



**RECEIVED**

*By JKeyes at 2:06 pm, Mar 28, 2016*

**APPROVED**

*By JKeyes at 2:06 pm, Mar 28, 2016*

PO Box 2948 | Hobbs, NM 88241 | Phone 575.393.2967

**March 28, 2016**

**Attn. Jamie Keyes**

Environmental Specialists, District 1

Oil Conservation Division, EMNRD

1625 N. French Drive

Hobbs, NM 88240

**RE: Path Forward**

**Chisos Limited**

**John's B Federal #6 Battery**

**UL/I, J, O, P sec. 26 T17S R32E**

**1RP – 3911-0**

Mr. Keyes:

Chisos Limited (Chisos) has retained Basin Environmental Service Technologies (Basin) to address potential environmental concerns at the above-referenced site.

### **Background and Previous Work**

The site is located approximately four (4) miles northwest of Maljamar, New Mexico at Unit Letter I, J, O, P of Section 26 in Township 17 South of Range 32 East. This site is located in an area where groundwater is anticipated to be at approximately sixty-nine (69) +/- feet below ground surface (bgs).

Around October 8<sup>th</sup>, 2015, Chisos discovered a release of approximately fifty (50) barrels (bbls) of produced water when an electrical problem occurred causing a water tank to run over. Approximately forty-six (46) bbls were recovered. Approximately two-thousand eight-hundred twenty-five (2,825) square feet (ft<sup>2</sup>) of battery pad was impacted. In addition, there was a historical release in the pasture that impacted approximate four-thousand two-hundred thirteen (4,213) ft<sup>2</sup>. New Mexico Oil Conservation Division (NMOCD) was notified of the release on October 8<sup>th</sup>, 2015, and an initial C-141 was submitted to NMOCD on October 8<sup>th</sup>, 2015, for approval.

Basin personnel were on site beginning January 13<sup>th</sup>, 2016, to begin delineation activities. Five (5) sample points within the battery release area were established. The sample points, (PT.1, PT.2, PT.3, PT.4, PT.5) from the release area were field tested for chlorides and organic vapors. Confirmatory samples were submitted to a NMOCD approved and certified laboratory. Chloride, gasoline Range organics (GRO) and diesel range organics (DRO) were analyzed. In addition, sample points (PT.6, PT.7) in the pasture were also analyzed for chloride, GRO, and DRO.

On January 28<sup>th</sup>, 2016, Basin personnel constructed test trenches in the release area to determine the depth of impact. These test trenches are represented by areas (Area 2, Area 4&5, Area 6). The test trenches were field tested for chlorides and organic vapors. Confirmatory samples were submitted to a NMOCD approved and certified laboratory. Chloride, gasoline Range organics (GRO) and diesel range organics (DRO) were analyzed. In addition, a sample from Area 4&5 and a sample from Area 6 were submitted for benzene, toluene, ethylbenzene, xylenes (BTEX) concentration analysis.

### **Corrective Action Plan**

All sample points other than the area around PT.7 require further delineation for either chloride and/or total petroleum hydrocarbons (TPH) as shown by analytical reports from the approved laboratory. PT.7 concentrations of TPH and chloride were within the limits established for remediation clean-up at two (2) feet bgs with groundwater being less than one-hundred (100) feet bgs. Therefore, further delineation will occur until all sample points are within the NMOCD limits for chlorides (250 mg/kg) and a concentration from a photo-ionization detector (PID) of less than 100 mg/kg.

At minimum, three (3) sample points will be established on the eastern side of the tank battery to assess impacted soils from the current and/or historical release. At the completion of delineation of all sample points, NMOCD will be notified. Upon approval to proceed, the impacted soils will be excavated to a maximum depth of four (4) feet bgs. At this depth, a twenty (20) mil liner will be installed in order to prevent migration of contaminants into the vadose zone. The excavated area will then be backfill with clean, non-impacted material and contoured to the surrounding area. The pasture area will be seeded with a blend of native vegetation free from noxious weeds.

The supporting documentation for this Corrective Action Plan is attached.

Basin appreciates the opportunity to work with you on this project. Please contact me if you have any questions or wish to discuss the site.

Sincerely,



Robbie Runnels  
Project Manager  
Basin Environmental Service Technologies  
(575) 393-2967

Attachments:

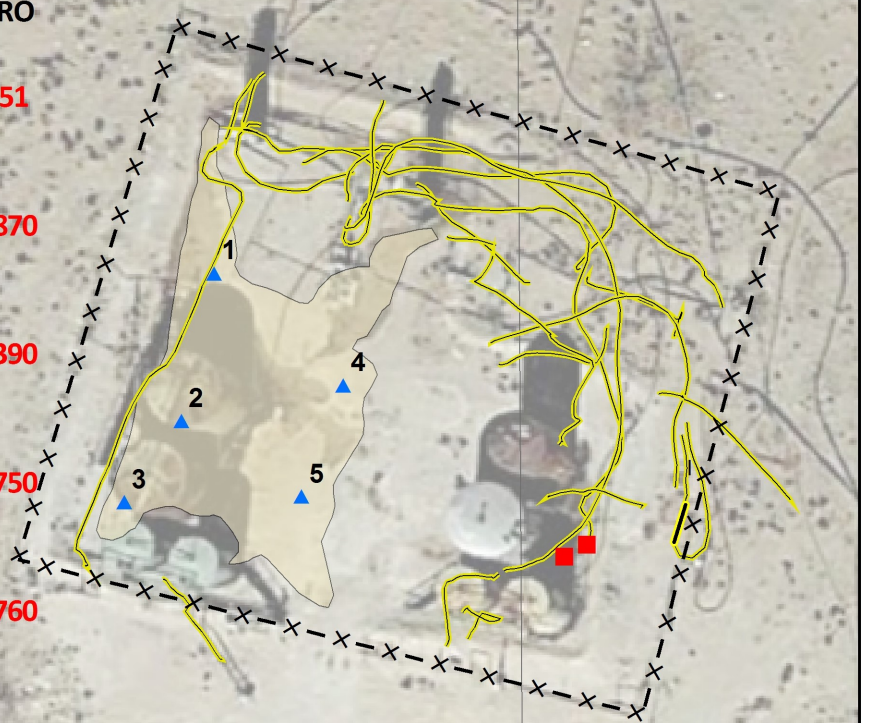
- Figure 1- Initial Sampling Data
- Figure 2 – Test Trenches
- Appendix A – Initial C-141
- Appendix B – Laboratory Analysis
- Appendix C – Photo Documentation

FIGURE 1

Initial Sampling

# Initial Sampling

Sample Description	Cl-	PID	GRO	DRO
Point 1 Surface	1684	0		
Point 1 @ 2'	1180	0	<50	551
Point 2 Surface	115	0		
Point 2 @ 2'	368	35.5	679	6870
Point 3 Surface	88	0		
Point 3 @ 2'	448	3	40.5	4390
Point 4 Surface	2438	5.4		
Point 4 @ 2'	4320 <sup>J</sup>	40.3	154	2750
Point 5 Surface	2888	0.8		
Point 5 @ 2'	2880	3.7	32.3	4760
Point 6 Surface	117	0		
Point 6 @ 2'	<16	184.5	2530	23900
Point 7 Surface	111	0		
Point 7 @ 2'	64	0.6	<50	143



Landowner: State  
DGW: 69 ft

- Legend**
- GENERATOR
  - ▲ SAMPLE POINT
  - × - FENCE
  - RISER
  - SURFACE LINE
  - ASPHALTINE - 4,213 SQ FT
  - STAIN - 2,825 SQ FT



**CHISOS, LTD.**  
**JOHNS 'B' FEDERAL**  
**#6 BATTERY**

UL I,J,O & P SECTION 26  
T-17-S R-32-E  
LEA COUNTY, NM

**Underground facilities are  
spatially projected  
and need to be field verified.**

GPS: 32.802018 -103.733089

0 25 50  
Feet

GPS date: 1/13/16 KL  
Drawing date: 1/14/16  
Drafted by: T. Grieco

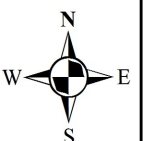




FIGURE 2

Area Sampling



# Johns B Federal #6 Battery

Chisos LTD  
Test Trenches

## Legend

- Area 2 Test Trench
- Area 4&5 Test Trench
- Area 6 Test Trench
- Asphaltine
- Feature 1
- Release Area

32.802018, -103.733089

Google earth

© 2016 Google

100 ft





# APPENDICES

# APPENDIX A

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

OPERATOR

☐ Initial Report ☐ Final Report

Name of Company	CHISOS LIMITED	Contact	
Address	670 DONA ANA ROAD SW	Telephone No.	
Facility Name	JOHN'S B 6	Facility Type	

Surface Owner	Mineral Owner	API No.
---------------	---------------	---------

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
	26	17S	32E					

Latitude \_\_\_\_\_ Longitude \_\_\_\_\_

NATURE OF RELEASE

Type of Release	PRODUCED WATER	Volume of Release	50 BBLs	Volume Recovered	46 BBLs
Source of Release		Date and Hour of Occurrence		Date and Hour of Discovery	
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.\*

ELECTRIC PROBLEM, WATER TANK RAN OVER. / REMOVED DIRT  
/ PREFORMING  
/ SAMPLING NOW.

Describe Area Affected and Cleanup Action Taken.\*

BATTERY AREA, + SOUTH OF LOCATION

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>Jason Robinson</u>	OIL CONSERVATION DIVISION		
Printed Name: <u>JASON ROBINSON</u>	Approved by Environmental Specialist:		
Title:	Approval Date:	Expiration Date:	
E-mail Address: <u>ZEKEZENALUDY@AOL.COM</u>	Conditions of Approval:		Attached <input type="checkbox"/>
Date: <u>10-8-2015</u> Phone: <u>234-8714</u>			

\* Attach Additional Sheets If Necessary

# APPENDIX B

## Laboratory Analysis

January 26, 2016

JASON ROBINSON

CHISOS OPERATING

670 DONA ANA ROAD, SW

DEMMING, NM 88244

RE: JOHNS B FED #6 BATTERY

Enclosed are the results of analyses for samples received by the laboratory on 01/15/16 9:00.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-15-7. 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:**

CHISOS OPERATING  
JASON ROBINSON  
670 DONA ANA ROAD, SW  
DEMING NM, 88244  
Fax To:

Received: 01/15/2016  
Reported: 01/26/2016  
Project Name: JOHNS B FED #6 BATTERY  
Project Number: NONE GIVEN  
Project Location: SE OF MALJAMAR, NM

Sampling Date: 01/13/2016  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: PT. 1 @ 2' (H600079-01)**

Chloride, SM4500Cl-B		mg/kg	Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>1180</b>	16.0	01/15/2016	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	<50.0	50.0	01/15/2016	ND	183	91.7	200	1.20	
<b>DRO &gt;C10-C28</b>	<b>551</b>	50.0	01/15/2016	ND	180	89.8	200	2.57	
Surrogate: 1-Chlorooctane	78.9 %	35-147							
Surrogate: 1-Chlorooctadecane	100 %	28-171							

**Sample ID: PT. 2 @ 2' (H600079-02)**

Chloride, SM4500Cl-B		mg/kg	Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>368</b>	16.0	01/15/2016	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
<b>GRO C6-C10</b>	<b>679</b>	200	01/15/2016	ND	183	91.7	200	1.20	
<b>DRO &gt;C10-C28</b>	<b>6870</b>	200	01/15/2016	ND	180	89.8	200	2.57	
Surrogate: 1-Chlorooctane	123 %	35-147							
Surrogate: 1-Chlorooctadecane	171 %	28-171							

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



**Analytical Results For:**

CHISOS OPERATING  
JASON ROBINSON  
670 DONA ANA ROAD, SW  
DEMING NM, 88244  
Fax To:

Received: 01/15/2016  
Reported: 01/26/2016  
Project Name: JOHNS B FED #6 BATTERY  
Project Number: NONE GIVEN  
Project Location: SE OF MALJAMAR, NM

Sampling Date: 01/13/2016  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: PT. 3 @ 2' (H600079-03)**

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	01/15/2016	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	40.5	10.0	01/18/2016	ND	183	91.7	200	1.20	
DRO >C10-C28	4390	10.0	01/18/2016	ND	180	89.8	200	2.57	

Surrogate: 1-Chlorooctane 97.3 % 35-147

Surrogate: 1-Chlorooctadecane 143 % 28-171

**Sample ID: PT. 4 @ 2' (H600079-04)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	4320	16.0	01/15/2016	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	154	10.0	01/18/2016	ND	183	91.7	200	1.20	
DRO >C10-C28	2750	10.0	01/18/2016	ND	180	89.8	200	2.57	

Surrogate: 1-Chlorooctane 99.8 % 35-147

Surrogate: 1-Chlorooctadecane 163 % 28-171

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

CHISOS OPERATING  
JASON ROBINSON  
670 DONA ANA ROAD, SW  
DEMING NM, 88244  
Fax To:

Received: 01/15/2016  
Reported: 01/26/2016  
Project Name: JOHNS B FED #6 BATTERY  
Project Number: NONE GIVEN  
Project Location: SE OF MALJAMAR, NM

Sampling Date: 01/13/2016  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: PT. 5 @ 2' (H600079-05)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	2880	16.0	01/15/2016	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	32.3	10.0	01/18/2016	ND	183	91.7	200	1.20		
DRO >C10-C28	4760	10.0	01/18/2016	ND	180	89.8	200	2.57		

Surrogate: 1-Chlorooctane 94.1 % 35-147

Surrogate: 1-Chlorooctadecane 168 % 28-171

**Sample ID: PT. 6 @ 2' (H600079-06)**

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	01/15/2016	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	2530	500	01/15/2016	ND	183	91.7	200	1.20		
DRO >C10-C28	23900	500	01/15/2016	ND	180	89.8	200	2.57		

Surrogate: 1-Chlorooctane 195 % 35-147

Surrogate: 1-Chlorooctadecane 438 % 28-171

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

CHISOS OPERATING  
JASON ROBINSON  
670 DONA ANA ROAD, SW  
DEMING NM, 88244  
Fax To:

Received: 01/15/2016  
Reported: 01/26/2016  
Project Name: JOHNS B FED #6 BATTERY  
Project Number: NONE GIVEN  
Project Location: SE OF MALJAMAR, NM

Sampling Date: 01/13/2016  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: PT. 7 @ 2' (H600079-07)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	64.0	16.0	01/15/2016	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	<50.0	50.0	01/15/2016	ND	183	91.7	200	1.20		
DRO >C10-C28	143	50.0	01/15/2016	ND	180	89.8	200	2.57		

Surrogate: 1-Chlorooctane 64.0 % 35-147

Surrogate: 1-Chlorooctadecane 91.6 % 28-171

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

### Notes and Definitions

- S-06            The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interference's.
- 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

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Celey D. Keene, Lab Director/Quality Manager



ARDINAL LABORATORIES

101 East Marland, Hobbs, NM 88240 2111 Beechwood, Abilene, TX 79603  
(505) 393-2326 FAX (505) 393-2476 (325) 673-7001 FAX (325) 673-7020

## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: Chisos, LTD		P.O. #:		BILL TO										ANALYSIS REQUEST									
Project Manager: Kyle Norman		Company:																					
Address:		Attn:																					
City:		Address:																					
State:		City:																					
Zip:		State:																					
Phone #:		Fax #:																					
Project #:		Project Owner:																					
Project Name:		State:																					
Project Location: Johns "B" Federal #6 Battery		Phone #:																					
Fax #:		Zip:																					
Sample Name: Kyle Norman		Fax #:																					
FOR LAB USE ONLY		PRESERV		SAMPLING																			
Lab I.D.		MATRIX																					
Sample I.D.		GROUNDWATER																					
		WASTEWATER																					
		SOIL																					
		OIL																					
		SLUDGE																					
		OTHER :																					
		ACID/BASE:																					
		ICE / COOL																					
		OTHER :																					
DATE		TIME																					
Pt. 1 @ 2'		✓																					
Pt. 2 @ 2'		✓																					
Pt. 3 @ 2'		✓																					
Pt. 4 @ 2'		✓																					
Pt. 5 @ 2'		✓																					
Pt. 6 @ 2'		✓																					
Pt. 7 @ 2'		✓																					
Pt. 1 @ 2'		✓																					
Pt. 2 @ 2'		✓																					
Pt. 3 @ 2'		✓																					
Pt. 4 @ 2'		✓																					
Pt. 5 @ 2'		✓																					
Pt. 6 @ 2'		✓																					
Pt. 7 @ 2'		✓																					
Pt. 1 @ 2'		✓																					
Pt. 2 @ 2'		✓																					
Pt. 3 @ 2'		✓																					
Pt. 4 @ 2'		✓																					
Pt. 5 @ 2'		✓																					
Pt. 6 @ 2'		✓																					
Pt. 7 @ 2'		✓																					
Pt. 1 @ 2'		✓																					
Pt. 2 @ 2'		✓																					
Pt. 3 @ 2'		✓																					
Pt. 4 @ 2'		✓																					
Pt. 5 @ 2'		✓																					
Pt. 6 @ 2'		✓																					
Pt. 7 @ 2'		✓																					
Pt. 1 @ 2'		✓																					
Pt. 2 @ 2'		✓																					
Pt. 3 @ 2'		✓																					
Pt. 4 @ 2'		✓																					
Pt. 5 @ 2'		✓																					
Pt. 6 @ 2'		✓																					
Pt. 7 @ 2'		✓																					
Pt. 1 @ 2'		✓																					
Pt. 2 @ 2'		✓																					
Pt. 3 @ 2'		✓																					
Pt. 4 @ 2'		✓																					
Pt. 5 @ 2'		✓																					
Pt. 6 @ 2'		✓																					
Pt. 7 @ 2'		✓																					
Pt. 1 @ 2'		✓																					
Pt. 2 @ 2'		✓																					
Pt. 3 @ 2'		✓																					
Pt. 4 @ 2'		✓																					
Pt. 5 @ 2'		✓																					
Pt. 6 @ 2'		✓																					
Pt. 7 @ 2'		✓																					
Pt. 1 @ 2'		✓																					
Pt. 2 @ 2'		✓																					
Pt. 3 @ 2'		✓																					
Pt. 4 @ 2'		✓																					
Pt. 5 @ 2'		✓																					
Pt. 6 @ 2'		✓																					
Pt. 7 @ 2'		✓																					
Pt. 1 @ 2'		✓																					
Pt. 2 @ 2'		✓																					
Pt. 3 @ 2'		✓																					
Pt. 4 @ 2'		✓																					
Pt. 5 @ 2'		✓																					
Pt. 6 @ 2'		✓																					
Pt. 7 @ 2'		✓																					
Pt. 1 @ 2'		✓																					
Pt. 2 @ 2'		✓																					
Pt. 3 @ 2'		✓																					
Pt. 4 @ 2'		✓																					
Pt. 5 @ 2'		✓																					
Pt. 6 @ 2'		✓																					
Pt. 7 @ 2'		✓																					
Pt. 1 @ 2'		✓																					

February 05, 2016

BEN J. ARGUIJO

Basin Environmental Service

P.O. Box 301

Lovington, NM 88260

RE: JOHNS 'B' FEDERAL #6 BATTERY

Enclosed are the results of analyses for samples received by the laboratory on 02/02/16 8:40.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-15-7. 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  
BEN J. ARGUIJO  
P.O. Box 301  
Lovington NM, 88260  
Fax To: (575) 396-1429

Received:	02/02/2016	Sampling Date:	01/28/2016
Reported:	02/05/2016	Sampling Type:	Soil
Project Name:	JOHNS 'B' FEDERAL #6 BATTERY	Sampling Condition:	Cool & Intact
Project Number:	AFE 26056	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: AREA 6 @ 6' (H600230-01)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	32.0	16.0	02/03/2016	ND	432	108	400	0.00		
TPH 8015M		mg/kg		Analyzed By: MS						S-06
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	1190	100	02/02/2016	ND	214	107	200	2.54		
DRO >C10-C28	7830	100	02/02/2016	ND	208	104	200	6.50		
EXT DRO >C28-C35	1300	100	02/02/2016	ND						
<hr/>										
Surrogate: 1-Chlorooctane	189 %	35-147								
Surrogate: 1-Chlorooctadecane	194 %	28-171								

**Sample ID: AREA 6 @ 13' (H600230-02)**

TPH 8015M		mg/kg	Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	445	50.0	02/02/2016	ND	214	107	200	2.54	
DRO >C10-C28	3170	50.0	02/02/2016	ND	208	104	200	6.50	
EXT DRO >C28-C35	516	50.0	02/02/2016	ND					
Surrogate: 1-Chlorooctane	120 %	35-147							
Surrogate: 1-Chlorooctadecane	116 %	28-171							

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received:	02/02/2016	Sampling Date:	01/28/2016
Reported:	02/05/2016	Sampling Type:	Soil
Project Name:	JOHNS 'B' FEDERAL #6 BATTERY	Sampling Condition:	Cool & Intact
Project Number:	AFE 26056	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: AREA 6 @ 18' (H600230-03)**

BTX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.200	0.200	02/04/2016	ND	2.15	107	2.00	4.06		
Toluene*	1.17	0.200	02/04/2016	ND	2.12	106	2.00	3.54		
Ethylbenzene*	7.73	0.200	02/04/2016	ND	1.94	96.8	2.00	2.54		
Total Xylenes*	14.3	0.600	02/04/2016	ND	5.82	96.9	6.00	2.65		
Total BTX	23.2	1.20	02/04/2016	ND						

Surrogate: 4-Bromofluorobenzene (PID) 122 % 73.6-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	80.0	16.0	02/03/2016	ND	432	108	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	462	50.0	02/02/2016	ND	214	107	200	2.54		
DRO >C10-C28	3380	50.0	02/02/2016	ND	208	104	200	6.50		
EXT DRO >C28-C35	609	50.0	02/02/2016	ND						

Surrogate: 1-Chlorooctane 122 % 35-147

Surrogate: 1-Chlorooctadecane 118 % 28-171

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Celey D. Keene, Lab Director/Quality Manager



**Analytical Results For:**

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

Received:	02/02/2016	Sampling Date:	01/28/2016
Reported:	02/05/2016	Sampling Type:	Soil
Project Name:	JOHNS 'B' FEDERAL #6 BATTERY	Sampling Condition:	Cool & Intact
Project Number:	AFE 26056	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: AREA 4 & 5 @ 3' (H600230-04)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	2040	16.0	02/03/2016	ND	432	108	400	0.00		
TPH 8015M		mg/kg		Analyzed By: MS						S-06
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	811	200	02/02/2016	ND	214	107	200	2.54		
DRO >C10-C28	7170	200	02/02/2016	ND	208	104	200	6.50		
EXT DRO >C28-C35	1430	200	02/02/2016	ND						
Surrogate: 1-Chlorooctane	122 %	35-147								
Surrogate: 1-Chlorooctadecane	176 %	28-171								

**Sample ID: AREA 4 & 5 @ 6' (H600230-05)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	656	16.0	02/03/2016	ND	432	108	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	561	50.0	02/02/2016	ND	214	107	200	2.54	
DRO >C10-C28	4650	50.0	02/02/2016	ND	208	104	200	6.50	
EXT DRO >C28-C35	734	50.0	02/02/2016	ND					
Surrogate: 1-Chlorooctane	128 %	35-147							
Surrogate: 1-Chlorooctadecane	138 %	28-171							

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received:	02/02/2016	Sampling Date:	01/28/2016
Reported:	02/05/2016	Sampling Type:	Soil
Project Name:	JOHNS 'B' FEDERAL #6 BATTERY	Sampling Condition:	Cool & Intact
Project Number:	AFE 26056	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: AREA 4 & 5 @ 8' (H600230-06)**

BTEx 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/04/2016	ND	2.15	107	2.00	4.06		
Toluene*	<0.050	0.050	02/04/2016	ND	2.12	106	2.00	3.54		
Ethylbenzene*	0.109	0.050	02/04/2016	ND	1.94	96.8	2.00	2.54		
Total Xylenes*	0.208	0.150	02/04/2016	ND	5.82	96.9	6.00	2.65		
Total BTEX	0.317	0.300	02/04/2016	ND						

Surrogate: 4-Bromofluorobenzene (PID) 106 % 73.6-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	496	16.0	02/03/2016	ND	432	108	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	14.7	10.0	02/02/2016	ND	214	107	200	2.54	
DRO >C10-C28	513	10.0	02/02/2016	ND	208	104	200	6.50	
EXT DRO >C28-C35	89.7	10.0	02/02/2016	ND					

Surrogate: 1-Chlorooctane 82.7 % 35-147

Surrogate: 1-Chlorooctadecane 87.7 % 28-171

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received:	02/02/2016	Sampling Date:	01/28/2016
Reported:	02/05/2016	Sampling Type:	Soil
Project Name:	JOHNS 'B' FEDERAL #6 BATTERY	Sampling Condition:	Cool & Intact
Project Number:	AFE 26056	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: AREA 2 @ 3' (H600230-07)**

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	02/02/2016	ND	214	107	200	2.54	
<b>DRO &gt;C10-C28</b>	<b>308</b>	10.0	02/02/2016	ND	208	104	200	6.50	
<b>EXT DRO &gt;C28-C35</b>	<b>92.6</b>	10.0	02/02/2016	ND					
<hr/>									
Surrogate: 1-Chlorooctane	75.6 %	35-147							
Surrogate: 1-Chlorooctadecane	84.9 %	28-171							

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

Received:	02/02/2016	Sampling Date:	01/28/2016
Reported:	02/05/2016	Sampling Type:	Soil
Project Name:	JOHNS 'B' FEDERAL #6 BATTERY	Sampling Condition:	Cool & Intact
Project Number:	AFE 26056	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: AREA 2 @ 8' (H600230-08)**

BTEx 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/04/2016	ND	2.15	107	2.00	4.06	
Toluene*	<0.050	0.050	02/04/2016	ND	2.12	106	2.00	3.54	
Ethylbenzene*	<0.050	0.050	02/04/2016	ND	1.94	96.8	2.00	2.54	
Total Xylenes*	<0.150	0.150	02/04/2016	ND	5.82	96.9	6.00	2.65	
Total BTEx	<0.300	0.300	02/04/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 102 % 73.6-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	1960	16.0	02/03/2016	ND	432	108	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	02/02/2016	ND	214	107	200	2.54	
DRO >C10-C28	545	10.0	02/02/2016	ND	208	104	200	6.50	
EXT DRO >C28-C35	186	10.0	02/02/2016	ND					

Surrogate: 1-Chlorooctane 83.4 % 35-147

Surrogate: 1-Chlorooctadecane 103 % 28-171

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Celey D. Keene, Lab Director/Quality Manager

### Notes and Definitions

S-06	The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interference's.
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





# APPENDIX C

## Photo Documentation

# Chisos Limited - John's B Federal #6 Battery

Unit Letter I, J, O, P, Section 26, T17S, R32E



Historical release area, facing east

1/13/16



Initial release area, sampling, facing north

1/13/16



Initial release area, sampling, facing south

1/13/16



Historical release, sampling, facing north

1/13/16