (0) points will be assigned to the site as a result of this criterion.

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

NMOCD guidelines indicate the Poker Lake Unit 140 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)
- BTEX – 50 mg/Kg (ppm)
- 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

Following initial response activities, on May 26, 2010, one (1) soil boring (SB-1) was advanced at the site to delineate the vertical extent of hydrocarbon impact. Soil samples were collected at five-foot (5') drilling intervals and field-screened using a Photo-Ionization Detector (PID) and/or chloride test kit. Selected soil samples were submitted to Cardinal Laboratories (Hobbs, New Mexico) for analysis of benzene, toluene, ethylbenzene, and xylenes (BTEX), total petroleum hydrocarbons (TPH), and/or chlorides using EPA methods SW-846 8021b, SW-846 8015M, and 4500 Cl-B, respectively. Table 1 summarizes the "Concentrations of Benzene, BTEX, TPH & Chlorides in Soil". A "Site & Sample Location Map" is provided as Figure 2. Soil boring logs are provided as Appendix C. Laboratory analytical reports are provided as Appendix D.

Soil boring "SB-1" was located inside the walled containment area, on the north side of the battery. The soil boring was advanced to a total depth of approximately one hundred and fifteen feet (115') bgs. Soil samples collected at ten feet (10'), twenty feet (20'), thirty feet (30'), forty feet (40'), fifty feet (50'), sixty feet (60'), seventy feet (70'), eighty feet (80'), ninety feet (90'), one hundred feet (100'), one hundred and ten feet (110') and one hundred and fifteen feet (115') bgs were submitted to the laboratory for analysis of chloride concentrations. Soil samples collected at the ground surface and thirty feet (30'), one hundred and ten feet (110'), and one hundred and fifteen feet (115') bgs were also analyzed for concentrations of BTEX and TPH.

Laboratory analytical results indicated chloride concentrations ranged from 32.0 mg/Kg in soil sample SB-1 @ 115' to 6,800 mg/Kg in soil sample SB-1 @ 20'. Benzene concentrations ranged from less than the laboratory method detection limit (MDL) in soil samples SB-1 @ 30', SB-1 @ 110', and SB-1 @ 115' to 0.480 mg/Kg in soil sample SB-1 @ Surface. BTEX concentrations ranged from less than the laboratory MDL in soil samples SB-1 @ 30', SB-1 @ 110', and SB-1 @ 115' to 40.45 mg/Kg in soil sample SB-1 @ Surface. TPH concentrations ranged from less than the laboratory MDL in soil samples SB-1 @ 30', SB-1 @ 110', and SB-1 @ 115' to 3,627 mg/Kg in soil sample SB-1 @ Surface. Review of laboratory analytical results indicated benzene, BTEX, and TPH concentrations were less than NMOCD regulatory standards.

A background soil sample (Background) was also collected in order to establish the baseline concentration of chlorides in the area. Laboratory analytical results indicated the chloride concentration was less than the laboratory MDL in soil sample Background.

On May 24, 2011, excavation of impacted soil commenced at the site. Pursuant to the *Remediation Summary and Risk-Based Closure Strategy* dated August 2010, from May 24 through June 8, 2011, approximately six inches (6") to one foot (1') of heavily saturated soil was removed from inside the containment area of the Poker Lake Unit 140 Tank Battery. The excavated soil was stockpiled on-site, pending final disposition.

A new cinderblock containment area was constructed around the tank battery, which includes perimeter walls extending approximately two feet (2') above ground surface.

All of the below-ground piping inside the containment area was replaced and elevated above the containment floor. The on-site production tanks were also emptied, cleaned, sandblasted, and inspected for holes.

On June 7, 2011, two hand-augered soil bores (HA-1 and HA-2) were advanced inside the containment area of the Poker Lake Unit 140 Tank Battery to further delineate the vertical extent of impact at the site.

Soil boring HA-1 was located on the west side of the containment area and was advanced to a total depth of approximately four feet (4'). Soil samples collected at six inches (6"), two feet (2'), and four feet (4') bgs were submitted to the laboratory for analysis of TPH and chloride concentrations. TPH concentrations ranged from 10.7 mg/Kg in soil sample HA-1 @ 6" to 150 mg/Kg in soil sample HA-1 @ 4'. Chloride concentrations ranged from less than the laboratory MDL in soil sample HA-1 @ 2' to 48.0 mg/Kg in soil sample HA-1 @ 6".

Soil boring HA-2 was located in the southwest corner of the containment area and was advanced to a total depth of approximately four feet (4'). Soil samples collected at the ground surface, two feet (2') bgs, and four feet (4') bgs were submitted to the laboratory for analysis of TPH and chloride concentrations. TPH concentrations ranged from 855 mg/Kg in soil sample HA-2 @ 2' to 5,335 mg/Kg in soil sample HA-2 @ Surface. Chloride concentrations ranged from 112 mg/Kg in soil sample HA-2 @ 4' to 1,620 mg/Kg in soil sample HA-2 @ Surface.

On June 11, 2011, Titan Liner (Carlsbad, New Mexico) installed an impervious Titan© liner in the containment area of the Poker Lake Unit 140 Tank Battery. The interiors of the on-site production tanks were also coated with an impermeable Titan© polyurethane coating.

On June 22, 2011, approximately eighty cubic yards (80 cy) of impacted soil 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., of 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 modified EPA Method SW-846 8015M
- Chloride concentrations in accordance with EPA Method SM 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 conducted at the Poker Lake Unit 140 Tank Battery release site met the objectives set forth in the *Remediation Summary and Risk-Based Closure Strategy* dated August 2010. Basin Environmental recommends BOPCO provide the NMOCD Artesia District Office and the BLM a copy of this *Remediation Summary & Risk-Based Site Closure Request* and request the NMOCD grant site closure to the Poker Lake Unit 140 Tank Battery 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 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, New Mexico 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, Ste. 704
Carlsbad, New Mexico 88220

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

Figures

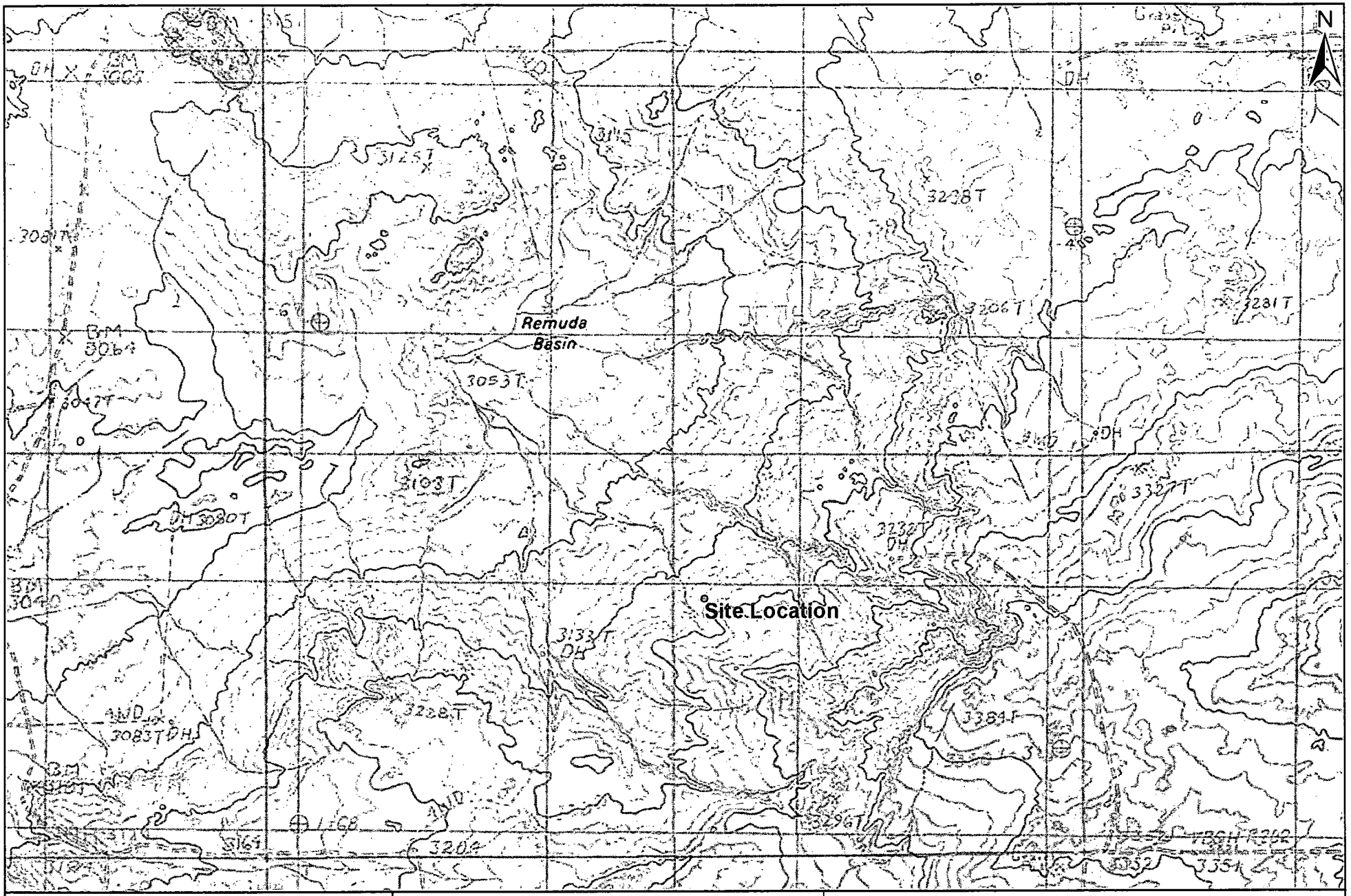
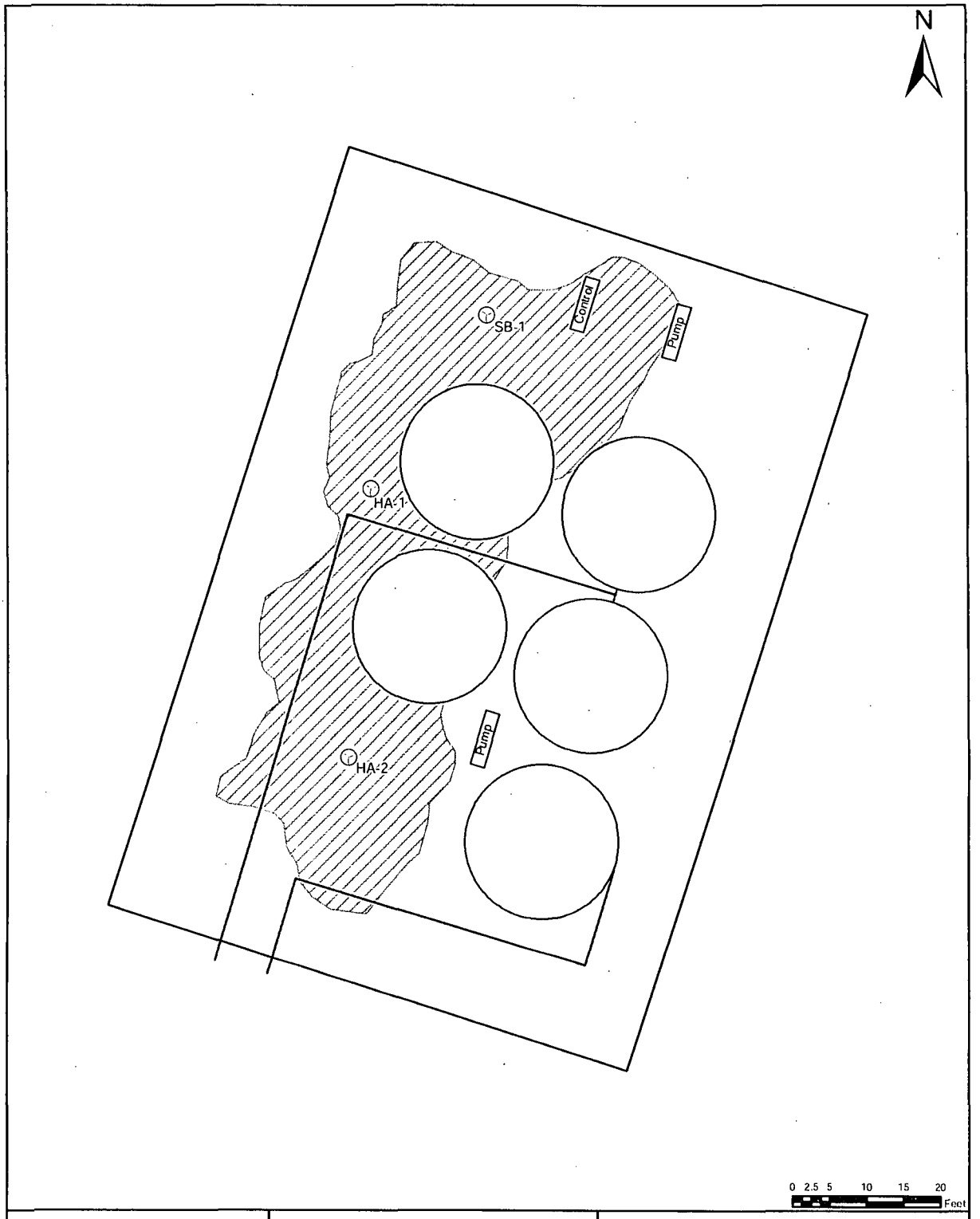


Figure 1
Site Location Map
BOPCO, LP
Poker Lake Unit 140 Tank Battery
Eddy County, New Mexico

Basin Environmental Service Technologies
Effective Solutions

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

Drawn By: BJA	Checked By: BRB
December 5, 2011	Scale: 1" = 2000'



Legend:

- Spill Margins
- Pipeline
- Soil Boring

Figure 2
Site & Sample Location Map
BOPCO, LP
Poker Lake Unit 140 Tank Battery
Eddy County, New Mexico

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

Drawn By: BJA	Checked By: SDW
December 5, 2011	Scale: 1" = 20'

Tables

TABLE 1

CONCENTRATIONS OF BENZENE, BTEX, TPH, AND CHLORIDES IN SOIL

BOPCO, LP
POKER LAKE UNIT 140 TANK BATTERY
EDDY COUNTY, NEW MEXICO

SAMPLE LOCATION	SAMPLE DEPTH (BGS)	SAMPLE DATE	SOIL STATUS	METHOD: EPA SW 846-8021B, 5030					METHOD: 8015M			TOTAL 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)
Background	Surface	5/26/2010	In-Situ	-	-	-	-	-	-	-	-	-	<16.0
SB-1 @ Surface	Surface	5/26/2010	In-Situ	0.480	11.5	5.57	22.9	40.45	931	2,680	16.3	3,627	-
SB-1 @ 10'	10'	5/26/2010	In-Situ	-	-	-	-	-	-	-	-	-	1,760
SB-1 @ 20'	20'	5/26/2010	In-Situ	-	-	-	-	-	-	-	-	-	6,800
SB-1 @ 30'	30'	5/26/2010	In-Situ	<0.050	<0.050	<0.050	<0.300	<0.300	<10.0	<10.0	<10.0	<10.0	3,040
SB-1 @ 40'	40'	5/26/2010	In-Situ	-	-	-	-	-	-	-	-	-	2,640
SB-1 @ 50'	50'	5/26/2010	In-Situ	-	-	-	-	-	-	-	-	-	672
SB-1 @ 60'	60'	5/26/2010	In-Situ	-	-	-	-	-	-	-	-	-	816
SB-1 @ 70'	70'	5/26/2010	In-Situ	-	-	-	-	-	-	-	-	-	768
SB-1 @ 80'	80'	5/26/2010	In-Situ	-	-	-	-	-	-	-	-	-	592
SB-1 @ 90'	90'	5/26/2010	In-Situ	-	-	-	-	-	-	-	-	-	960
SB-1 @ 100'	100'	5/26/2010	In-Situ	-	-	-	-	-	-	-	-	-	768
SB-1 @ 110'	110'	5/26/2010	In-Situ	<0.050	<0.050	<0.050	<0.300	<0.300	<10.0	<10.0	<10.0	<10.0	176
SB-1 @ 115'	115'	5/26/2010	In-Situ	<0.050	<0.050	<0.050	<0.300	<0.300	<10.0	<10.0	<10.0	<10.0	32.0
HA-1 @ 6"	6"	6/7/2011	In-situ	-	-	-	-	-	<10.0	10.7	<10.0	10.7	48.0
HA-1 @ 2'	2'	6/7/2011	In-situ	-	-	-	-	-	<10.0	25.6	<10.0	25.6	<16.0
HA-1 @ 4'	4'	6/7/2011	In-situ	-	-	-	-	-	<10.0	150	<10.0	150	32.0
HA-2 @ Surface	Surface	6/7/2011	In-situ	-	-	-	-	-	<50.0	5,060	275	5,335	1,620
HA-2 @ 2'	2'	6/7/2011	In-situ	-	-	-	-	-	<50.0	855	<50.0	855	144
HA-2 @ 4'	4'	6/7/2011	In-situ	-	-	-	-	-	<10.0	1,270	177	1,447	112
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
1301 W. Grand Avenue, 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

RECEIVED
MAY 13 2010
NMOCD ARTESIA

Form C-141
Revised October 10, 2003

Submit 2 Copies to appropriate District Office in accordance with Rule 116 on back side of form

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company BOPCO, L.P.	Contact Tony Savoie
Address 522 W. Mermod, Suite 704 Carlsbad, N.M. 88220	Telephone No. 432-556-8730
Facility Name Poker Lake Unit 140 Tank Battery	Facility Type E&P

Surface Owner Federal	Mineral Owner Federal	Lease No.

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
E	32	23S	30E					Eddy

Latitude N 32.263241 **Longitude W 103.910834**

NATURE OF RELEASE

Type of Release: Produced water and crude oil	Volume of Release: 25 Bbls of Produced water and 5 Bbls of Crude oil	Volume Recovered: 15 bbls of produced water and 5 bbls crude oil
Source of Release: 300 bbl produced water tank overflow	Date and Hour of Occurrence Unkown	Date and Hour of Discovery 5/5/10 8:00 a.m.
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Randy NMOCD on call operator	
By Whom? Tony Savoie	Date and Hour 5/5/10 8:23 a.m.	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.* The produced water tank overflowed due to a pump malfunction. The pump problem was corrected.

Describe Area Affected and Cleanup Action Taken.* The released fluid affected an area of approximately 3,320 sq. ft inside the cinderblock containment around the tanks, the facility does not have impervious containment in the floor of the containment area. The free standing fluids were removed. The area inside the containment area will be sampled to determine vertical extent, a remediation plan along with a new containment plan will be submitted. The Site remediation for the produced water and crude oil spill will follow the NMOCD guidelines for leaks and spills.

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 Approved by District Supervisor:
Printed Name: Tony Savoie	
Title: Waste Mgmt.& Remediation Specialist	Approval Date: / Expiration Date:
E-mail Address: TASavoie@BassPet.com	Conditions of Approval: / Attached ☐
Date: 5/13/10 Phone:432-556-8730	

* Attach Additional Sheets If Necessary

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, 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.
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RECEIVED
DEC 21 2011
NMOCD ARTESIA

Form C-141
Revised October 10, 2003

Submit 2 Copies to appropriate District Office in accordance with Rule 116 on back side of form

Release Notification and Corrective Action

OPERATOR

Initial Report X Final Report

Name of Company BOPCO, LP	Contact Tony Savoie
Address 522 W. Mermod, Suite 704, Carlsbad, NM 88220	Telephone No. (432)556-8730
Facility Name Poker Lake Unit 140 Tank Battery	Facility Type E&P

Surface Owner Federal	Mineral Owner Federal	Lease No.

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
E	32	23S	30E					Eddy

Latitude 32.263241° North **Longitude** 103.910834° West

NATURE OF RELEASE

Type of Release Produced water and crude oil	Volume of Release 25 Bbls of Produced water and 5 Bbls of Crude oil	Volume Recovered 15 bbls of produced water and 5 bbls of crude oil
Source of Release 300 bbl produced water tank overflow	Date and Hour of Occurrence Unknown	Date and Hour of Discovery 5/5/10 8:00 a.m.
Was Immediate Notice Given? X Yes No Not Required	If YES, To Whom? Randy NMOCD on call operator	
By Whom? Tony Savoie	Date and Hour 5/5/10 8:23 a.m.	
Was a Watercourse Reached? ☐ Yes X No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken:* The produced water tank overflowed due to a pump malfunction. The pump problem was corrected.

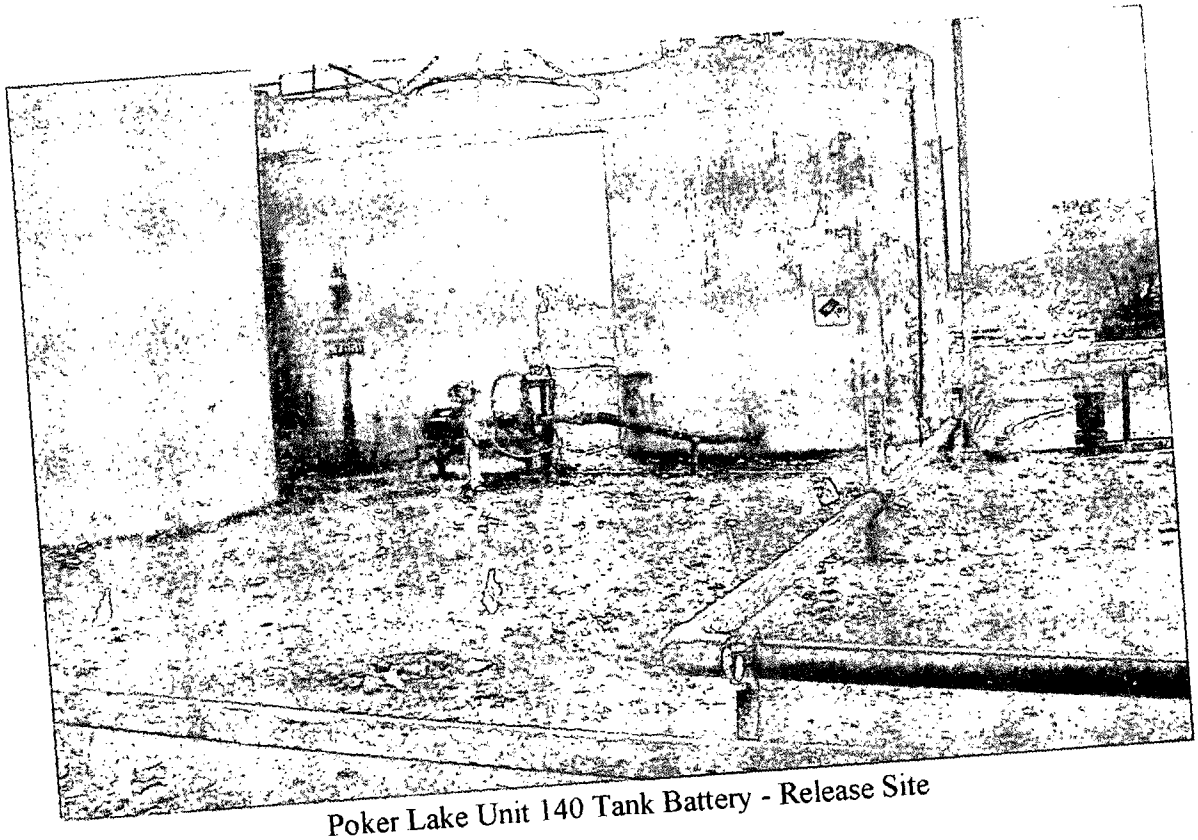
Describe Area Affected and Cleanup Action Taken.* The released fluid affected an area of approximately 3,320 sq. ft. inside the cinderblock containment around the tanks, the facility does not have impervious containment in the floor of the containment area. The free standing fluids were removed. Following initial response activities, the release was remediated as per NMOCD recommended guidelines. Please reference the attached *Remediation Summary & Risk-Based Site Closure Request* for remediation details.

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.

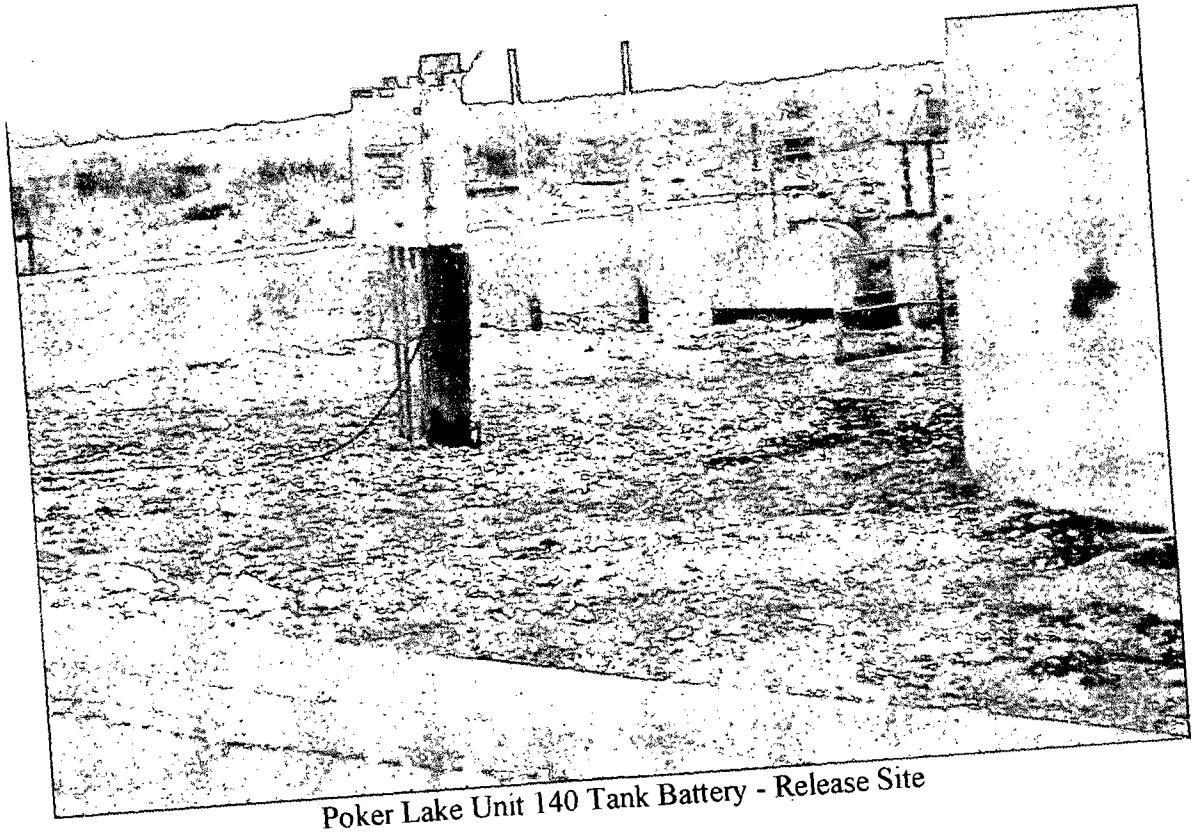
Signature: Tony Savoie	OIL CONSERVATION DIVISION	
Printed Name: Tony Savoie	Approved by District Supervisor:	
Title: Waste Mgmt. & Remediation Specialist	Approval Date:	Expiration Date:
E-mail Address: TASavoie@BassPet.com	Conditions of Approval:	
Date: 12/6/2011 Phone: (432)556-8730		

Appendix B

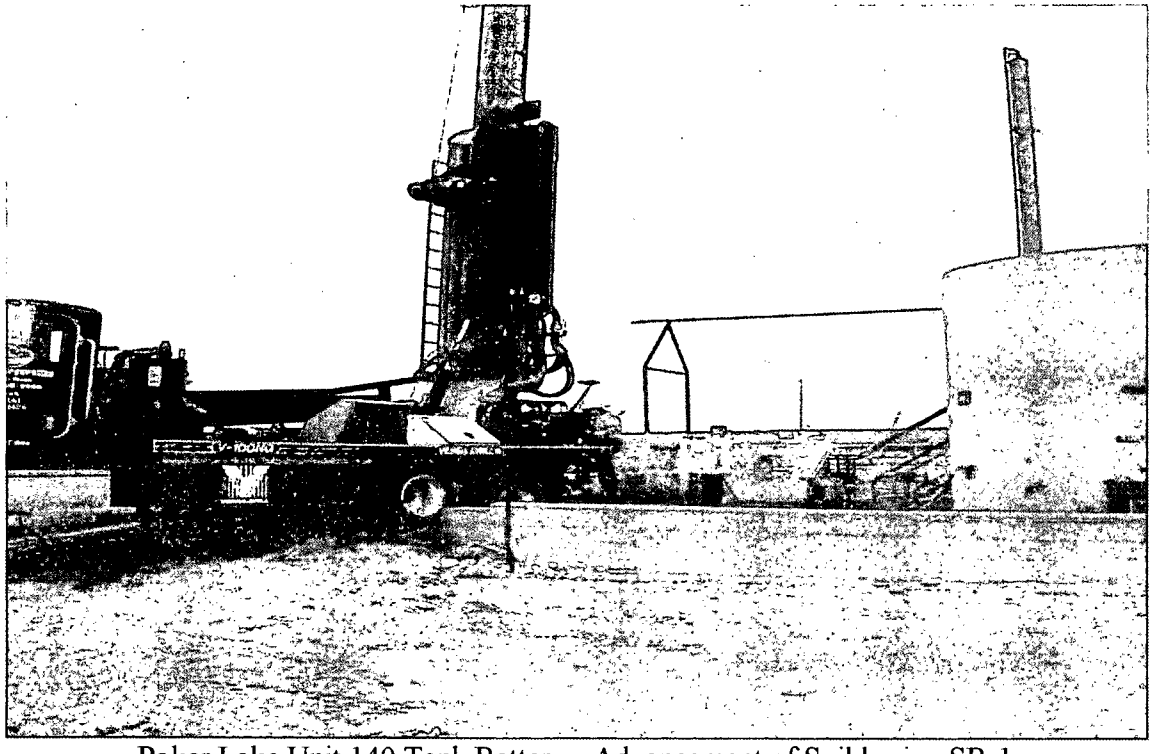
Photographs



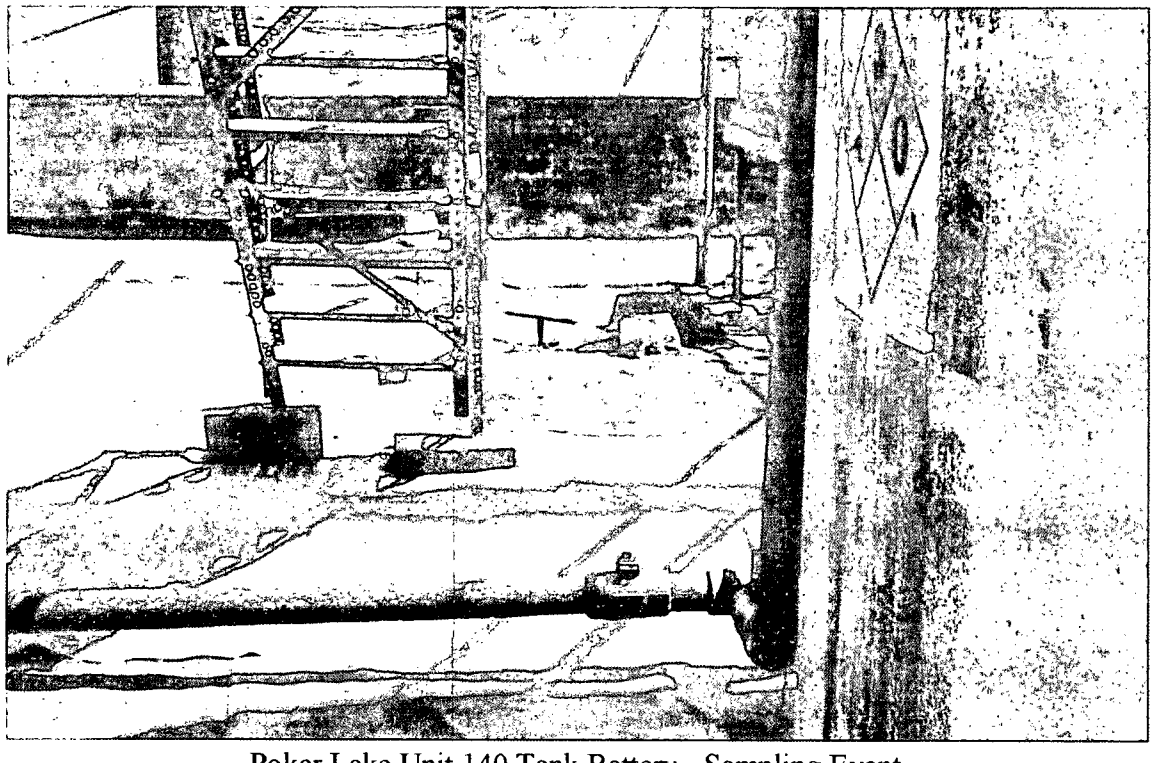
Poker Lake Unit 140 Tank Battery - Release Site



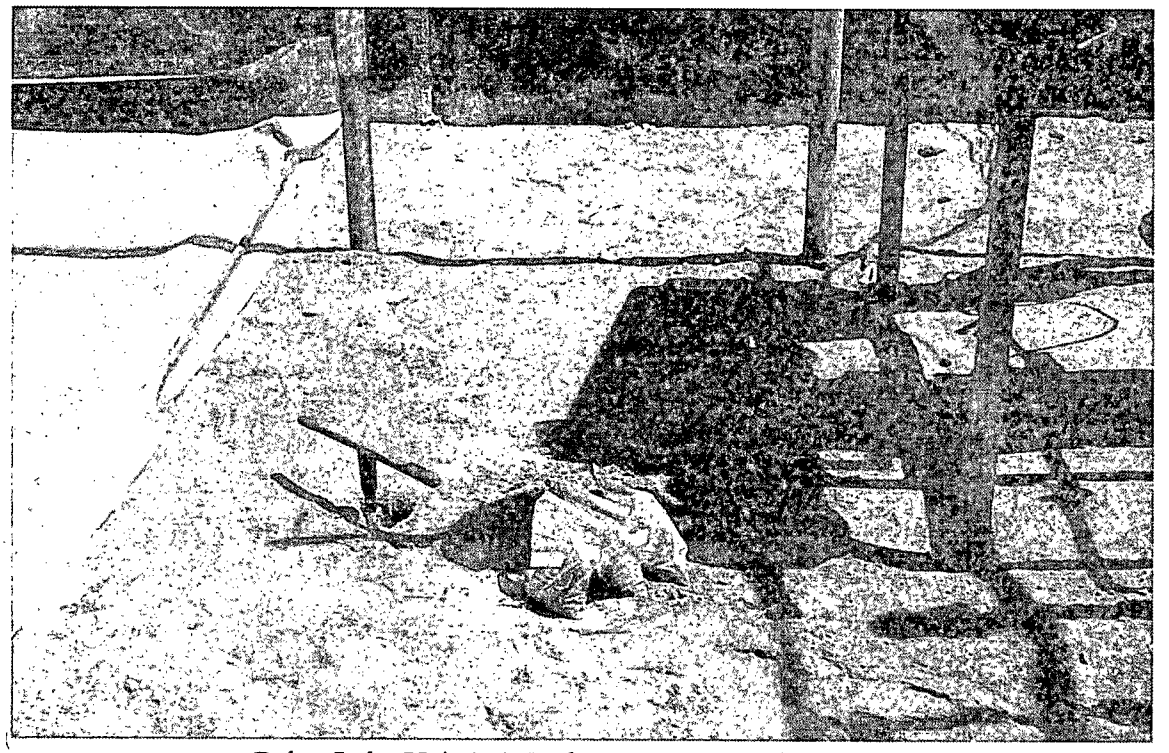
Poker Lake Unit 140 Tank Battery - Release Site



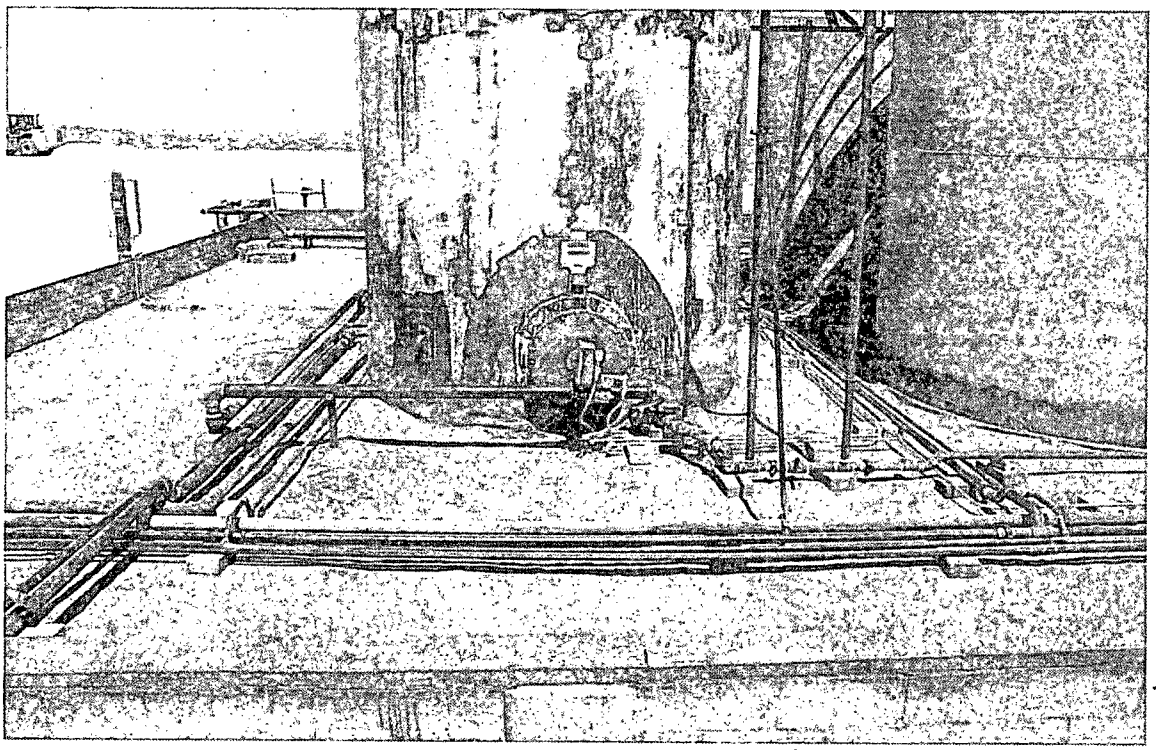
Poker Lake Unit 140 Tank Battery - Advancement of Soil boring SB-1



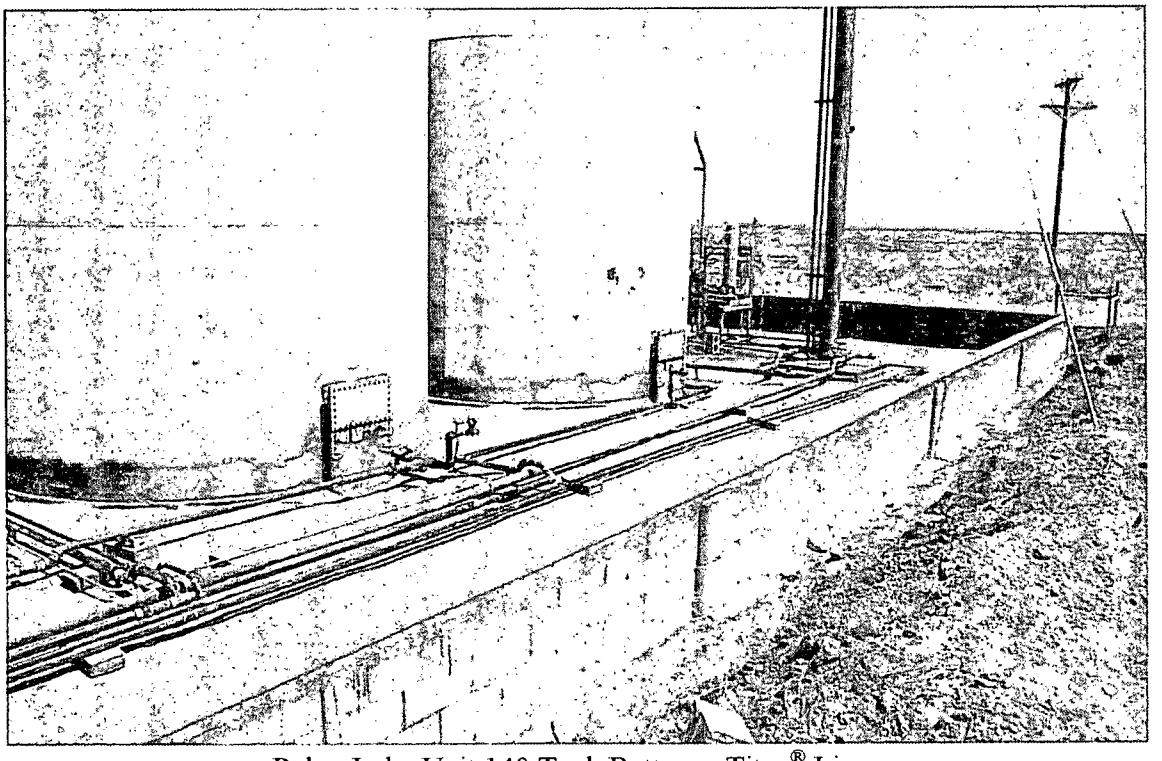
Poker Lake Unit 140 Tank Battery - Sampling Event
(sample location marked with hand auger)



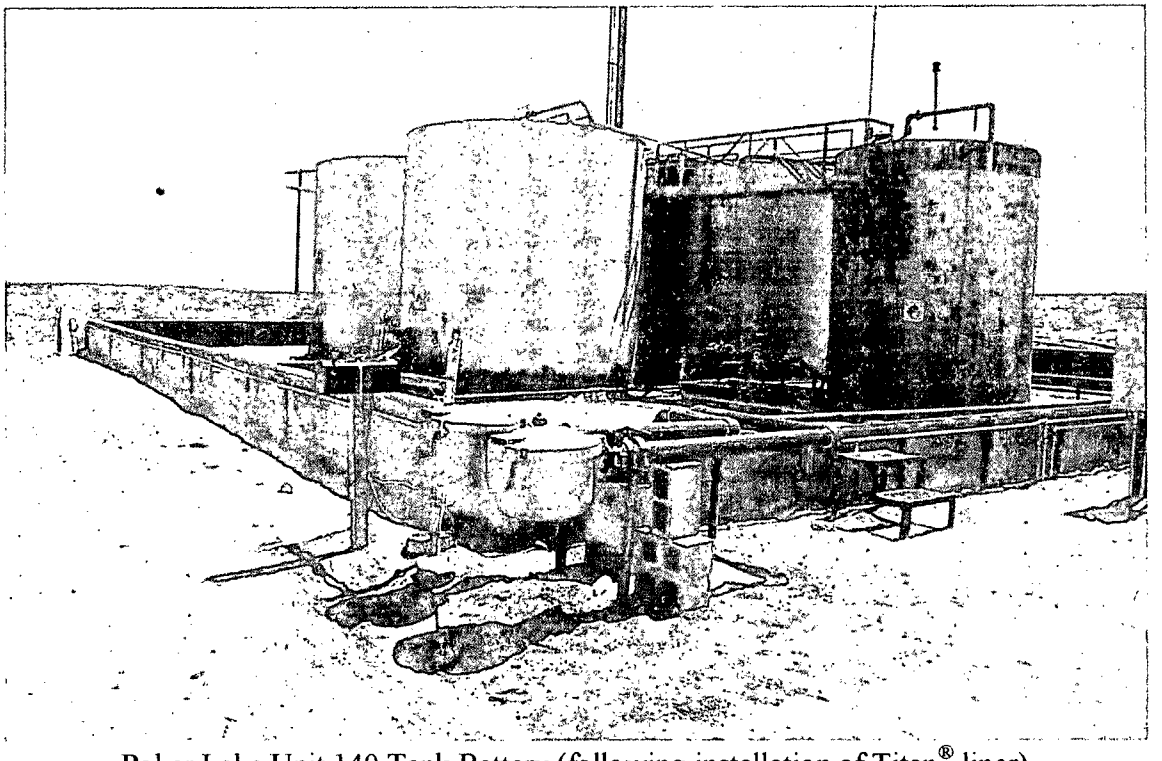
Poker Lake Unit 140 Tank Battery - Sampling Event
(sample location marked with hand auger)



Poker Lake Unit 140 Tank Battery - Titan® Liner



Poker Lake Unit 140 Tank Battery - Titan® Liner

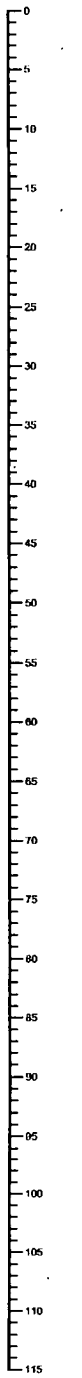


Poker Lake Unit 140 Tank Battery (following installation of Titan® liner)

Appendix C

Soil Boring Logs

Soil Boring SB-1



Depth below ground surface	Chloride Field Test	PID Reading	Petroleum Odor	Petroleum Stain	Soil Description
0	>2,500	1,017	Heavy	Moderate	0-5' - Sand, brown, very fine grained, damp
5	>2,500	148	Moderate	None	
10	>2,500	59.1	Slight	None	
15	>2,500	50.3	Slight	None	
20	>2,500	49.0	None	None	
25	>2,500	41.2	None	None	
30	>2,500	43.4	None	None	
35	1,440	33.5	None	None	
40	>2,500	36.4	None	None	5-80' - Sand, reddish brown, very fine grained, damp
45	220	33.4	None	None	
50	524	46.2	None	None	
55	>2,500	46.9	None	None	
60	436	52.8	None	None	
65	436	43.8	None	None	
70	732	26.9	None	None	
75	676	23.8	None	None	
80	792	27.4	None	None	
85	856	35.8	None	None	80-90' - Sand, dark reddish brown,fine to very fine grained with clay, dry
90	792	46.5	None	None	
95	676	48.8	None	None	90-105' - Sand, dark reddish brown, very fine grained with clay, dry
100	792	45.3	None	None	
105	856	42.7	None	None	93' - Gypsum stringer
110	220	45.2	None	None	105-115' - Silty sand, reddish brown, very fine grained with clay, dry
115 TD	<132	37.4	None	None	

Boring SB-1

Date Drilled: May 26, 2010
Thickness of Bentonite Seal: 115 Ft
Depth of Exploratory Boring: 115 Ft bgs
Depth to Groundwater: _____
Ground Water Elevation: _____

▽ Indicates the PSH level measured on _____
▼ Indicates the groundwater level measured on _____
⬭ Indicates samples selected for Laboratory Analysis.
PID Head-space reading in ppm obtained with a photo-ionization detector.

Completion Notes

1.) The soil boring was advanced on date using air rotary drilling techniques.
2.) The lines between material types shown on the profile log represent approximate boundaries. Actual transitions may be gradual.

Soil Boring SB-1

BOPCO, LP
Poker Lake Unit 140 Tank Battery
Eddy County, New Mexico

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

Prep By: BJA	Checked By: BRB
December 5, 2011	

Appendix D

Laboratory Analytical Reports

CARDINAL LABORATORIES

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

June 3, 2010

Camille Bryant
Basin Environmental Consulting, LLC.
P.O. Box 381
Lovington, NM 88260

Re: PLU 140 (BOPCO)

Enclosed are the results of analyses for sample number H19996, received by the laboratory on 05/28/10 at 8:20 am.

Cardinal Laboratories is accredited through Texas NELAP for:

Method SW-846 8021	Benzene, Toluene, Ethyl Benzene, and Total Xylenes
Method SW-846 8260	Benzene, Toluene, Ethyl Benzene, and Total Xylenes
Method TX 1005	Total Petroleum Hydrocarbons

Certificate number T104704398-08-TX. Accreditation applies to solid and chemical materials and non-potable water matrices.

Cardinal Laboratories is accredited though 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 524.2	Regulated VOCs (V2, V3)

Accreditation applies to public drinking water matrices.

Total Number of Pages of Report: 5 (includes Chain of Custody)

Sincerely,

Celey D. Keene
Laboratory Director

This report conforms with NELAP requirements.

CARDINAL LABORATORIES

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

ANALYTICAL RESULTS FOR
BASIN ENVIRONMENTAL CONSULTING, LLC
ATTN: CAMILLE BRYANT
P.O. BOX 381
LOVINGTON, NM 88260
FAX TO: (575) 396-1429

Receiving Date: 05/28/10
Reporting Date: 06/02/10
Project Owner: BOPCO
Project Name: PLU 140
Project Location: NOT GIVEN

Analysis Date: 06/02/10
Sampling Date: 05/26/10
Sample Type: SOIL
Sample Condition: COOL & INTACT @ -4°C
Sample Received By: JH
Analyzed By: HM

LAB NO.	SAMPLE ID	Cl^- (mg/kg)
H19996-1	BACKGROUND	< 16
H19996-3	SB-1 @ 10'	1,760
H19996-4	SB-1 @ 20'	6,800
H19996-5	SB-1 @ 30'	3,040
H19996-6	SB-1 @ 40'	2,640
H19996-7	SB-1 @ 50'	672
H19996-8	SB-1 @ 60'	816
H19996-9	SB-1 @ 70'	768
H19996-10	SB-1 @ 80'	592
H19996-11	SB-1 @ 90'	960
H19996-12	SB-1 @ 100'	768
H19996-13	SB-1 @ 110'	176
H19996-14	SB-1 @ 115'	32
Quality Control		500
True Value QC		500
% Recovery		100
Relative Percent Difference		< 0.1

METHOD: Standard Methods	4500-ClB

Note: Analyses performed on 1:4 w:v aqueous extracts.
Not accredited for Chloride.

Chemist

06/03/10
Date

H19996 Basin Environmental

CARDINAL LABORATORIES

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

ANALYTICAL RESULTS FOR
BASIN ENVIRONMENTAL CONSULTING, LLC
ATTN: CAMILLE BRYANT
P.O. BOX 381
LOVINGTON, NM 88260
FAX TO: (575) 396-1429

Receiving Date: 05/28/10
Reporting Date: 06/02/10
Project Owner: BOPCO
Project Name: PLU 140
Project Location: NOT GIVEN

Sampling Date: 05/26/10
Sample Type: SOIL
Sample Condition: COOL & INTACT @ -4 °C
Sample Received By: JH
Analyzed By: AB/ZL

LAB NO.	SAMPLE ID	GRO (C_6-C_{10}) (mg/kg)	DRO (>C_{10}-C_{28}) (mg/kg)	DRO ext. (>C_{28}-C_{35}) (mg/kg)	BENZENE (mg/kg)	TOLUENE (mg/kg)	ETHYL BENZENE (mg/kg)	TOTAL XYLENES (mg/kg)
ANALYSIS DATE:		05/29/10	05/29/10	05/29/10	06/01/10	06/01/10	06/01/10	06/01/10
H19996-2	SB-1 @ SURFACE	931	2,680	16.3	0.480	11.5	5.57	22.9
H19996-5	SB-1 @ 30'	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.300
H19996-13	SB-1 @ 110'	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.300
H19996-14	SB-1 @ 115'	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.300
Quality Control		467	434	-	0.019	0.020	0.019	0.060
True Value QC		500	500	-	0.020	0.020	0.020	0.060
% Recovery		93.4	86.8	-	95.0	100	95.0	100
Relative Percent Difference		0.1	8.8	-	<1.0	<1.0	<1.0	<1.0

METHODS: TPH GRO & DRO - EPA SW-846 8015 M; BTEX - SW-846 8021B.

TEXAS NELAP ACCREDITATION T104704398-08-TX FOR BENZENE, TOLUENE, ETHYL BENZENE, AND TOTAL XYLENES. Reported on wet weight. Not accredited for GRO/DRO/DRO ext.

Lab Director

06/03/10
Date

H19996 TPHextBTEX BASIN

CARDINAL LABORATORIES

101 East Marland, Hobbs, NM 88240
(505) 393-2326 FAX (505) 393-2476

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name:	Basin Consulting	**BILL TO**	
Project Manager:	Camille Bryant	P.O. #:	
Address:	P.O. Box 381	Company:	BOPCO
City:	Lovington State: NM Zip: 88260	Attn:	Tony Savoie
Phone #:	575-605-7210 Fax #:	Address:	
Project #:	Project Owner: BOPCO	City:	
Project Name:	PLU 140	State: Zip:	
Project Location:		Phone #:	
Sampler Name:	Camille Bryant	Fax #:	

FOR LAB USE ONLY				MATRIX						PRESERV.			SAMPLING		ANALYSIS REQUEST										
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	TPH 8015 M Ext	BTEX 8021b	Chloride 4500								
H19996-1	Background	6	1			X					X		5/26	830			X								
2	SB-1 @ surface	6	1			X					X		5/26	850	X	X									
3	SB-1 @ 10'	6	1			X					X		5/26	900			X								
4	SB-1 @ 20'	6	1			X					X		5/26	915			X								
5	SB-1 @ 30'	6	1			X					X		5/26	930	X	X	X								
6	SB-1 @ 40'	6	1			X					X		5/26	940			X								
7	SB-1 @ 50'	6	1			X					X		5/26	950			X								
8	SB-1 @ 60'	6	1			X					X		5/26	1000			X								
9	SB-1 @ 70'	6	1			X					X		5/26	1010			X								
10	SB-1 @ 80'	6	1			X					X		5/26	1020			X								

Relinquished By:	Date: 5/28/10	Received By:		Phone Result: ☐ Yes ☐ No	Add'l Phone #:
Jacob Lowery	Time: 8:20			Fax Result: ☐ Yes ☐ No	Add'l Fax #:
Relinquished By:	Date: 5/28/10	Received By: Jodi Henson		REMARKS:	
	Time: 8:20				
Delivered By: (Circle One)		Sample Condition	CHECKED BY:		
Sampler - UPS - Bus - Other:	-4°C	Cool: ☐ Yes ☐ No	Intact: ☑ Yes ☐ No	(Initials)	

† Cardinal cannot accept verbal changes. Please fax written changes to 505-393-2476

#26

CARDINAL LABORATORIES

101 East Marland, Hobbs, NM 88240
(505) 393-2326 FAX (505) 393-2476

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: Basin Consulting	**BILL TO**		ANALYSIS REQUEST
Project Manager: Camille Bryant	P.O. #:		
Address: P.O. Box 381	Company: BOPCO		
City: Lovington State: NM Zip: 88260	Attn: Tony Savoie		
Phone #: 575-605-7210 Fax #:	Address:		
Project #: Project Owner: BOPCO	City:		
Project Name: PLU 140	State: Zip:		
Project Location:	Phone #:		
Sampler Name: Camille Bryant	Fax #:		

FOR LAB USE ONLY				MATRIX						PRESERV.			SAMPLING															
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	ACID/BASE:	ICE / COOL	OTHER:	DATE 2010	TIME	TPH 8015M Ext	BTEX 8021B	Chloride 4500											
H19996-11	SB-1@90'	G	1			X					X		5/26	1030			X											
12	SB-1@100'	G	1			X					X		5/26	1040			X											
13	SB-1@110'	G	1			X					X		5/24	1055	X	X	X											
14	SB-1@115'	G	1			X					X		5/26	1110	X	X	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: Sooz Downy	Date: 5/28/10 Time: 8:20	Received By:	Phone Result: ☐ Yes ☐ No Add'l Phone #:
Relinquished By:	Date: 5/28/10 Time: 8:20	Received By: Jodi Henson	Fax Result: ☐ Yes ☐ No Add'l Fax #:
Delivered By: (Circle One) Sampler - UPS - Bus - Other:	Sample Condition Cool: ☐ Yes ☐ No Intact: ☐ Yes ☐ No	CHECKED BY: (Initials)	REMARKS:
	-4°C		

† Cardinal cannot accept verbal changes. Please fax written changes to 505-393-2476

#26

CARDINAL Laboratories

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

June 15, 2011

BEN J. ARGUIJO

Basin Environmental Service

P.O. Box 301

Lovington, NM 88260

RE: POKER LAKE 140

Enclosed are the results of analyses for samples received by the laboratory on 06/09/11 9:32.

Cardinal Laboratories is accredited through Texas NELAP for:

Method SW-846 8021	Benzene, Toluene, Ethyl Benzene, and Total Xylenes
Method SW-846 8260	Benzene, Toluene, Ethyl Benzene, and Total Xylenes
Method TX 1005	Total Petroleum Hydorcarbons

Certificate number T104704398-08-TX. Accreditation applies to solid and chemical materials and non-potable water matrices.

Cardinal Laboratories is accreditated 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 (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

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	06/09/2011	Sampling Date:	06/07/2011
Reported:	06/15/2011	Sampling Type:	Soil
Project Name:	POKER LAKE 140	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	EDDY CO, NM		

Sample ID: HA 1 6" BGS (H101190-01)

Chloride, SM4500Cl-B mg/kg Analyzed By: HM

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**48.0**	16.0	06/11/2011	ND	464	116	400	3.51	

TPH 8015M mg/kg Analyzed By: AB

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	06/14/2011	ND	216	108	200	1.49	
DRO >C10-C28	**10.7**	10.0	06/14/2011	ND	203	102	200	7.13	
EXT DRO >C28-C35	<10.0	10.0	06/14/2011	ND					

Surrogate: 1-Chlorooctane	*130 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*145 %*	*70-130*

Sample ID: HA 1 2' BGS (H101190-02)

Chloride, SM4500Cl-B mg/kg Analyzed By: HM

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	06/11/2011	ND	416	104	400	0.00	

TPH 8015M mg/kg Analyzed By: AB

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	06/14/2011	ND	216	108	200	1.49	
DRO >C10-C28	**25.6**	10.0	06/14/2011	ND	203	102	200	7.13	
EXT DRO >C28-C35	<10.0	10.0	06/14/2011	ND					

Surrogate: 1-Chlorooctane	*128 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*144 %*	*70-130*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	06/09/2011	Sampling Date:	06/07/2011
Reported:	06/15/2011	Sampling Type:	Soil
Project Name:	POKER LAKE 140	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	EDDY CO, NM		

Sample ID: HA 1 4' BGS (H101190-03)

Chloride, SM4500Cl-B mg/kg **Analyzed By: HM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**32.0**	16.0	06/11/2011	ND	416	104	400	0.00	

TPH 8015M mg/kg **Analyzed By: AB**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	06/14/2011	ND	216	108	200	1.49	
DRO >C10-C28	**150**	10.0	06/14/2011	ND	203	102	200	7.13	
EXT DRO >C28-C35	<10.0	10.0	06/14/2011	ND					

Surrogate: 1-Chlorooctane	*134 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*146 %*	*70-130*

Sample ID: HA 2 SURFACE (H101190-04)

Chloride, SM4500Cl-B mg/kg **Analyzed By: HM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**1620**	16.0	06/11/2011	ND	416	104	400	0.00	

TPH 8015M mg/kg **Analyzed By: AB**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<50.0	50.0	06/14/2011	ND	216	108	200	1.49	
DRO >C10-C28	**5060**	50.0	06/14/2011	ND	203	102	200	7.13	
EXT DRO >C28-C35	**275**	50.0	06/14/2011	ND					

Surrogate: 1-Chlorooctane	*135 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*152 %*	*70-130*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	06/09/2011	Sampling Date:	06/07/2011
Reported:	06/15/2011	Sampling Type:	Soil
Project Name:	POKER LAKE 140	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	EDDY CO, NM		

Sample ID: HA 2 2' BGS (H101190-05)

Chloride, SM4500Cl-B mg/kg **Analyzed By: HM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**144**	16.0	06/11/2011	ND	416	104	400	0.00	

TPH 8015M mg/kg **Analyzed By: AB**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<50.0	50.0	06/14/2011	ND	216	108	200	1.49	
DRO >C10-C28	**855**	50.0	06/14/2011	ND	203	102	200	7.13	
EXT DRO >C28-C35	<50.0	50.0	06/14/2011	ND					

Surrogate: 1-Chlorooctane	*141 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*160 %*	*70-130*

Sample ID: HA 2 4' BGS (H101190-06)

Chloride, SM4500Cl-B mg/kg **Analyzed By: HM**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**112**	16.0	06/11/2011	ND	416	104	400	0.00	

TPH 8015M mg/kg **Analyzed By: AB**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	06/14/2011	ND	216	108	200	1.49	
DRO >C10-C28	**1270**	10.0	06/14/2011	ND	203	102	200	7.13	
EXT DRO >C28-C35	**177**	10.0	06/14/2011	ND					

Surrogate: 1-Chlorooctane	*125 %*	*70-130*
Surrogate: 1-Chlorooctadecane	*135 %*	*70-130*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Notes and Definitions

Z-01	One or more surrogates above historical limits.
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

Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Company Name: Basin Environmental Service Technologies, LLC	**BILL TO**
Project Manager: Ben J. Arguijo	P.O. #:
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. Mermod
Project #: Project Owner: BOPCO, LP	City: Carlsbad
Project Name: Poker Lake 140	State: NM Zip: 88220
Project Location: Poker Lake 140 EDDY NM	Phone #: (432)556-8730
Sampler Name: Jodi Walters	Fax #:

FOR LAB USE ONLY				MATRIX						PRESERV			SAMPLING		ANALYSIS REQUEST												
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	BOISM	Chlorides	Hold For BTEX	Pan									
H10190-1	HA1 6" BGS	G	1			X					X		6-7-11	10:50	X	X	X	X									
2	HA1 2' BGS	G	1			X					X		6-7-11	10:55	X	X	X	X									
3	HA1 4' BGS	G	1			X					X		6-7-11	11:00	X	X	X	X									
4	HA2 Surface	G	1			X					X		6-7-11	11:10	X	X	X	X									
5	HA2 2' BGS	G	1			X					X		6-7-11	11:15	X	X	X	X									
6	HA2 4' BGS	G	1			X					X		6-7-11	11:20	X	X	X	X									

Relinquished By:	Date: 6-8-11	Received By:	Phone Result: ☐ Yes ☐ No Add'l Phone #:
	Time: 5:36PM	Dakota Ward	Fax Result: ☐ Yes ☐ No Add'l Fax #:
Relinquished By: Dakota Ward	Date: 6-9-11	Received By:	REMARKS:
	Time: 07:32		Please email results to pm@basinenv.com & TAsavoie@BassPet.com
Delivered By: (Circle One) Sampler - UPS - Bus - Other:	5° C	Sample Condition Cool: Yes / No Intact: Yes / No	CHECKED BY: (Initials)

† Cardinal cannot accept verbal changes. Please fax written changes to 505-393-2476

#26