

Closure Report

Site Description

Site Name:	Bose Ikard 4 State Com #027H
Company:	COG Operating, LLC
Legal Description:	U/L M, Section 4, T17S, R29E
County:	Eddy County, NM
GPS Coordinates:	N 32.85900° W 104.08727°

Release Data

Date of Release:	04/20/2016
Type of Release:	Oil and produced water
Source of Release:	Well head
Volume of Release:	4 bbls oil, 8 bbls produced water
Volume Recovered:	3 bbls oil, 6 bbls produced water

Remediation Specifications

Remediation Parameters:	Excavate the leak area near SP1 to a depth of 1.5 feet. Excavate the leak area near SP2 and SP3 to a depth of 6 inches. Dispose of excavated soils at R360(Halfway). Backfill the site with clean soil.	
Remediation Activities:	12/08/2016 to 12/12/2016	
Plan Sent to OCD:	11/21/2016	Email from Cliff Brunson to Mike Bratcher
OCD Approval of Plan:	11/29/2016	Email from Mike Bratcher to Cliff Brunson
Plan Sent to SLO:	11/21/2016	Email from Cliff Brunson to Amber Groves
SLO Approval of Plan:	11/30/2016	Email from Amber Groves to Cliff Brunson

Supporting Documentation

Initial C-141	Signed 05/03/2016
Final C-141	Signed 01/03/2017
Site Diagram	November 2016
Groundwater Plot	75'
TOPO Maps	November 2016
Lab Summary	09/15/2016 and 11/01/2016
Lab Analysis	09/15/2016 and 11/01/2016
Correspondence	Request and approval of remediation plan via email

Request for Closure

Based on the completion of the remediation plan as agreed upon, BBC International requests closure approval from NMOCD.

Cliff Brunson, President of BBC International Inc.

01/05/2016

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: COG Operating LLC	Contact: Robert McNeill
Address: 600 West Illinois Avenue, Midland TX 79701	Telephone No. 432-230-0077
Facility Name: BOSE IKARD 4 STATE COM #027H	Facility Type: Wellhead

Surface Owner: State	Mineral Owner: Fee	API No. 30-015-42785
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LOCATION OF RELEASE

Unit Letter M	Section 04	Township 17S	Range 29E	Feet from the 990'	North/South Line South	Feet from the 330'	East/West Line West	County Eddy
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Latitude 32.859179808994 Longitude -104.087360415183

NATURE OF RELEASE

Type of Release: Oil & Produced Water	Volume of Release: 4 bbls Oil ; 8 bbls PW	Volume Recovered: 3 bbls Oil ; 6 bbls PW
Source of Release: Well head	Date and Hour of Occurrence: 4/20/2016 7:00 am	Date and Hour of Discovery: 4/20/2016 7:00 am
Was Immediate Notice Given? ☐ Yes ☐ No ☒ Not Required	If YES, To Whom?	
By Whom?	Date and Hour:	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

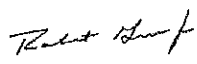
Describe Cause of Problem and Remedial Action Taken.*

This release was caused by a nipple on the wellhead. A vacuum truck was dispatched to recover all standing fluid and Microblaze was applied.

Describe Area Affected and Cleanup Action Taken.*

This release occurred at the wellhead and ran into the pasture. Concho will have the spill site sampled to delineate any possible contamination from the release and we will present a remediation work plan to the NMOCD for approval prior to any significant remediation work.

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: 		OIL CONSERVATION DIVISION	
Printed Name: Robert Grubbs Jr.		Approved by Environmental Specialist:	
Title: Senior Environmental Coordinator		Approval Date:	Expiration Date:
E-mail Address: rgrubbs@concho.com		Conditions of Approval:	
Date: May 3, 2016 Phone: 432-683-7443		Attached ☐	

* Attach Additional Sheets If Necessary .

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: COG Operating LLC	Contact: Robert McNeill	
Address: 600 West Illinois Avenue, Midland, TX 79701	Telephone No. 432-230-0077	
Facility Name: Bose Ikard 4 State Com #027H	Facility Type: Well	
Surface Owner: State	Mineral Owner: Fee	API No. 30-015-42785

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
M	4	17S	29E	990	South	330	West	Eddy County, NM

Latitude N 32.85900° Longitude W 104.08727°

NATURE OF RELEASE

Type of Release: Oil and Produced water	Volume of Release: 4 bbls oil, 8 bbls produced water	Volume Recovered: 3 bbls oil, 6 bbls produced water
Source of Release: Well head	Date and Hour of Occurrence 04/20/2016 @ 7:00 am	Date and Hour of Discovery 04/20/2016 @ 7:00 am
Was Immediate Notice Given? ☐ Yes ☐ No ☒ Not Required	If YES, To Whom?	
By Whom?	Date and Hour:	
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 release was caused by a faulty nipple on the well head. A vacuum truck was dispatched to recover all standing fluid and Microblaze was applied.

Describe Area Affected and Cleanup Action Taken.*

This release occurred at the wellhead and ran into the pasture. The site was delineated and a remediation plan was created. Remediation was completed in accordance with the remediation plan approved by Mike Bratcher of NMOCD via email on 11/29/2016 and approved by Amber Groves of the SLO via email on 11/30/2016.

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.

OIL CONSERVATION DIVISION

Signature:

Printed Name: Robert Grubbs Jr

Title: Senior Environmental Coordinator

E-mail Address: rgrubbs@concho.com

Date: January 3, 2017

Phone: (432) 683-7443

Approved by Environmental Specialist:

Approval Date:

Expiration Date:

Conditions of Approval:

Attached ☐

* Attach Additional Sheets If Necessary



COG

Bose Ikard 4 State Com #027H (04/20/2016)

Road

Location

50' x 30' 1.5' Excavation

SP1



Stake

50' x 22'

6" Excavation

SP2

120' x 9'

SP3

180' x 3'

Old Abandoned well/pit area, COG spill path did not cause the impact present, No remediation required by COG

120' x 30'

T1

T2

Poly lines

Road

U/L M, Section 4, T17S, R29E

Eddy County, NM

N 32.85900° W 104.08727°

BBC International, Inc.

COG

Bose Ikard 4 State Com #027H

Date: 11/03/2016

DRWG by: K. Purvis

NOT TO SCALE

File: COG 2016



Groundwater Plot

COG Bose Ikard 4 State Com #027H

County
Eddy

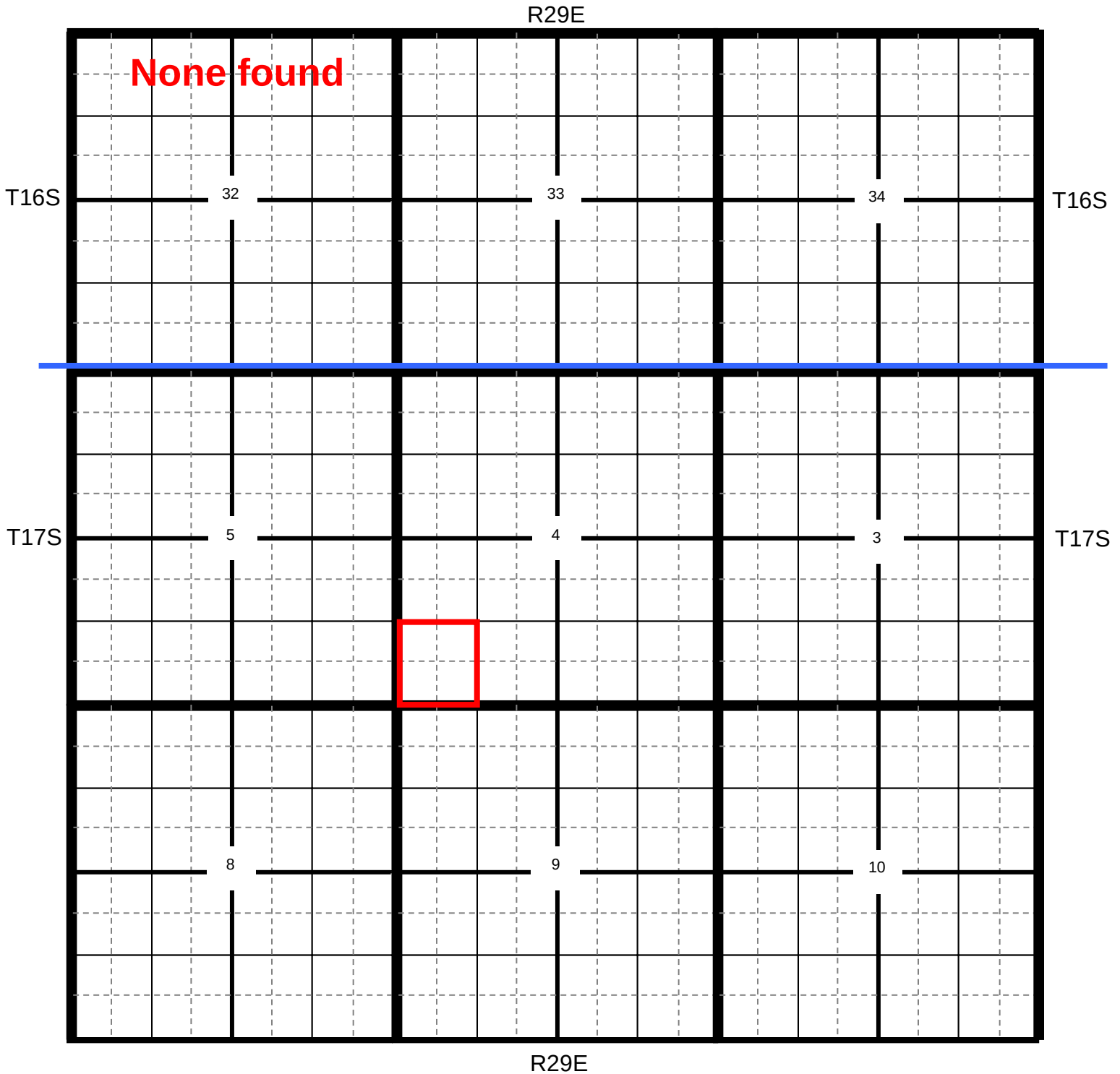
Unit Letter
M

Section
4

Township
17S

Range
29E

Trend Map 75'



📍 Location

● OCD

● USGS

● SEO

● All Databases

COG Bose Ikard 4 State Com #027H

County Eddy Unit Letter M Section 4 Township 17S Range 29E

Trend Map 75'

1

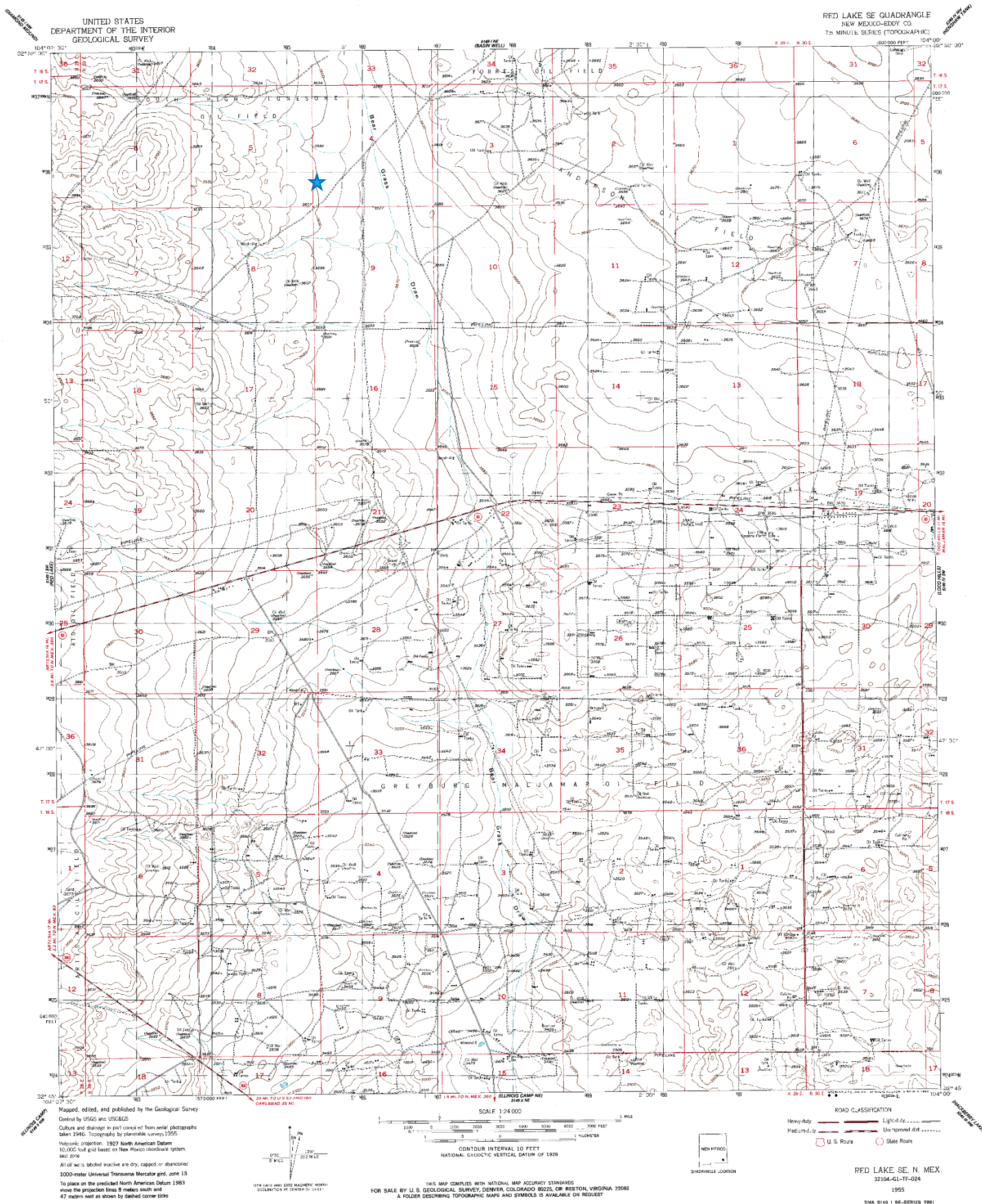
2

NW/NW None found	NE/NW	NW/NE	NE/NE
Unit Letter D	Unit Letter C	Unit Letter B	Unit Letter A
SW/NW	SE/NW	SW/NE	SE/NE
Unit Letter E	Unit Letter F	Unit Letter G	Unit Letter H
NW/SW	NE/SW	NW/SE	NE/SE
Unit Letter L	Unit Letter K	Unit Letter J	Unit Letter I
SW/SW	SE/SW	SW/SE	SE/SE
Unit Letter M	Unit Letter N	Unit Letter O	Unit Letter P

3

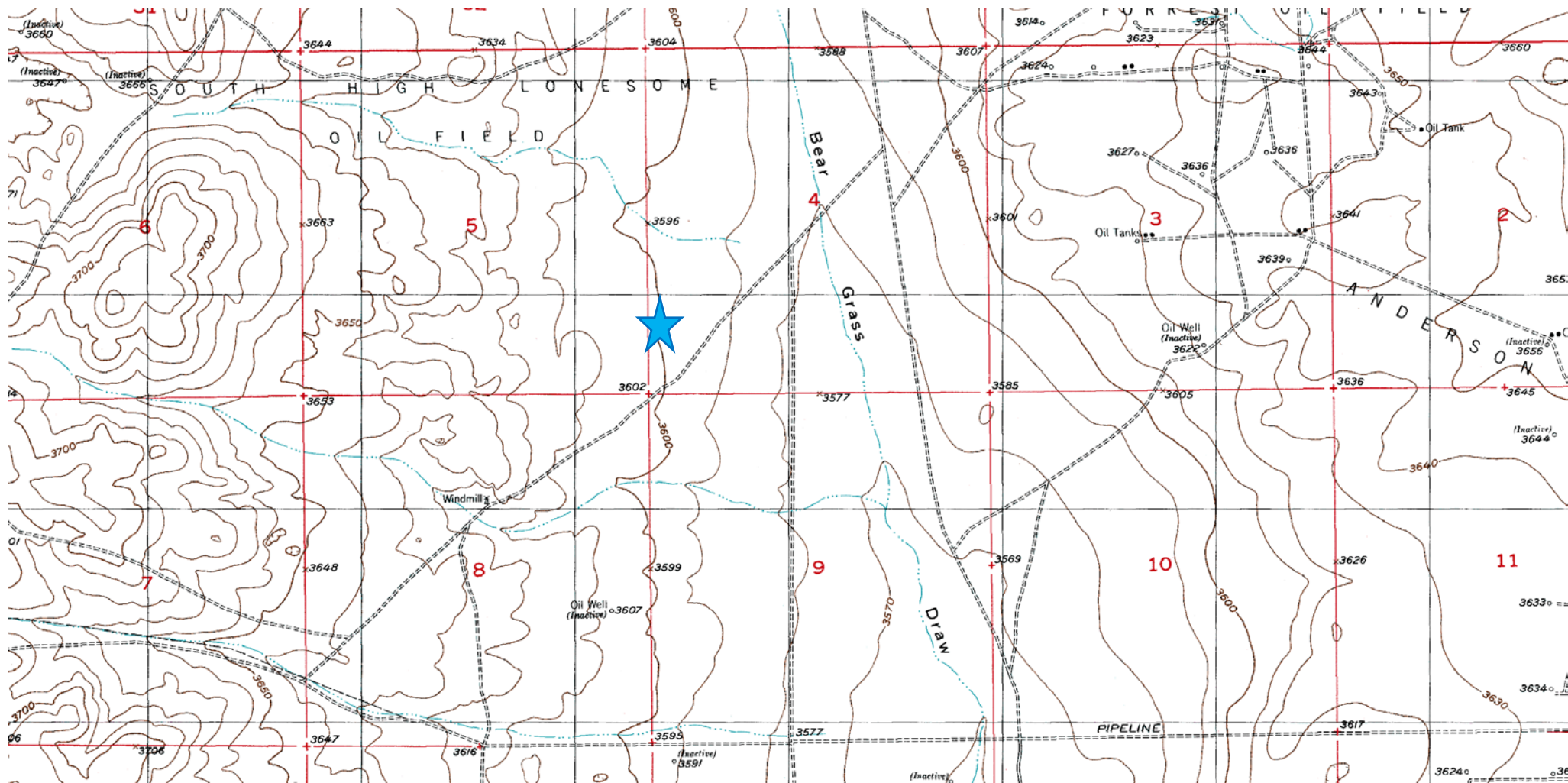
4

Bose Ikard 4 State Com #027H



COG

Bose Ikard 4 State Com #027H



Bose Ikard 4 State Come #027H

		Sample	T1 @ 0-1'	T1 @ 2'	T1 @ 4'	T1 @ 6'
Analyte	Method	Date	9/15/16	9/15/16	9/15/16	9/15/16
			mg/Kg	mg/Kg	mg/Kg	mg/Kg
Benzene	S 8021B		<0.0212	<0.0212	<0.0212	<0.0212
Toluene	S 8021B		<0.0212	<0.0212	<0.0212	<0.0212
Ethylbenzene	S 8021B		<0.0212	<0.0212	<0.0212	<0.0212
Xylene	S 8021B		<0.0212	<0.0212	<0.0212	<0.0212
Chloride	SM4500Cl-B		168	1630	879	729
GRO	S 8015 D		<50.0	<50.0	<50.0	<50.0
DRO	S 8015 D		<4.24	<4.24	<4.24	<4.24

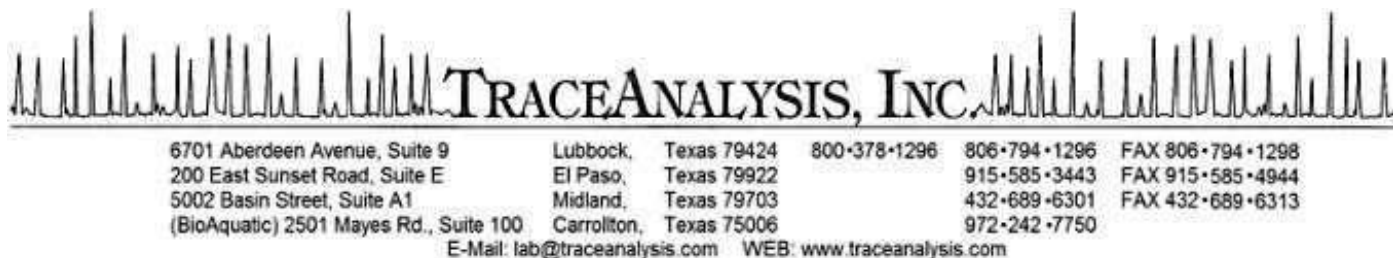
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**Laboratory Analytical Results Summary
Bose Ikard 4 State Com #027H**

		Sample	SP1 @ SURFACE	SP1 @ 1'	SP1 @ 2'	SP1 @ 3'	SP1 @ 4'
Analyte	Method	Date	11/1/16	11/1/16	11/1/16	11/1/16	11/1/16
			mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Benzene	BTEX 8021B		n/a	<0.050	<0.050	n/a	n/a
Toluene	BTEX 8021B		n/a	<0.050	<0.050	n/a	n/a
Ethylbenzene	BTEX 8021B		n/a	<0.050	<0.050	n/a	n/a
Total Xylenes	BTEX 8021B		n/a	<0.150	<0.150	n/a	n/a
Total BTEX	BTEX 8021B		n/a	<0.300	<0.300	n/a	n/a
Chloride	SM4500Cl-B		26000	6000	576	240	96
GRO	TPH 8015M		n/a	<10.0	<10.0	n/a	n/a
DRO	TPH 8015M		n/a	42.9	<10.0	n/a	n/a

		Sample	SP2 @ SURFACE	SP2 @ 1'	SP2 @ 2'
Analyte	Method	Date	11/1/16	11/1/16	11/1/16
			mg/Kg	mg/Kg	mg/Kg
Benzene	BTEX 8021B		n/a	<0.050	<0.050
Toluene	BTEX 8021B		n/a	<0.050	<0.050
Ethylbenzene	BTEX 8021B		n/a	<0.050	<0.050
Total Xylenes	BTEX 8021B		n/a	<0.150	<0.150
Total BTEX	BTEX 8021B		n/a	<0.300	<0.300
Chloride	SM4500Cl-B		4130	192	96
GRO	TPH 8015M		n/a	<10.0	<10.0
DRO	TPH 8015M		n/a	<10.0	<10.0

		Sample	SP3 @ SURFACE	SP3 @ 1'	SP3 @ 2'
Analyte	Method	Date	11/1/16	11/1/16	11/1/16
			mg/Kg	mg/Kg	mg/Kg
Benzene	BTEX 8021B		n/a	<0.050	<0.050
Toluene	BTEX 8021B		n/a	<0.050	<0.050
Ethylbenzene	BTEX 8021B		n/a	<0.050	<0.050
Total Xylenes	BTEX 8021B		n/a	<0.150	<0.150
Total BTEX	BTEX 8021B		n/a	<0.300	<0.300
Chloride	SM4500Cl-B		4800	208	160
GRO	TPH 8015M		n/a	<10.0	<10.0
DRO	TPH 8015M		n/a	<10.0	<10.0



Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

(Corrected Report)

Robert Grubbs
COG Operating, LLC
550 W. Texas Avenue
Suite 100
Midland, TX, 79701

Report Date: September 27, 2016

Work Order: 16091607



Project Location: Eddy Co, NM
Project Name: Bose Ikard 4 State Com #27H
Project Number: Bose Ikard 4 State Com #27H

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
428247	T-1 0-1'	soil	2016-09-15	00:00	2016-09-16
428248	T-1 2'	soil	2016-09-15	00:00	2016-09-16
428249	T-1 4'	soil	2016-09-15	00:00	2016-09-16
428250	T-1 6'	soil	2016-09-15	00:00	2016-09-16
428251	T-2 0-1'	soil	2016-09-15	00:00	2016-09-16
428252	T-2 2'	soil	2016-09-15	00:00	2016-09-16
428253	T-2 4'	soil	2016-09-15	00:00	2016-09-16
428254	T-2 6'	soil	2016-09-15	00:00	2016-09-16
428255	T-2 8'	soil	2016-09-15	00:00	2016-09-16
428256	T-2 10'	soil	2016-09-15	00:00	2016-09-16
428257	T-2 12'	soil	2016-09-15	00:00	2016-09-16

Notes

- **Work Order 16091607:** Run the first two horizons. If chlorides exceed 200 mg/kg run next horizon.

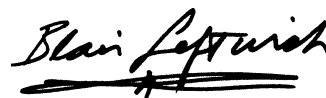
Report Corrections (Work Order 16091607)

- 9/27/16: Added Chloride to samples 428248-428250.

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

TraceAnalysis, Inc. uses the attached chain of custody (COC) as the laboratory check-in documentation which includes sample receipt, temperature, sample preservation method and condition, collection date and time, testing requested, company, sampler, contacts and any special remarks.

This report consists of a total of 36 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

A handwritten signature in black ink, reading "Blair Leftwich". The signature is written in a cursive style with a horizontal line underneath.

Dr. Blair Leftwich, Director
James Taylor, Assistant Director
Johnny Grindstaff, Operations Manager

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QC Batch 132875 - CCV (1)	32

QC Batch 132903 - CCV (1)	32
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Case Narrative

Samples for project Bose Ikard 4 State Com #27H were received by TraceAnalysis, Inc. on 2016-09-16 and assigned to work order 16091607. Samples for work order 16091607 were received intact at a temperature of 4.6 C.

Samples were analyzed for the following tests using their respective methods.

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
BTEX	S 8021B	112615	2016-09-21 at 14:08	132903	2016-09-23 at 09:10
Chloride (Titration)	SM 4500-Cl B	112609	2016-09-21 at 10:50	132854	2016-09-21 at 11:32
Chloride (Titration)	SM 4500-Cl B	112632	2016-09-22 at 09:25	132875	2016-09-22 at 11:24
Chloride (Titration)	SM 4500-Cl B	112714	2016-09-20 at 10:50	132973	2016-09-21 at 12:00
TPH DRO	S 8015 D	112620	2016-09-20 at 14:00	132865	2016-09-22 at 09:11
TPH GRO	S 8015 D	112615	2016-09-21 at 14:08	132905	2016-09-23 at 09:18

Results for these samples are reported on a wet weight basis unless data package indicates otherwise.

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 16091607 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

All other exceptions associated with this report have been footnoted on the appropriate analytical page to assist in general data comprehension. Please contact the laboratory directly if there are any questions regarding this project.

Report Date: September 27, 2016
Bose Ikard 4 State Com #27H

Work Order: 16091607
Bose Ikard 4 State Com #27H

Page Number: 6 of 36
Eddy Co, NM

Analytical Report

Sample: 428247 - T-1 0-1'

Laboratory: Midland
Analysis: BTEX
QC Batch: 132903
Prep Batch: 112615

Analytical Method: S 8021B
Date Analyzed: 2016-09-23
Sample Preparation: 2016-09-21

Prep Method: S 5035
Analyzed By: AK
Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	U	4	<0.0212	mg/Kg	1.06	0.0200
Toluene	U	4	<0.0212	mg/Kg	1.06	0.0200
Ethylbenzene	U	4	<0.0212	mg/Kg	1.06	0.0200
Xylene	U	4	<0.0212	mg/Kg	1.06	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.10	mg/Kg	1.06	2.00	105	70 - 130
4-Bromofluorobenzene (4-BFB)			1.86	mg/Kg	1.06	2.00	93	70 - 130

Sample: 428247 - T-1 0-1'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 132854
Prep Batch: 112609

Analytical Method: SM 4500-Cl B
Date Analyzed: 2016-09-21
Sample Preparation: 2016-09-21

Prep Method: N/A
Analyzed By: AM
Prepared By: AM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			168	mg/Kg	1	50.0

Sample: 428247 - T-1 0-1'

Laboratory: Lubbock
Analysis: TPH DRO
QC Batch: 132865
Prep Batch: 112620

Analytical Method: S 8015 D
Date Analyzed: 2016-09-22
Sample Preparation: 2016-09-20

Prep Method: N/A
Analyzed By: HJ
Prepared By: HJ

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	U	1,2,3	<50.0	mg/Kg	1	50.0

Report Date: September 27, 2016
Bose Ikard 4 State Com #27H

Work Order: 16091607
Bose Ikard 4 State Com #27H

Page Number: 7 of 36
Eddy Co, NM

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			27.3	mg/Kg	1	25.0	109	58.2 - 150

Sample: 428247 - T-1 0-1'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 132905
Prep Batch: 112615

Analytical Method: S 8015 D
Date Analyzed: 2016-09-23
Sample Preparation: 2016-09-21

Prep Method: S 5035
Analyzed By: AK
Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	U	4	<4.24	mg/Kg	1.06	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.02	mg/Kg	1.06	2.00	101	70 - 130
4-Bromofluorobenzene (4-BFB)			2.00	mg/Kg	1.06	2.00	100	70 - 130

Sample: 428248 - T-1 2'

Laboratory: Midland
Analysis: BTEX
QC Batch: 132903
Prep Batch: 112615

Analytical Method: S 8021B
Date Analyzed: 2016-09-23
Sample Preparation: 2016-09-21

Prep Method: S 5035
Analyzed By: AK
Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	U	4	<0.0212	mg/Kg	1.06	0.0200
Toluene	U	4	<0.0212	mg/Kg	1.06	0.0200
Ethylbenzene	U	4	<0.0212	mg/Kg	1.06	0.0200
Xylene	U	4	<0.0212	mg/Kg	1.06	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.02	mg/Kg	1.06	2.00	101	70 - 130
4-Bromofluorobenzene (4-BFB)			1.77	mg/Kg	1.06	2.00	88	70 - 130

Report Date: September 27, 2016
Bose Ikard 4 State Com #27H

Work Order: 16091607
Bose Ikard 4 State Com #27H

Page Number: 8 of 36
Eddy Co, NM

Sample: 428248 - T-1 2'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2016-09-21	Analyzed By:	AK
QC Batch:	132973	Sample Preparation:	2016-09-20	Prepared By:	AK
Prep Batch:	112714				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			1630	mg/Kg	1	50.0

Sample: 428248 - T-1 2'

Laboratory:	Lubbock	Analytical Method:	S 8015 D	Prep Method:	N/A
Analysis:	TPH DRO	Date Analyzed:	2016-09-22	Analyzed By:	HJ
QC Batch:	132865	Sample Preparation:	2016-09-20	Prepared By:	HJ
Prep Batch:	112620				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	U	1,2,3	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			25.3	mg/Kg	1	25.0	101	58.2 - 150

Sample: 428248 - T-1 2'

Laboratory:	Midland	Analytical Method:	S 8015 D	Prep Method:	S 5035
Analysis:	TPH GRO	Date Analyzed:	2016-09-23	Analyzed By:	AK
QC Batch:	132905	Sample Preparation:	2016-09-21	Prepared By:	AK
Prep Batch:	112615				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	U	4	<4.24	mg/Kg	1.06	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.98	mg/Kg	1.06	2.00	99	70 - 130
4-Bromofluorobenzene (4-BFB)			1.97	mg/Kg	1.06	2.00	98	70 - 130

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Sample: 428249 - T-1 4'

Laboratory: Midland

Analysis: BTEX

QC Batch: 132903

Prep Batch: 112615

Analytical Method: S 8021B

Date Analyzed: 2016-09-23

Sample Preparation: 2016-09-21

Prep Method: S 5035

Analyzed By: AK

Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	U	4	<0.0212	mg/Kg	1.06	0.0200
Toluene	U	4	<0.0212	mg/Kg	1.06	0.0200
Ethylbenzene	U	4	<0.0212	mg/Kg	1.06	0.0200
Xylene	U	4	<0.0212	mg/Kg	1.06	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.91	mg/Kg	1.06	2.00	96	70 - 130
4-Bromofluorobenzene (4-BFB)			1.70	mg/Kg	1.06	2.00	85	70 - 130

Sample: 428249 - T-1 4'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 132973

Prep Batch: 112714

Analytical Method: SM 4500-Cl B

Date Analyzed: 2016-09-21

Sample Preparation: 2016-09-20

Prep Method: N/A

Analyzed By: AK

Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			879	mg/Kg	1	50.0

Sample: 428249 - T-1 4'

Laboratory: Lubbock

Analysis: TPH DRO

QC Batch: 132865

Prep Batch: 112620

Analytical Method: S 8015 D

Date Analyzed: 2016-09-22

Sample Preparation: 2016-09-20

Prep Method: N/A

Analyzed By: HJ

Prepared By: HJ

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	U	1,2,3	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			25.1	mg/Kg	1	25.0	100	58.2 - 150

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Sample: 428249 - T-1 4'

Laboratory:	Midland	Analytical Method:	S 8015 D	Prep Method:	S 5035
Analysis:	TPH GRO	Date Analyzed:	2016-09-23	Analyzed By:	AK
QC Batch:	132905	Sample Preparation:	2016-09-21	Prepared By:	AK
Prep Batch:	112615				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	U	4	<4.24	mg/Kg	1.06	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.85	mg/Kg	1.06	2.00	92	70 - 130
4-Bromofluorobenzene (4-BFB)			1.89	mg/Kg	1.06	2.00	94	70 - 130

Sample: 428250 - T-1 6'

Laboratory:	Midland	Analytical Method:	S 8021B	Prep Method:	S 5035
Analysis:	BTEX	Date Analyzed:	2016-09-23	Analyzed By:	AK
QC Batch:	132903	Sample Preparation:	2016-09-21	Prepared By:	AK
Prep Batch:	112615				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	U	4	<0.0212	mg/Kg	1.06	0.0200
Toluene	U	4	<0.0212	mg/Kg	1.06	0.0200
Ethylbenzene	U	4	<0.0212	mg/Kg	1.06	0.0200
Xylene	U	4	<0.0212	mg/Kg	1.06	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.90	mg/Kg	1.06	2.00	95	70 - 130
4-Bromofluorobenzene (4-BFB)			1.78	mg/Kg	1.06	2.00	89	70 - 130

Sample: 428250 - T-1 6'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2016-09-21	Analyzed By:	AK
QC Batch:	132973	Sample Preparation:	2016-09-20	Prepared By:	AK
Prep Batch:	112714				

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			729	mg/Kg	1	50.0

Sample: 428250 - T-1 6'

Laboratory:	Lubbock				
Analysis:	TPH DRO	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	132865	Date Analyzed:	2016-09-22	Analyzed By:	HJ
Prep Batch:	112620	Sample Preparation:	2016-09-20	Prepared By:	HJ

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	U	1,2,3	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			25.8	mg/Kg	1	25.0	103	58.2 - 150

Sample: 428250 - T-1 6'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	132905	Date Analyzed:	2016-09-23	Analyzed By:	AK
Prep Batch:	112615	Sample Preparation:	2016-09-21	Prepared By:	AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	U	4	<4.24	mg/Kg	1.06	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.93	mg/Kg	1.06	2.00	96	70 - 130
4-Bromofluorobenzene (4-BFB)			1.98	mg/Kg	1.06	2.00	99	70 - 130

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Sample: 428251 - T-2 0-1'

Laboratory: Midland

Analysis: BTEX

QC Batch: 132903

Prep Batch: 112615

Analytical Method: S 8021B

Date Analyzed: 2016-09-23

Sample Preparation: 2016-09-21

Prep Method: S 5035

Analyzed By: AK

Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	U	4	<0.0212	mg/Kg	1.06	0.0200
Toluene	U	4	<0.0212	mg/Kg	1.06	0.0200
Ethylbenzene	U	4	<0.0212	mg/Kg	1.06	0.0200
Xylene	U	4	<0.0212	mg/Kg	1.06	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.91	mg/Kg	1.06	2.00	96	70 - 130
4-Bromofluorobenzene (4-BFB)			1.75	mg/Kg	1.06	2.00	88	70 - 130

Sample: 428251 - T-2 0-1'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 132854

Prep Batch: 112609

Analytical Method: SM 4500-Cl B

Date Analyzed: 2016-09-21

Sample Preparation: 2016-09-21

Prep Method: N/A

Analyzed By: AM

Prepared By: AM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			4130	mg/Kg	1	50.0

Sample: 428251 - T-2 0-1'

Laboratory: Lubbock

Analysis: TPH DRO

QC Batch: 132865

Prep Batch: 112620

Analytical Method: S 8015 D

Date Analyzed: 2016-09-22

Sample Preparation: 2016-09-20

Prep Method: N/A

Analyzed By: HJ

Prepared By: HJ

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	U	1,2,3	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			26.3	mg/Kg	1	25.0	105	58.2 - 150

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Sample: 428251 - T-2 0-1'

Laboratory:	Midland	Analytical Method:	S 8015 D	Prep Method:	S 5035
Analysis:	TPH GRO	Date Analyzed:	2016-09-23	Analyzed By:	AK
QC Batch:	132905	Sample Preparation:	2016-09-21	Prepared By:	AK
Prep Batch:	112615				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	U	4	<4.24	mg/Kg	1.06	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.97	mg/Kg	1.06	2.00	98	70 - 130
4-Bromofluorobenzene (4-BFB)			1.94	mg/Kg	1.06	2.00	97	70 - 130

Sample: 428252 - T-2 2'

Laboratory:	Midland	Analytical Method:	S 8021B	Prep Method:	S 5035
Analysis:	BTEX	Date Analyzed:	2016-09-23	Analyzed By:	AK
QC Batch:	132903	Sample Preparation:	2016-09-21	Prepared By:	AK
Prep Batch:	112615				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	U	4	<0.0212	mg/Kg	1.06	0.0200
Toluene	U	4	<0.0212	mg/Kg	1.06	0.0200
Ethylbenzene	U	4	<0.0212	mg/Kg	1.06	0.0200
Xylene	U	4	<0.0212	mg/Kg	1.06	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.94	mg/Kg	1.06	2.00	97	70 - 130
4-Bromofluorobenzene (4-BFB)			1.70	mg/Kg	1.06	2.00	85	70 - 130

Sample: 428252 - T-2 2'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2016-09-22	Analyzed By:	AM
QC Batch:	132875	Sample Preparation:	2016-09-22	Prepared By:	AM
Prep Batch:	112632				

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			4830	mg/Kg	1	50.0

Sample: 428252 - T-2 2'

Laboratory:	Lubbock				
Analysis:	TPH DRO	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	132865	Date Analyzed:	2016-09-22	Analyzed By:	HJ
Prep Batch:	112620	Sample Preparation:	2016-09-20	Prepared By:	HJ

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	U	1,2,3	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			25.8	mg/Kg	1	25.0	103	58.2 - 150

Sample: 428252 - T-2 2'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	132905	Date Analyzed:	2016-09-23	Analyzed By:	AK
Prep Batch:	112615	Sample Preparation:	2016-09-21	Prepared By:	AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	U	4	<4.24	mg/Kg	1.06	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.94	mg/Kg	1.06	2.00	97	70 - 130
4-Bromofluorobenzene (4-BFB)			1.94	mg/Kg	1.06	2.00	97	70 - 130

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Sample: 428253 - T-2 4'

Laboratory: Midland

Analysis: BTEX

QC Batch: 132903

Prep Batch: 112615

Analytical Method: S 8021B

Date Analyzed: 2016-09-23

Sample Preparation: 2016-09-21

Prep Method: S 5035

Analyzed By: AK

Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	U	4	<0.0212	mg/Kg	1.06	0.0200
Toluene	U	4	<0.0212	mg/Kg	1.06	0.0200
Ethylbenzene	U	4	<0.0212	mg/Kg	1.06	0.0200
Xylene	U	4	<0.0212	mg/Kg	1.06	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.95	mg/Kg	1.06	2.00	98	70 - 130
4-Bromofluorobenzene (4-BFB)			1.74	mg/Kg	1.06	2.00	87	70 - 130

Sample: 428253 - T-2 4'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 132875

Prep Batch: 112632

Analytical Method: SM 4500-Cl B

Date Analyzed: 2016-09-22

Sample Preparation: 2016-09-22

Prep Method: N/A

Analyzed By: AM

Prepared By: AM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			3510	mg/Kg	1	50.0

Sample: 428253 - T-2 4'

Laboratory: Lubbock

Analysis: TPH DRO

QC Batch: 132865

Prep Batch: 112620

Analytical Method: S 8015 D

Date Analyzed: 2016-09-22

Sample Preparation: 2016-09-20

Prep Method: N/A

Analyzed By: HJ

Prepared By: HJ

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	U	1,2,3	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			26.7	mg/Kg	1	25.0	107	58.2 - 150

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Sample: 428253 - T-2 4'

Laboratory:	Midland	Analytical Method:	S 8015 D	Prep Method:	S 5035
Analysis:	TPH GRO	Date Analyzed:	2016-09-23	Analyzed By:	AK
QC Batch:	132905	Sample Preparation:	2016-09-21	Prepared By:	AK
Prep Batch:	112615				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	U	4	<4.24	mg/Kg	1.06	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.94	mg/Kg	1.06	2.00	97	70 - 130
4-Bromofluorobenzene (4-BFB)			1.97	mg/Kg	1.06	2.00	98	70 - 130

Sample: 428254 - T-2 6'

Laboratory:	Midland	Analytical Method:	S 8021B	Prep Method:	S 5035
Analysis:	BTEX	Date Analyzed:	2016-09-23	Analyzed By:	AK
QC Batch:	132903	Sample Preparation:	2016-09-21	Prepared By:	AK
Prep Batch:	112615				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	U	4	<0.0212	mg/Kg	1.06	0.0200
Toluene	U	4	<0.0212	mg/Kg	1.06	0.0200
Ethylbenzene	U	4	<0.0212	mg/Kg	1.06	0.0200
Xylene	U	4	<0.0212	mg/Kg	1.06	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.00	mg/Kg	1.06	2.00	100	70 - 130
4-Bromofluorobenzene (4-BFB)			1.75	mg/Kg	1.06	2.00	88	70 - 130

Sample: 428254 - T-2 6'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2016-09-22	Analyzed By:	AM
QC Batch:	132875	Sample Preparation:	2016-09-22	Prepared By:	AM
Prep Batch:	112632				

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			4780	mg/Kg	1	50.0

Sample: 428254 - T-2 6'

Laboratory:	Lubbock				
Analysis:	TPH DRO	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	132865	Date Analyzed:	2016-09-22	Analyzed By:	HJ
Prep Batch:	112620	Sample Preparation:	2016-09-20	Prepared By:	HJ

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	U	1,2,3	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			29.9	mg/Kg	1	25.0	120	58.2 - 150

Sample: 428254 - T-2 6'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	132905	Date Analyzed:	2016-09-23	Analyzed By:	AK
Prep Batch:	112615	Sample Preparation:	2016-09-21	Prepared By:	AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	U	4	<4.24	mg/Kg	1.06	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.97	mg/Kg	1.06	2.00	98	70 - 130
4-Bromofluorobenzene (4-BFB)			1.98	mg/Kg	1.06	2.00	99	70 - 130

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Sample: 428255 - T-2 8'

Laboratory: Midland

Analysis: BTEX

QC Batch: 132903

Prep Batch: 112615

Analytical Method: S 8021B

Date Analyzed: 2016-09-23

Sample Preparation: 2016-09-21

Prep Method: S 5035

Analyzed By: AK

Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	U	4	<0.0212	mg/Kg	1.06	0.0200
Toluene	U	4	<0.0212	mg/Kg	1.06	0.0200
Ethylbenzene	U	4	<0.0212	mg/Kg	1.06	0.0200
Xylene	U	4	<0.0212	mg/Kg	1.06	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.90	mg/Kg	1.06	2.00	95	70 - 130
4-Bromofluorobenzene (4-BFB)			1.77	mg/Kg	1.06	2.00	88	70 - 130

Sample: 428255 - T-2 8'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 132875

Prep Batch: 112632

Analytical Method: SM 4500-Cl B

Date Analyzed: 2016-09-22

Sample Preparation: 2016-09-22

Prep Method: N/A

Analyzed By: AM

Prepared By: AM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			4130	mg/Kg	1	50.0

Sample: 428255 - T-2 8'

Laboratory: Lubbock

Analysis: TPH DRO

QC Batch: 132865

Prep Batch: 112620

Analytical Method: S 8015 D

Date Analyzed: 2016-09-22

Sample Preparation: 2016-09-20

Prep Method: N/A

Analyzed By: HJ

Prepared By: HJ

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	U	1,2,3	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			25.4	mg/Kg	1	25.0	102	58.2 - 150

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Sample: 428255 - T-2 8'

Laboratory:	Midland		
Analysis:	TPH GRO	Analytical Method:	S 8015 D
QC Batch:	132905	Date Analyzed:	2016-09-23
Prep Batch:	112615	Sample Preparation:	2016-09-21
		Prep Method:	S 5035
		Analyzed By:	AK
		Prepared By:	AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	U	4	<4.24	mg/Kg	1.06	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.95	mg/Kg	1.06	2.00	98	70 - 130
4-Bromofluorobenzene (4-BFB)			1.94	mg/Kg	1.06	2.00	97	70 - 130

Sample: 428256 - T-2 10'

Laboratory:	Midland		
Analysis:	BTEX	Analytical Method:	S 8021B
QC Batch:	132903	Date Analyzed:	2016-09-23
Prep Batch:	112615	Sample Preparation:	2016-09-21
		Prep Method:	S 5035
		Analyzed By:	AK
		Prepared By:	AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	U	4	<0.0212	mg/Kg	1.06	0.0200
Toluene	U	4	<0.0212	mg/Kg	1.06	0.0200
Ethylbenzene	U	4	<0.0212	mg/Kg	1.06	0.0200
Xylene	U	4	<0.0212	mg/Kg	1.06	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.02	mg/Kg	1.06	2.00	101	70 - 130
4-Bromofluorobenzene (4-BFB)			1.80	mg/Kg	1.06	2.00	90	70 - 130

Sample: 428256 - T-2 10'

Laboratory:	Midland		
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B
QC Batch:	132875	Date Analyzed:	2016-09-22
Prep Batch:	112632	Sample Preparation:	2016-09-22
		Prep Method:	N/A
		Analyzed By:	AM
		Prepared By:	AM

continued ...

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sample 428256 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			4190	mg/Kg	1	50.0

Sample: 428256 - T-2 10'

Laboratory:	Lubbock				
Analysis:	TPH DRO	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	132865	Date Analyzed:	2016-09-22	Analyzed By:	HJ
Prep Batch:	112620	Sample Preparation:	2016-09-20	Prepared By:	HJ

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	U	1,2,3	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			22.9	mg/Kg	1	25.0	92	58.2 - 150

Sample: 428256 - T-2 10'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	132905	Date Analyzed:	2016-09-23	Analyzed By:	AK
Prep Batch:	112615	Sample Preparation:	2016-09-21	Prepared By:	AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	U	4	<4.24	mg/Kg	1.06	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.01	mg/Kg	1.06	2.00	100	70 - 130
4-Bromofluorobenzene (4-BFB)			2.00	mg/Kg	1.06	2.00	100	70 - 130

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Sample: 428257 - T-2 12'

Laboratory: Midland

Analysis: BTEX

QC Batch: 132903

Prep Batch: 112615

Analytical Method: S 8021B

Date Analyzed: 2016-09-23

Sample Preparation: 2016-09-21

Prep Method: S 5035

Analyzed By: AK

Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	U	4	<0.0212	mg/Kg	1.06	0.0200
Toluene	U	4	<0.0212	mg/Kg	1.06	0.0200
Ethylbenzene		4	0.0223	mg/Kg	1.06	0.0200
Xylene		4	0.0992	mg/Kg	1.06	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.23	mg/Kg	1.06	2.00	112	70 - 130
4-Bromofluorobenzene (4-BFB)			1.77	mg/Kg	1.06	2.00	88	70 - 130

Sample: 428257 - T-2 12'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 132875

Prep Batch: 112632

Analytical Method: SM 4500-Cl B

Date Analyzed: 2016-09-22

Sample Preparation: 2016-09-22

Prep Method: N/A

Analyzed By: AM

Prepared By: AM

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			2310	mg/Kg	1	50.0

Sample: 428257 - T-2 12'

Laboratory: Lubbock

Analysis: TPH DRO

QC Batch: 132865

Prep Batch: 112620

Analytical Method: S 8015 D

Date Analyzed: 2016-09-22

Sample Preparation: 2016-09-20

Prep Method: N/A

Analyzed By: HJ

Prepared By: HJ

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	U	1,2,3	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			25.2	mg/Kg	1	25.0	101	58.2 - 150

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Sample: 428257 - T-2 12'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 132905
Prep Batch: 112615

Analytical Method: S 8015 D
Date Analyzed: 2016-09-23
Sample Preparation: 2016-09-21

Prep Method: S 5035
Analyzed By: AK
Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	U	4	<4.24	mg/Kg	1.06	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.97	mg/Kg	1.06	2.00	98	70 - 130
4-Bromofluorobenzene (4-BFB)			1.95	mg/Kg	1.06	2.00	98	70 - 130

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Method Blanks

Method Blank (1) QC Batch: 132854

QC Batch: 132854 Date Analyzed: 2016-09-21 Analyzed By: AM
Prep Batch: 112609 QC Preparation: 2016-09-21 Prepared By: AM

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride			<31.9	mg/Kg	50

Method Blank (1) QC Batch: 132865

QC Batch: 132865 Date Analyzed: 2016-09-22 Analyzed By: HJ
Prep Batch: 112620 QC Preparation: 2016-09-20 Prepared By: HJ

Parameter	Flag	Cert	MDL Result	Units	RL
DRO		1,2,3	<8.47	mg/Kg	50

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			25.6	mg/Kg	1	25.0	102	58.2 - 150

Method Blank (1) QC Batch: 132875

QC Batch: 132875 Date Analyzed: 2016-09-22 Analyzed By: AM
Prep Batch: 112632 QC Preparation: 2016-09-22 Prepared By: AM

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride			<31.9	mg/Kg	50

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Method Blank (1) QC Batch: 132903

QC Batch: 132903
Prep Batch: 112615

Date Analyzed: 2016-09-23
QC Preparation: 2016-09-21

Analyzed By: AK
Prepared By: AK

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		4	<0.0106	mg/Kg	0.02
Toluene		4	<0.0165	mg/Kg	0.02
Ethylbenzene		4	<0.0160	mg/Kg	0.02
Xylene		4	<0.00456	mg/Kg	0.02

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.06	mg/Kg	1.06	2.00	103	70 - 130
4-Bromofluorobenzene (4-BFB)			1.80	mg/Kg	1.06	2.00	90	70 - 130

Method Blank (1) QC Batch: 132905

QC Batch: 132905
Prep Batch: 112615

Date Analyzed: 2016-09-23
QC Preparation: 2016-09-21

Analyzed By: AK
Prepared By: AK

Parameter	Flag	Cert	MDL Result	Units	RL
GRO		4	<1.86	mg/Kg	4

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.09	mg/Kg	1.06	2.00	104	70 - 130
4-Bromofluorobenzene (4-BFB)			1.94	mg/Kg	1.06	2.00	97	70 - 130

Method Blank (1) QC Batch: 132973

QC Batch: 132973
Prep Batch: 112714

Date Analyzed: 2016-09-21
QC Preparation: 2016-09-20

Analyzed By: AK
Prepared By: AK

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride			<31.9	mg/Kg	50

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Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 132854
Prep Batch: 112609

Date Analyzed: 2016-09-21
QC Preparation: 2016-09-21

Analyzed By: AM
Prepared By: AM

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2520	mg/Kg	5	2500	<160	101	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			2520	mg/Kg	5	2500	<160	101	85 - 115	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 132865
Prep Batch: 112620

Date Analyzed: 2016-09-22
QC Preparation: 2016-09-20

Analyzed By: HJ
Prepared By: HJ

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1,2,3	574	mg/Kg	1	500	<8.47	115	68.5 - 136

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1,2,3	569	mg/Kg	1	500	<8.47	114	68.5 - 136	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Tricosane	29.3	32.8	mg/Kg	1	25.0	117	131	58.2 - 150

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Laboratory Control Spike (LCS-1)

QC Batch: 132875
Prep Batch: 112632

Date Analyzed: 2016-09-22
QC Preparation: 2016-09-22

Analyzed By: AM
Prepared By: AM

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2370	mg/Kg	5	2500	<160	95	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			2370	mg/Kg	5	2500	<160	95	85 - 115	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 132903
Prep Batch: 112615

Date Analyzed: 2016-09-23
QC Preparation: 2016-09-21

Analyzed By: AK
Prepared By: AK

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		4	1.91	mg/Kg	1.06	2.00	<0.0106	96	70 - 130
Toluene		4	1.88	mg/Kg	1.06	2.00	<0.0165	94	70 - 130
Ethylbenzene		4	1.91	mg/Kg	1.06	2.00	<0.0160	96	70 - 130
Xylene		4	5.78	mg/Kg	1.06	6.00	<0.00456	96	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		4	1.98	mg/Kg	1.06	2.00	<0.0106	99	70 - 130	4	20
Toluene		4	1.94	mg/Kg	1.06	2.00	<0.0165	97	70 - 130	3	20
Ethylbenzene		4	2.05	mg/Kg	1.06	2.00	<0.0160	102	70 - 130	7	20
Xylene		4	6.20	mg/Kg	1.06	6.00	<0.00456	103	70 - 130	7	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.99	2.03	mg/Kg	1.06	2.00	100	102	70 - 130
4-Bromofluorobenzene (4-BFB)	1.82	1.88	mg/Kg	1.06	2.00	91	94	70 - 130

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Laboratory Control Spike (LCS-1)

QC Batch: 132905
Prep Batch: 112615

Date Analyzed: 2016-09-23
QC Preparation: 2016-09-21

Analyzed By: AK
Prepared By: AK

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		4	19.2	mg/Kg	1.06	20.0	<1.86	96	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		4	19.9	mg/Kg	1.06	20.0	<1.86	100	70 - 130	4	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.08	2.06	mg/Kg	1.06	2.00	104	103	70 - 130
4-Bromofluorobenzene (4-BFB)	2.00	1.99	mg/Kg	1.06	2.00	100	100	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 132973
Prep Batch: 112714

Date Analyzed: 2016-09-21
QC Preparation: 2016-09-20

Analyzed By: AK
Prepared By: AK

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2520	mg/Kg	5	2500	<160	101	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			2520	mg/Kg	5	2500	<160	101	85 - 115	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spikes

Matrix Spike (MS-1) Spiked Sample: 428251

QC Batch: 132854
Prep Batch: 112609

Date Analyzed: 2016-09-21
QC Preparation: 2016-09-21

Analyzed By: AM
Prepared By: AM

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			6190	mg/Kg	1	2500	4130	82	78.9 - 121

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			6280	mg/Kg	1	2500	4130	86	78.9 - 121	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 428247

QC Batch: 132865
Prep Batch: 112620

Date Analyzed: 2016-09-22
QC Preparation: 2016-09-20

Analyzed By: HJ
Prepared By: HJ

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1,2,3	571	mg/Kg	1	500	<8.47	114	49.3 - 138

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1,2,3	590	mg/Kg	1	500	<8.47	118	49.3 - 138	3	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	31.6	35.5	mg/Kg	1	25	126	142	58.2 - 150

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Matrix Spike (MS-1) Spiked Sample: 428252

QC Batch: 132875
Prep Batch: 112632

Date Analyzed: 2016-09-22
QC Preparation: 2016-09-22

Analyzed By: AM
Prepared By: AM

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			7130	mg/Kg	1	2500	4830	92	78.9 - 121

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			7090	mg/Kg	1	2500	4830	90	78.9 - 121	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 428247

QC Batch: 132903
Prep Batch: 112615

Date Analyzed: 2016-09-23
QC Preparation: 2016-09-21

Analyzed By: AK
Prepared By: AK

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		4	1.80	mg/Kg	1.06	2.00	<0.0106	90	70 - 130
Toluene		4	1.78	mg/Kg	1.06	2.00	<0.0165	89	70 - 130
Ethylbenzene		4	1.90	mg/Kg	1.06	2.00	<0.0160	95	70 - 130
Xylene		4	5.69	mg/Kg	1.06	6.00	<0.00456	95	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		4	1.76	mg/Kg	1.06	2.00	<0.0106	88	70 - 130	2	20
Toluene		4	1.79	mg/Kg	1.06	2.00	<0.0165	90	70 - 130	1	20
Ethylbenzene		4	1.97	mg/Kg	1.06	2.00	<0.0160	98	70 - 130	4	20
Xylene		4	5.92	mg/Kg	1.06	6.00	<0.00456	99	70 - 130	4	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.06	2.09	mg/Kg	1.06	2	103	104	70 - 130
4-Bromofluorobenzene (4-BFB)	1.86	1.88	mg/Kg	1.06	2	93	94	70 - 130

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Matrix Spike (MS-1) Spiked Sample: 428247

QC Batch: 132905
Prep Batch: 112615

Date Analyzed: 2016-09-23
QC Preparation: 2016-09-21

Analyzed By: AK
Prepared By: AK

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		4	14.4	mg/Kg	1.06	20.0	<1.86	72	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		4	15.4	mg/Kg	1.06	20.0	<1.86	77	70 - 130	7	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.96	1.94	mg/Kg	1.06	2	98	97	70 - 130
4-Bromofluorobenzene (4-BFB)	1.97	2.04	mg/Kg	1.06	2	98	102	70 - 130

Matrix Spike (xMS-1) Spiked Sample: 428256

QC Batch: 132973
Prep Batch: 112714

Date Analyzed: 2016-09-21
QC Preparation: 2016-09-20

Analyzed By: AK
Prepared By: AK

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			6240	mg/Kg	1	2500	4150	84	78.9 - 121

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			6260	mg/Kg	1	2500	4150	84	78.9 - 121	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Calibration Standards

Standard (ICV-1)

QC Batch: 132854

Date Analyzed: 2016-09-21

Analyzed By: AM

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	100	100	85 - 115	2016-09-21

Standard (CCV-1)

QC Batch: 132854

Date Analyzed: 2016-09-21

Analyzed By: AM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	100	100	85 - 115	2016-09-21

Standard (CCV-1)

QC Batch: 132865

Date Analyzed: 2016-09-22

Analyzed By: HJ

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1,2,3	mg/Kg	500	558	112	80 - 120	2016-09-22

Standard (CCV-2)

QC Batch: 132865

Date Analyzed: 2016-09-22

Analyzed By: HJ

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1,2,3	mg/Kg	500	542	108	80 - 120	2016-09-22

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Standard (ICV-1)

QC Batch: 132875

Date Analyzed: 2016-09-22

Analyzed By: AM

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	100	100	85 - 115	2016-09-22

Standard (CCV-1)

QC Batch: 132875

Date Analyzed: 2016-09-22

Analyzed By: AM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	100	100	85 - 115	2016-09-22

Standard (CCV-1)

QC Batch: 132903

Date Analyzed: 2016-09-23

Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		4	mg/kg	0.100	0.0975	98	80 - 120	2016-09-23
Toluene		4	mg/kg	0.100	0.0951	95	80 - 120	2016-09-23
Ethylbenzene		4	mg/kg	0.100	0.0975	98	80 - 120	2016-09-23
Xylene		4	mg/kg	0.300	0.291	97	80 - 120	2016-09-23

Standard (CCV-2)

QC Batch: 132903

Date Analyzed: 2016-09-23

Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		4	mg/kg	0.100	0.0961	96	80 - 120	2016-09-23
Toluene		4	mg/kg	0.100	0.0933	93	80 - 120	2016-09-23
Ethylbenzene		4	mg/kg	0.100	0.0937	94	80 - 120	2016-09-23
Xylene		4	mg/kg	0.300	0.280	93	80 - 120	2016-09-23

Report Date: September 27, 2016
Bose Ikard 4 State Com #27H

Work Order: 16091607
Bose Ikard 4 State Com #27H

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Eddy Co, NM

Standard (CCV-3)

QC Batch: 132903

Date Analyzed: 2016-09-23

Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		4	mg/kg	0.100	0.0960	96	80 - 120	2016-09-23
Toluene		4	mg/kg	0.100	0.0914	91	80 - 120	2016-09-23
Ethylbenzene		4	mg/kg	0.100	0.0909	91	80 - 120	2016-09-23
Xylene		4	mg/kg	0.300	0.269	90	80 - 120	2016-09-23

Standard (CCV-1)

QC Batch: 132905

Date Analyzed: 2016-09-23

Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		4	mg/Kg	1.00	0.936	94	80 - 120	2016-09-23

Standard (CCV-2)

QC Batch: 132905

Date Analyzed: 2016-09-23

Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		4	mg/Kg	1.00	0.852	85	80 - 120	2016-09-23

Standard (CCV-3)

QC Batch: 132905

Date Analyzed: 2016-09-23

Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		4	mg/Kg	1.00	0.860	86	80 - 120	2016-09-23

Report Date: September 27, 2016
Bose Ikard 4 State Com #27H

Work Order: 16091607
Bose Ikard 4 State Com #27H

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Eddy Co, NM

Standard (ICV-1)

QC Batch: 132973

Date Analyzed: 2016-09-21

Analyzed By: AK

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	100	100	85 - 115	2016-09-21

Standard (CCV-1)

QC Batch: 132973

Date Analyzed: 2016-09-21

Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	100	100	85 - 115	2016-09-21

Appendix

Report Definitions

Name	Definition
MDL	Method Detection Limit
MQL	Minimum Quantitation Limit
SDL	Sample Detection Limit

Laboratory Certifications

C	Certifying Authority	Certification Number	Laboratory Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	L-A-B	L2418	Lubbock
2	Kansas	Kansas E-10317	Lubbock
3	NELAP	T104704219-16-12	Lubbock
4	NELAP	T104704392-14-8	Midland

Standard Flags

F	Description
B	Analyte detected in the corresponding method blank above the method detection limit
H	Analyzed out of hold time
J	Estimated concentration
Jb	The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less than ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
Je	Estimated concentration exceeding calibration range.
MI1	Split peak or shoulder peak
MI2	Instrument software did not integrate
MI3	Instrument software misidentified the peak
MI4	Instrument software integrated improperly
MI5	Baseline correction
Qc	Calibration check outside of laboratory limits.
Qr	RPD outside of laboratory limits
Qs	Spike recovery outside of laboratory limits.
Qsr	Surrogate recovery outside of laboratory limits.
U	The analyte is not detected above the SDL

Report Date: September 27, 2016
Bose Ikard 4 State Com #27H

Work Order: 16091607
Bose Ikard 4 State Com #27H

Page Number: 36 of 36
Eddy Co, NM

Attachments

The scanned attachments will follow this page.
Please note, each attachment may consist of more than one page.



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

November 09, 2016

Cliff Brunson

BBC International, Inc.

P.O. Box 805

Hobbs, NM 88241

RE: BOSE IKARD 4 STATE COM #027H

Enclosed are the results of analyses for samples received by the laboratory on 11/03/16 11:26.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-16-8. 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,

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

Celey D. Keene

Lab Director/Quality Manager

Analytical Results For:

BBC International, Inc.
Cliff Brunson
P.O. Box 805
Hobbs NM, 88241
Fax To: (575) 397-0397

Received:	11/03/2016	Sampling Date:	11/01/2016
Reported:	11/09/2016	Sampling Type:	Soil
Project Name:	BOSE IKARD 4 STATE COM #027H	Sampling Condition:	Cool & Intact
Project Number:	COG	Sample Received By:	Jodi Henson
Project Location:	EDDY COUNTY, NM		

Sample ID: SP 1 @ SURFACE (H602475-01)

Chloride, SM4500CI-B			mg/kg		Analyzed By: AC				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	26000	16.0	11/04/2016	ND	432	108	400	0.00	

Sample ID: SP 1 @ 1' (H602475-02)

BTX 8021B			mg/kg		Analyzed By: MS				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	11/08/2016	ND	2.17	109	2.00	3.85	
Toluene*	<0.050	0.050	11/08/2016	ND	2.21	110	2.00	3.32	
Ethylbenzene*	<0.050	0.050	11/08/2016	ND	2.12	106	2.00	2.84	
Total Xylenes*	<0.150	0.150	11/08/2016	ND	6.43	107	6.00	2.45	
Total BTX	<0.300	0.300	11/08/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 112 % 73.6-140

Chloride, SM4500CI-B			mg/kg		Analyzed By: AC				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	6000	16.0	11/04/2016	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	11/06/2016	ND	198	99.0	200	0.810	
DRO >C10-C28	42.9	10.0	11/06/2016	ND	203	101	200	4.48	

Surrogate: 1-Chlorooctane 95.5 % 35-147

Surrogate: 1-Chlorooctadecane 98.6 % 28-171

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

BBC International, Inc.
Cliff Brunson
P.O. Box 805
Hobbs NM, 88241
Fax To: (575) 397-0397

Received:	11/03/2016	Sampling Date:	11/01/2016
Reported:	11/09/2016	Sampling Type:	Soil
Project Name:	BOSE IKARD 4 STATE COM #027H	Sampling Condition:	Cool & Intact
Project Number:	COG	Sample Received By:	Jodi Henson
Project Location:	EDDY COUNTY, NM		

Sample ID: SP 1 @ 2' (H602475-03)

BTEx 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	11/08/2016	ND	2.17	109	2.00	3.85	
Toluene*	<0.050	0.050	11/08/2016	ND	2.21	110	2.00	3.32	
Ethylbenzene*	<0.050	0.050	11/08/2016	ND	2.12	106	2.00	2.84	
Total Xylenes*	<0.150	0.150	11/08/2016	ND	6.43	107	6.00	2.45	
Total BTEx	<0.300	0.300	11/08/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 113 % 73.6-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	576	16.0	11/04/2016	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	11/06/2016	ND	198	99.0	200	0.810	
DRO >C10-C28	<10.0	10.0	11/06/2016	ND	203	101	200	4.48	

Surrogate: 1-Chlorooctane 89.1 % 35-147

Surrogate: 1-Chlorooctadecane 82.0 % 28-171

Sample ID: SP 1 @ 3' (H602475-04)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	240	16.0	11/04/2016	ND	432	108	400	0.00	

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

BBC International, Inc.
Cliff Brunson
P.O. Box 805
Hobbs NM, 88241
Fax To: (575) 397-0397

Received:	11/03/2016	Sampling Date:	11/01/2016
Reported:	11/09/2016	Sampling Type:	Soil
Project Name:	BOSE IKARD 4 STATE COM #027H	Sampling Condition:	Cool & Intact
Project Number:	COG	Sample Received By:	Jodi Henson
Project Location:	EDDY COUNTY, NM		

Sample ID: SP 1 @ 4' (H602475-05)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	96.0	16.0	11/04/2016	ND	432	108	400	0.00		

Sample ID: SP 2 @ SURFACE (H602475-06)

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	4130	16.0	11/04/2016	ND	432	108	400	0.00	

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Hobbs NM, 88241
Fax To: (575) 397-0397

Received:	11/03/2016	Sampling Date:	11/01/2016
Reported:	11/09/2016	Sampling Type:	Soil
Project Name:	BOSE IKARD 4 STATE COM #027H	Sampling Condition:	Cool & Intact
Project Number:	COG	Sample Received By:	Jodi Henson
Project Location:	EDDY COUNTY, NM		

Sample ID: SP 2 @ 1' (H602475-07)

BTEx 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	11/08/2016	ND	2.17	109	2.00	3.85	
Toluene*	<0.050	0.050	11/08/2016	ND	2.21	110	2.00	3.32	
Ethylbenzene*	<0.050	0.050	11/08/2016	ND	2.12	106	2.00	2.84	
Total Xylenes*	<0.150	0.150	11/08/2016	ND	6.43	107	6.00	2.45	
Total BTEx	<0.300	0.300	11/08/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 111 % 73.6-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	192	16.0	11/04/2016	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	11/06/2016	ND	198	99.0	200	0.810	
DRO >C10-C28	<10.0	10.0	11/06/2016	ND	203	101	200	4.48	

Surrogate: 1-Chlorooctane 93.8 % 35-147

Surrogate: 1-Chlorooctadecane 91.8 % 28-171

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Received:	11/03/2016	Sampling Date:	11/01/2016
Reported:	11/09/2016	Sampling Type:	Soil
Project Name:	BOSE IKARD 4 STATE COM #027H	Sampling Condition:	Cool & Intact
Project Number:	COG	Sample Received By:	Jodi Henson
Project Location:	EDDY COUNTY, NM		

Sample ID: SP 2 @ 2' (H602475-08)

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	11/09/2016	ND	2.17	109	2.00	3.85	
Toluene*	<0.050	0.050	11/09/2016	ND	2.21	110	2.00	3.32	
Ethylbenzene*	<0.050	0.050	11/09/2016	ND	2.12	106	2.00	2.84	
Total Xylenes*	<0.150	0.150	11/09/2016	ND	6.43	107	6.00	2.45	
Total BTEx	<0.300	0.300	11/09/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 111 % 73.6-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	96.0	16.0	11/04/2016	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	11/06/2016	ND	198	99.0	200	0.810	
DRO >C10-C28	<10.0	10.0	11/06/2016	ND	203	101	200	4.48	

Surrogate: 1-Chlorooctane 86.3 % 35-147

Surrogate: 1-Chlorooctadecane 89.6 % 28-171

Sample ID: SP 3 @ SURFACE (H602475-09)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	4800	16.0	11/04/2016	ND	432	108	400	0.00	

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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Cliff Brunson
P.O. Box 805
Hobbs NM, 88241
Fax To: (575) 397-0397

Received:	11/03/2016	Sampling Date:	11/01/2016
Reported:	11/09/2016	Sampling Type:	Soil
Project Name:	BOSE IKARD 4 STATE COM #027H	Sampling Condition:	Cool & Intact
Project Number:	COG	Sample Received By:	Jodi Henson
Project Location:	EDDY COUNTY, NM		

Sample ID: SP 3 @ 1' (H602475-10)

BTX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	11/09/2016	ND	2.17	109	2.00	3.85	
Toluene*	<0.050	0.050	11/09/2016	ND	2.21	110	2.00	3.32	
Ethylbenzene*	<0.050	0.050	11/09/2016	ND	2.12	106	2.00	2.84	
Total Xylenes*	<0.150	0.150	11/09/2016	ND	6.43	107	6.00	2.45	
Total BTX	<0.300	0.300	11/09/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 110 % 73.6-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	208	16.0	11/04/2016	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	11/06/2016	ND	198	99.0	200	0.810	
DRO >C10-C28	<10.0	10.0	11/06/2016	ND	203	101	200	4.48	

Surrogate: 1-Chlorooctane 87.2 % 35-147

Surrogate: 1-Chlorooctadecane 85.1 % 28-171

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

BBC International, Inc.
Cliff Brunson
P.O. Box 805
Hobbs NM, 88241
Fax To: (575) 397-0397

Received:	11/03/2016	Sampling Date:	11/01/2016
Reported:	11/09/2016	Sampling Type:	Soil
Project Name:	BOSE IKARD 4 STATE COM #027H	Sampling Condition:	Cool & Intact
Project Number:	COG	Sample Received By:	Jodi Henson
Project Location:	EDDY COUNTY, NM		

Sample ID: SP 3 @ 2' (H602475-11)

BTEx 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	11/09/2016	ND	2.17	109	2.00	3.85	
Toluene*	<0.050	0.050	11/09/2016	ND	2.21	110	2.00	3.32	
Ethylbenzene*	<0.050	0.050	11/09/2016	ND	2.12	106	2.00	2.84	
Total Xylenes*	<0.150	0.150	11/09/2016	ND	6.43	107	6.00	2.45	
Total BTEx	<0.300	0.300	11/09/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID) 111 % 73.6-140

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	160	16.0	11/04/2016	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	11/06/2016	ND	198	99.0	200	0.810	
DRO >C10-C28	<10.0	10.0	11/06/2016	ND	203	101	200	4.48	

Surrogate: 1-Chlorooctane 89.9 % 35-147

Surrogate: 1-Chlorooctadecane 93.7 % 28-171

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Celey D. Keene, Lab Director/Quality Manager

Notes and Definitions

S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
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

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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

[illegible]

From: Bratcher, Mike, EMNRD
To: [Cliff Brunson](#); [Amber Groves](#)
Cc: [Patterson, Heather, EMNRD](#); [Robert Grubbs](#); [Ken Swinney](#); [Jennifer Gilkey](#); [Kathy Purvis](#); [Weaver, Crystal, EMNRD](#)
Subject: RE: COG Bose Ikard 4 State Com #027H - Remediation Plan
Date: Tuesday, November 29, 2016 3:15:27 PM

RE: COG * Bose Ikard 4 St Com 27H * 2RP-3674 * DOR: 4/20/16

Cliff,

Your proposal for remediation of the above referenced release is approved. Please advise once remedial activities have been scheduled. The adjacent property is part of the "Marks & Garner" lease, which I believe has been abandoned. OCD concurs with COG not being the responsible party for that area, and that the analytical data from that area is not indicative of the COG release.

OCD approval does not relieve the operator of liability should their operations fail to adequately investigate and remediate contamination that may pose a threat to ground water, surface water, human health or the environment. In addition, OCD approval does not relieve the operator of responsibility for compliance with any other federal, state, local laws and/or regulations.

If you have any questions or concerns, and for notification, please contact me.

Mike Bratcher
NMOCD District 2
811 S. First Street
Artesia, NM 88210
O: 575-748-1283 X108
C: 575-626-0857
F: 575-748-9720

From: Cliff Brunson [mailto:cbrunson@bbcinternational.com]
Sent: Monday, November 21, 2016 8:24 AM
To: Bratcher, Mike, EMNRD; Amber Groves
Cc: Patterson, Heather, EMNRD; Robert Grubbs; Ken Swinney; Jennifer Gilkey; Kathy Purvis
Subject: COG Bose Ikard 4 State Com #027H - Remediation Plan

Mike and Amber

This e-mail is to confirm our discussion concerning the remediation plan for the COG Bose Ikard 4 State Com #027H release. I have attached the information packet that we used in our discussion with a cover page describing the remediation plan that we agreed upon.

If you would please reply via e-mail with your concurrence on this plan, it would be greatly appreciated.

Thanks, Cliff

Cliff P. Brunson, CEI, CRS
President
BBC International, Inc.
World-Wide Environmental Specialists
Mailing Address:
P. O. Box 805
Hobbs, NM 88241-0805 USA
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From: Groves, Amber
To: [Bratcher, Mike, EMNRD](#); [Cliff Brunson](#)
Cc: [Patterson, Heather, EMNRD](#); [Robert Grubbs](#); [Ken Swinney](#); [Jennifer Gilkey](#); [Kathy Purvis](#); [Weaver, Crystal, EMNRD](#)
Subject: RE: COG Bose Ikard 4 State Com #027H - Remediation Plan
Date: Wednesday, November 30, 2016 2:06:14 PM
Attachments: [image002.png](#)
[image001.png](#)

Cliff,

NMSLO agrees with work plan approval.

Thank you,

Amber Groves

Remediation Specialist

Field Operations Division

(575)392-3697

(575)263-3209 cell

New Mexico State Land Office

2827 N. Dal Paso Suite 117

Hobbs, NM 88260

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From: Bratcher, Mike, EMNRD [mailto:mike.bratcher@state.nm.us]
Sent: Tuesday, November 29, 2016 3:15 PM
To: Cliff Brunson <cbrunson@bbcinternational.com>; Groves, Amber <agroves@slo.state.nm.us>
Cc: Patterson, Heather, EMNRD <Heather.Patterson@state.nm.us>; Robert Grubbs <RGrubbs@concho.com>; Ken Swinney <kswinney@bbcinternational.com>; Jennifer Gilkey <jgilkey@bbcinternational.com>; Kathy Purvis <kathy@bbcinternational.com>; Weaver, Crystal, EMNRD <Crystal.Weaver@state.nm.us>
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