



[Dakota Neel]
[HSE Coordinator]

April 14, 2019

Bradford Billings
Oil Conservation Division
1220 S. St Francis Dr. #3
Santa Fe, NM 87505

**Re: Closure Request
Tyrell Fee #002H
API #: 30-025-42789
RP#: 1RP-5063
Unit Letter A Section 14, Township 24S, Range 33E
Lea County, NM**

Mr. Billings,

COG Operating, LLC (COG) is pleased to submit the following closure report for the Tyrell Fee #002H. This release occurred on May 15th, 2018. Following the release an assessment of impacted soils was conducted. A remediation work plan was submitted to and subsequently approved by the New Mexico Oil Conservation Division (NMOCD).

BACKGROUND

This release occurred on May 15, 2018 when sump tank overflowed due to a ball valve in the wrong position. Approximately three (3) barrels (bbls) of oil and ten (10) bbls of produced water was released on to the well pad. A vacuum truck was able to recover approximately six (6) bbls of standing fluid.

Remediation activities were conducted in accordance with the approved work plan and NMOCD stipulations. The analytical results from the confirmation sampling activities are provided in Appendix V.

April 14, 2019

CONFIRMATION SOIL SAMPLING RESULTS

TYRELL FEE #2H					
Sample ID	Date	Chloride mg/Kg	Benzene mg/Kg	BTEX mg/Kg	TPH mg/Kg
SP1/SP2 Bottom	11/8/2018	<16.0	<0.050	<0.300	194
SP1/SP2 North	12/4/2018	256	<0.050	<0.300	<10.0
SP1/SP2 South	11/8/2018	<16.0	<0.050	1.02	648
SP1/SP2 East	11/8/2018	<16.0	<0.050	0.5	543
SP1/SP2 West	12/4/2018	128	<0.050	<0.300	<10.0
SP3- Bottom	11/8/2018	32	<0.050	1.09	667
SP3- West	11/8/2018	<16.0	<0.050	<0.300	358
SP3- East	11/8/2018	48	<0.050	<0.300	431
SP4- Bottom	11/8/2018	<16.0	<0.050	<0.300	<10.0
SP4- West	11/8/2018	<16.0	<0.050	0.383	945
SP4- East	11/8/2018	<16.0	<0.050	<0.300	152
SP5- Bottom	11/8/2018	<16.0	<0.050	<0.300	<10.0
SP5- East	11/8/2018	16	<0.050	<0.300	528
SP5- West	11/8/2018	<16.0	<0.050	<0.300	431
SP5- North	11/8/2018	<16.0	<0.050	<0.300	469

REMEDIAL ACTIONS

- The impacted area was excavated to a depth of one (1) foot BGS.
- Confirmation samples were collected from the excavation per NMOCD stipulations.
- The excavation was backfilled with clean “like” material, and contoured to match the surrounding terrain.

April 14, 2019

Should you have any questions or concerns please do not hesitate to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Dakota Neel". The signature is written in a cursive, slightly slanted style.


Dakota Neel
HSE Coordinator
dneel2@concho.com

Enclosed:

- Appendix I: Site Diagram
- Appendix II: Final C-141
- Appendix III: Initial C-141 (Copy)
- Appendix IV: Approved Work plan
- Appendix V: Confirmation Analytical Report

APPENDIX I

Legend

-  AOI
-  Confirmation Sample Points



APPENDIX II

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 April 3, 2017

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. (OGRID #229137)	Contact: Robert McNeill
Address: 600 West Illinois Avenue, Midland TX 79701	Telephone No. 432-683-7443
Facility Name: Tyrell Fee #002H	Facility Type: Well
Surface Owner: Private	Mineral Owner: Private
API No. 30-025-42789	

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
A	14	24S	33E	190	North	990	East	Lea

Latitude 32.22433799 Longitude -103.5378044 NAD83

NATURE OF RELEASE

Type of Release: Oil & Produced Water	Volume of Release: 3 bbl. Oil 10 bbl. Produced Water	Volume Recovered: 1 bbl. Oil 5 bbl. Produced Water
Source of Release: Closed Valve	Date and Hour of Occurrence: May 15, 2018 11:30am	Date and Hour of Discovery: May 15, 2018 11:30am
Was Immediate Notice Given? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/> Not Required	If YES, To Whom?	
By Whom?	Date and Hour:	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*


Describe Cause of Problem and Remedial Action Taken.*

The release was caused by the ball valve from the separator being closed and causing the sump tank to spill over.

Describe Area Affected and Cleanup Action Taken.*

The release was on location. A vacuum truck was dispatched to remove all freestanding fluids. This release has been remediated in accordance to the NMOCD approved workplan.

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: Dakota Neel		Approved by Environmental Specialist: 	
Title: HSE Coordinator	Approval Date: 12/2/2022	Expiration Date: N/A	
E-mail Address: dneel2@concho.com	Conditions of Approval:		Attached <input type="checkbox"/>
Date: April 14, 2019	Phone: 575-746-2010	none	

* Attach Additional Sheets If Necessary

APPENDIX III

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 April 3, 2017
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. (OGRID #229137)	Contact: Robert McNeill
Address: 600 West Illinois Avenue, Midland TX 79701	Telephone No. 432-683-7443
Facility Name: Tyrell Fee #002H	Facility Type: Well
Surface Owner: Private	Mineral Owner: Private
API No. 30-025-42789	

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
A	14	24S	33E	190	North	990	East	Lea

Latitude 32.22433799 Longitude -103.5378044 NAD83

NATURE OF RELEASE

Type of Release: Oil & Produced Water	Volume of Release: 3 bbl. Oil 10 bbl. Produced Water	Volume Recovered: 1 bbl. Oil 5 bbl. Produced Water
Source of Release: Closed Valve	Date and Hour of Occurrence: May 15, 2018 11:30am	Date and Hour of Discovery: May 15, 2018 11:30am
Was Immediate Notice Given? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/> Not Required	If YES, To Whom?	
By Whom?	Date and Hour:	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse.	
If a Watercourse was Impacted, Describe Fully.*		
Describe Cause of Problem and Remedial Action Taken.*		
The release was caused by the ball valve from the separator being closed and causing the sump tank to spill over.		
Describe Area Affected and Cleanup Action Taken.*		
The release was on location. A vacuum truck was dispatched to remove all freestanding fluids. Concho will have the spill area sampled to delineate any possible impact from the release and we will present a remediation work plan to the NMOCD for approval prior to any significant remediation activities.		
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: DeAnn Grant	Approved by Environmental Specialist:	
Title: HSE Administrative Assistant	Approval Date:	Expiration Date:
E-mail Address: agrant@concho.com	Conditions of Approval:	Attached <input type="checkbox"/>
Date: May 16, 2018	Phone: 432-253-4513	

* Attach Additional Sheets If Necessary

APPENDIX IV

**APPROVED**

By CHernandez at 8:44 am, Jul 20, 2018

PHONE (575) 397-6388 • FAX (575) 397- 0397 • 1324 W. MARLAND • P.O. BOX 805 • HOBBS, NM 88241-0805
E-MAIL: cbrunson@bbcinternational.com**DELINEATION WORKPLAN****COG – TYRELL FEE #002H
(Leak Date: 5/15/18)****RP # 1RP-5063**

NMOCD approves of the delineation completed for 1RP-5063 and the proposed remediation plan with these clarifications: 1) Bottom and sidewall confirmation samples no greater than 50 ft apart. 2) Mark confirmation sample locations on a scaled map with GPS coordinates. 3) Include photo documentation of delineation and remediation in subsequent report.

This delineation workplan and remediation proposal addresses the release associated with RP # 1RP-5063.

The following information includes:

1. Scaled digital site map with spill area demarcated and leak point identified along with sample point locations and areas of remediation at appropriate depths.
2. GPS information for sample points and sample methodology
3. Depth to groundwater information (i.e., pdf of OSE search results and/or copy of Chevron groundwater trend map).
4. Laboratory analysis results summary table and original laboratory analysis reports
5. A copy of the initial C-141
6. Potentially other pertinent information as necessary for site specific purposes.

Based on the information included in this package and the NMOCD guidelines, the following remediation is proposed:

COG will excavate the spill area as depicted on the following site diagram. The entire leak area (pink shade on diagram) will be excavated to a depth of 1 foot.

The entire site will then be backfilled with clean soil and revegetated (if warranted) to the standards of the appropriate regulatory agency or private surface owner.

All excavated materials will be disposed of at an NMOCD-approved disposal facility.

COG, Tyrell Fee #002H

Leak date: 05/15/2018
Lea County, NM
API# 30-025-42789

Received by OCD: 12/2/2022 10:14:08 AM

Legend

☆

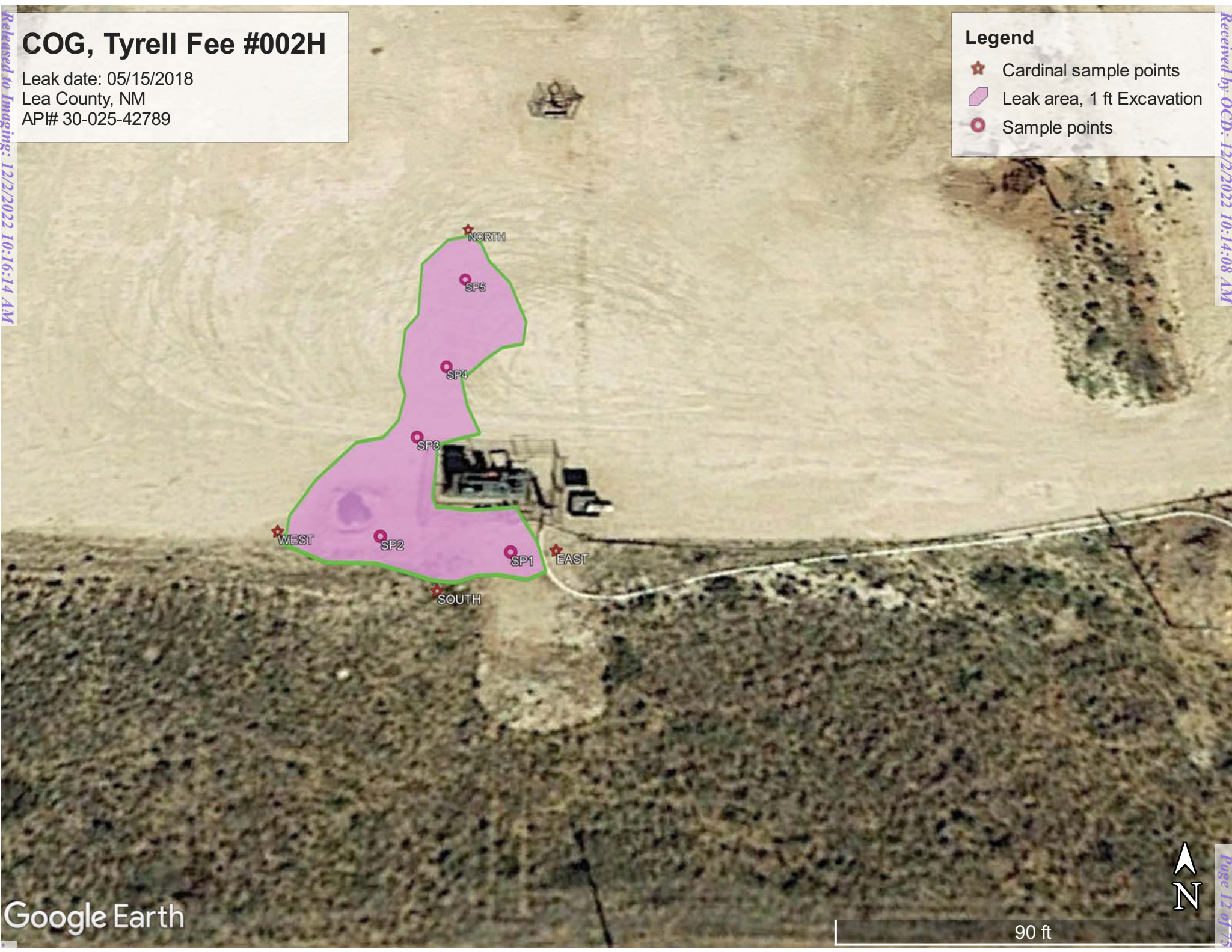
 Cardinal sample points

█

 Leak area, 1 ft Excavation

○

 Sample points



COG, Tyrell Fee #002H

Sample points

SP1, N 32.22386 W-103.53784

SP2, N 32.22387 W-103.53795

SP3, N 32.22396 W-103.53793

SP4, N 22403 W-103.53791

SP5, N 32.22412 W-103.53790

NORTH, N 32.22418 W-103.53790

SOUTH, N 32.22382 W-103.53790

EAST, N 32.22386 W-103.53780

WEST, N 32.22387 W-103.53804

COG, Tyrell Fee #002H
U/L A, Section 14, T24S, R33E
Groundwater: 75'-100'





New Mexico Office of the State Engineer

Water Column/Average Depth to Water

(A CLW##### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)

(R=POD has been replaced, O=orphaned, C=the file is closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)

(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

POD Number	POD Sub-Code	basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
C 03917 POD1	C	LE		4	1	3	13	24S	33E	638374	3565212	1010	600	420	180
C 03666 POD1	C	LE		2	3	4	13	24S	33E	639132	3565078	1610	650	390	260

Average Depth to Water: **405 feet**

Minimum Depth: **390 feet**

Maximum Depth: **420 feet**

Record Count: 2

UTMNAD83 Radius Search (in meters):

Easting (X): 637884

Northing (Y): 3566096

Radius: 1700

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

6/15/18 11:45 AM

Page 1 of 1

WATER COLUMN/ AVERAGE
DEPTH TO WATER

Public Land Survey System (PLSS)

☒ Q64: Q16: NE Q4: NE Sec: 14 Tws: 24S Rng: 33E

State Plane Coordinate System - NAD27

☐ X: 0 ft Y: 0 ft Zone:

State Plane Coordinate System - NAD83

☐ X: 0 ft Y: 0 ft Zone:

Degrees/Minutes/Seconds

☐ Longitude (X): Degrees: 0 ° Minutes: 0 ' Seconds: 0 "

Latitude (Y): Degrees: 0 ° Minutes: 0 ' Seconds: 0 "

UTM - NAD27

☐ Easting (X): 0 mtrs Northing (Y): 0 mtrs Zone:

SUBMIT**All Conversion Results are displayed as NAD 1983 UTM Zone 13**

Easting (X): 637884.0 mtrs Northing (Y): 3566096.0 mtrs

~~ Please keep screen open to copy UTM values for Reports. ~~

Laboratory Analytical Results Summary
Tyrell Fee #002H

		Sample ID	SP1 @ SURFACE	SP1 @ 1'	SP1 @ 2'	SP1 @ 3'
Analyte	Method	Date	6/8/18	6/8/18	6/19/18	6/19/18
			mg/kg	mg/kg	mg/kg	mg/kg
Benzene	BTEX 8021B		<0.200	<0.050	<0.050	<0.050
Toluene	BTEX 8021B		2.5	0.135	<0.050	<0.050
Ethylbenzene	BTEX 8021B		5.33	<0.050	0.235	<0.050
Total Xylenes	BTEX 8021B		23.7	1.64	1	<0.150
Total BTEX	BTEX 8021B		31.6	1.78	1.27	<0.300
Chloride	SM4500Cl-B		80	32	240	144
GRO	TPH 8015M		736	72.9	17.2	<10.0
DRO	TPH 8015M		31400	1970	835	<10.0
EXT DRO	TPH 8015M		598	322	89.9	<10.0
Total TPH	TPH 8015M		32100	n/a	n/a	n/a

		Sample ID	SP2 @ SURFACE	SP2 @ 1'	SP2 @ 2'	SP2 @ 3'
Analyte	Method	Date	6/8/18	6/8/18	6/19/18	6/19/18
			mg/kg	mg/kg	mg/kg	mg/kg
Benzene	BTEX 8021B		<0.200	<0.050	<0.050	<0.050
Toluene	BTEX 8021B		7.45	0.292	<0.050	<0.050
Ethylbenzene	BTEX 8021B		10.6	<0.050	<0.050	<0.050
Total Xylenes	BTEX 8021B		44.7	2.96	0.892	<0.150
Total BTEX	BTEX 8021B		62.9	3.26	0.913	<0.300
Chloride	SM4500Cl-B		96	144	208	160
GRO	TPH 8015M		681	153	15.5	<10.0
DRO	TPH 8015M		22300	2900	603	<10.0
EXT DRO	TPH 8015M		669	455	92.5	<10.0
Total TPH	TPH 8015M		23000	n/a	n/a	n/a

		Sample ID	SP3 @ SURFACE	SP3 @ 1'	SP3 @ 2'	SP3 @ 3'
Analyte	Method	Date	6/8/18	6/8/18	6/19/18	6/19/18
			mg/kg	mg/kg	mg/kg	mg/kg
Benzene	BTEX 8021B		<0.200	<0.050	<0.050	<0.050
Toluene	BTEX 8021B		2.65	0.285	<0.050	<0.050
Ethylbenzene	BTEX 8021B		5.07	<0.050	0.146	<0.050
Total Xylenes	BTEX 8021B		22.2	2.63	0.651	<0.150
Total BTEX	BTEX 8021B		30	2.92	0.813	<0.300
Chloride	SM4500Cl-B		976	304	224	176
GRO	TPH 8015M		673	96.5	14.2	<10.0
DRO	TPH 8015M		28600	2500	547	<10.0
EXT DRO	TPH 8015M		3740	391	60.4	<10.0

		Sample ID	SP4 @ SURFACE	SP4 @ 1'	SP4 @ 2'	SP4 @ 3'
Analyte	Method	Date	6/8/18	6/8/18	6/20/18	6/20/18
			mg/kg	mg/kg	mg/kg	mg/kg
Benzene	BTEX 8021B		<0.200	<0.050	<0.050	<0.050
Toluene	BTEX 8021B		2.24	0.163	<0.050	<0.050
Ethylbenzene	BTEX 8021B		5.12	<0.050	0.091	<0.050
Total Xylenes	BTEX 8021B		23.3	1.55	0.448	<0.150
Total BTEX	BTEX 8021B		30.6	1.71	0.563	<0.300
Chloride	SM4500Cl-B		1600	224	224	144
GRO	TPH 8015M		769	57.3	<10.0	<10.0
DRO	TPH 8015M		23900	2260	449	<10.0
EXT DRO	TPH 8015M		3070	390	89.7	<10.0

		Sample ID	SP5 @ SURFACE	SP5 @ 1'	SP5 @ 2'	SP5 @ 3'
Analyte	Method	Date	6/8/18	6/8/18	6/20/18	6/20/18
			mg/kg	mg/kg	mg/kg	mg/kg
Benzene	BTEX 8021B		<0.050	<0.050	<0.050	<0.050
Toluene	BTEX 8021B		0.286	0.308	<0.050	<0.050
Ethylbenzene	BTEX 8021B		0.958	<0.050	<0.050	<0.050
Total Xylenes	BTEX 8021B		4.41	2.63	0.209	<0.150
Total BTEX	BTEX 8021B		5.66	2.95	<0.300	<0.300
Chloride	SM4500Cl-B		1580	288	240	160
GRO	TPH 8015M		129	118	<10.0	<10.0
DRO	TPH 8015M		11400	2460	487	<10.0
EXT DRO	TPH 8015M		1700	407	103	<10.0

		Sample ID	NORTH @ SURFACE	EAST @ SURFACE	WEST @ SURFACE	SOUTH @ SURFACE
Analyte	Method	Date	6/8/18	6/8/18	6/8/18	6/8/18
			mg/kg	mg/kg	mg/kg	mg/kg
Benzene	BTEX 8021B		<0.050	<0.050	<0.050	<0.050
Toluene	BTEX 8021B		<0.050	<0.050	<0.050	<0.050
Ethylbenzene	BTEX 8021B		<0.050	<0.050	<0.050	<0.050
Total Xylenes	BTEX 8021B		<0.150	<0.150	<0.150	<0.150
Total BTEX	BTEX 8021B		<0.300	<0.300	<0.300	<0.300
Chloride	SM4500Cl-B		320	448	432	448
GRO	TPH 8015M		<10.0	<10.0	<10.0	<10.0
DRO	TPH 8015M		<10.0	<10.0	<10.0	<10.0
EXT DRO	TPH 8015M		<10.0	<10.0	<10.0	<10.0



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

June 25, 2018

Cliff Brunson

BBC International, Inc.

P.O. Box 805

Hobbs, NM 88241

RE: TYRELL FEE #002H

Enclosed are the results of analyses for samples received by the laboratory on 06/21/18 17:00.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-17-10. 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, appearing to read "Mike Snyder".

Mike Snyder For Celey D. Keene

Lab Director/Quality Manager



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

Analytical Results For:

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

Received: 06/21/2018
 Reported: 06/25/2018
 Project Name: TYRELL FEE #002H
 Project Number: (5/15/18)
 Project Location: COG - LEA CO NM

Sampling Date: 06/08/2018
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SP 1 @ SURFACE (H801708-01)

BTEx 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	06/22/2018	ND	1.83	91.6	2.00	4.05	
Toluene*	2.50	0.200	06/22/2018	ND	1.83	91.3	2.00	3.38	
Ethylbenzene*	5.33	0.200	06/22/2018	ND	1.81	90.6	2.00	3.64	
Total Xylenes*	23.7	0.600	06/22/2018	ND	5.66	94.3	6.00	3.06	
Total BTEx	31.6	1.20	06/22/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 142 % 69.8-142

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	80.0	16.0	06/22/2018	ND	432	108	400	3.77	

TPH 8015M		mg/kg		Analyzed By: MS						E
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10*	736	10.0	06/22/2018	ND	160	80.1	200	17.9		
DRO >C10-C28*	31400	10.0	06/22/2018	ND	182	90.9	200	14.9		
EXT DRO >C28-C36	598	10.0	06/22/2018	ND						
Total TPH C6-C28	32100	10.0	06/22/2018	ND	342	85.5	400	16.3		

Surrogate: 1-Chlorooctane 206 % 41-142

Surrogate: 1-Chlorooctadecane 1080 % 37.6-147

Cardinal Laboratories

*=Accredited Analyte

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

Mike Snyder For Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

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

Received: 06/21/2018
 Reported: 06/25/2018
 Project Name: TYRELL FEE #002H
 Project Number: (5/15/18)
 Project Location: COG - LEA CO NM

Sampling Date: 06/08/2018
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SP 1 @ 1' (H801708-02)

BTX 8021B		mg/kg		Analyzed By: MS				S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/22/2018	ND	1.83	91.6	2.00	4.05	
Toluene*	0.135	0.050	06/22/2018	ND	1.83	91.3	2.00	3.38	
Ethylbenzene*	<0.050	0.050	06/22/2018	ND	1.81	90.6	2.00	3.64	
Total Xylenes*	1.64	0.150	06/22/2018	ND	5.66	94.3	6.00	3.06	
Total BTX	1.78	0.300	06/22/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 152 % 69.8-142

Chloride, SM4500CI-B			mg/kg					Analyzed By: AC	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	06/22/2018	ND	432	108	400	3.77	

TPH 8015M			mg/kg					Analyzed By: MS	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	72.9	10.0	06/22/2018	ND	160	80.1	200	17.9	
DRO >C10-C28*	1970	10.0	06/22/2018	ND	182	90.9	200	14.9	
EXT DRO >C28-C36	322	10.0	06/22/2018	ND					

Surrogate: 1-Chlorooctane 88.5 % 41-142

Surrogate: 1-Chlorooctadecane 207 % 37.6-147

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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

Received: 06/21/2018
 Reported: 06/25/2018
 Project Name: TYRELL FEE #002H
 Project Number: (5/15/18)
 Project Location: COG - LEA CO NM

Sampling Date: 06/19/2018
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SP 1 @ 2' (H801708-03)

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	06/22/2018	ND	1.79	89.4	2.00	12.3	
Toluene*	<0.050	0.050	06/22/2018	ND	1.80	89.8	2.00	13.2	
Ethylbenzene*	0.235	0.050	06/22/2018	ND	1.79	89.4	2.00	13.6	
Total Xylenes*	1.00	0.150	06/22/2018	ND	5.21	86.8	6.00	13.3	
Total BTX	1.27	0.300	06/22/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 133 % 69.8-142

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	240	16.0	06/22/2018	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*	17.2	10.0	06/22/2018	ND	173	86.7	200	4.52	
DRO >C10-C28*	835	10.0	06/22/2018	ND	177	88.6	200	10.1	
EXT DRO >C28-C36	89.9	10.0	06/22/2018	ND					

Surrogate: 1-Chlorooctane 84.5 % 41-142

Surrogate: 1-Chlorooctadecane 120 % 37.6-147

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Analytical Results For:

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Received: 06/21/2018
 Reported: 06/25/2018
 Project Name: TYRELL FEE #002H
 Project Number: (5/15/18)
 Project Location: COG - LEA CO NM

Sampling Date: 06/19/2018
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SP 1 @ 3' (H801708-04)

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	06/22/2018	ND	1.79	89.4	2.00	12.3		
Toluene*	<0.050	0.050	06/22/2018	ND	1.80	89.8	2.00	13.2		
Ethylbenzene*	<0.050	0.050	06/22/2018	ND	1.79	89.4	2.00	13.6		
Total Xylenes*	<0.150	0.150	06/22/2018	ND	5.21	86.8	6.00	13.3		
Total BTX	<0.300	0.300	06/22/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 112 % 69.8-142

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	144	16.0	06/22/2018	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/22/2018	ND	173	86.7	200	4.52	
DRO >C10-C28*	<10.0	10.0	06/22/2018	ND	177	88.6	200	10.1	
EXT DRO >C28-C36	<10.0	10.0	06/22/2018	ND					

Surrogate: 1-Chlorooctane 75.2 % 41-142

Surrogate: 1-Chlorooctadecane 66.0 % 37.6-147

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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Received: 06/21/2018
 Reported: 06/25/2018
 Project Name: TYRELL FEE #002H
 Project Number: (5/15/18)
 Project Location: COG - LEA CO NM

Sampling Date: 06/08/2018
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SP 2 @ SURFACE (H801708-05)

BTEx 8021B		mg/kg	Analyzed By: MS					S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.200	0.200	06/22/2018	ND	1.83	91.6	2.00	4.05	
Toluene*	7.45	0.200	06/22/2018	ND	1.83	91.3	2.00	3.38	
Ethylbenzene*	10.6	0.200	06/22/2018	ND	1.81	90.6	2.00	3.64	
Total Xylenes*	44.7	0.600	06/22/2018	ND	5.66	94.3	6.00	3.06	
Total BTEx	62.9	1.20	06/22/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 147 % 69.8-142

Chloride, SM4500CI-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	06/22/2018	ND	416	104	400	0.00	

TPH 8015M		mg/kg	Analyzed By: MS					S-04, E	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	681	10.0	06/22/2018	ND	160	80.1	200	17.9	
DRO >C10-C28*	22300	10.0	06/22/2018	ND	182	90.9	200	14.9	
EXT DRO >C28-C36	669	10.0	06/22/2018	ND					
Total TPH C6-C28	23000	10.0	06/22/2018	ND	342	85.5	400	16.3	

Surrogate: 1-Chlorooctane 154 % 41-142

Surrogate: 1-Chlorooctadecane 2030 % 37.6-147

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Received: 06/21/2018
 Reported: 06/25/2018
 Project Name: TYRELL FEE #002H
 Project Number: (5/15/18)
 Project Location: COG - LEA CO NM

Sampling Date: 06/08/2018
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SP 2 @ 1' (H801708-06)

BTX 8021B		mg/kg		Analyzed By: MS				S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/22/2018	ND	1.83	91.6	2.00	4.05	
Toluene*	0.292	0.050	06/22/2018	ND	1.83	91.3	2.00	3.38	
Ethylbenzene*	<0.050	0.050	06/22/2018	ND	1.81	90.6	2.00	3.64	
Total Xylenes*	2.96	0.150	06/22/2018	ND	5.66	94.3	6.00	3.06	
Total BTX	3.26	0.300	06/22/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 187 % 69.8-142

Chloride, SM4500Cl-B			mg/kg					Analyzed By: AC	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	144	16.0	06/22/2018	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*	153	10.0	06/22/2018	ND	160	80.1	200	17.9	
DRO >C10-C28*	2900	10.0	06/22/2018	ND	182	90.9	200	14.9	
EXT DRO >C28-C36	455	10.0	06/22/2018	ND					

Surrogate: 1-Chlorooctane 102 % 41-142

Surrogate: 1-Chlorooctadecane 144 % 37.6-147

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Received: 06/21/2018
 Reported: 06/25/2018
 Project Name: TYRELL FEE #002H
 Project Number: (5/15/18)
 Project Location: COG - LEA CO NM

Sampling Date: 06/19/2018
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SP 2 @ 2' (H801708-07)

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	06/22/2018	ND	1.79	89.4	2.00	12.3		
Toluene*	<0.050	0.050	06/22/2018	ND	1.80	89.8	2.00	13.2		
Ethylbenzene*	<0.050	0.050	06/22/2018	ND	1.79	89.4	2.00	13.6		
Total Xylenes*	0.892	0.150	06/22/2018	ND	5.21	86.8	6.00	13.3		
Total BTEx	0.913	0.300	06/22/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 130 % 69.8-142

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	06/22/2018	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*	15.5	10.0	06/22/2018	ND	173	86.7	200	4.52	
DRO >C10-C28*	603	10.0	06/22/2018	ND	177	88.6	200	10.1	
EXT DRO >C28-C36	92.5	10.0	06/22/2018	ND					

Surrogate: 1-Chlorooctane 78.9 % 41-142

Surrogate: 1-Chlorooctadecane 104 % 37.6-147

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Received: 06/21/2018
 Reported: 06/25/2018
 Project Name: TYRELL FEE #002H
 Project Number: (5/15/18)
 Project Location: COG - LEA CO NM

Sampling Date: 06/19/2018
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SP 2 @ 3' (H801708-08)

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	06/22/2018	ND	1.79	89.4	2.00	12.3		
Toluene*	<0.050	0.050	06/22/2018	ND	1.80	89.8	2.00	13.2		
Ethylbenzene*	<0.050	0.050	06/22/2018	ND	1.79	89.4	2.00	13.6		
Total Xylenes*	<0.150	0.150	06/22/2018	ND	5.21	86.8	6.00	13.3		
Total BTX	<0.300	0.300	06/22/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 112 % 69.8-142

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	06/22/2018	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/22/2018	ND	173	86.7	200	4.52	
DRO >C10-C28*	<10.0	10.0	06/22/2018	ND	177	88.6	200	10.1	
EXT DRO >C28-C36	<10.0	10.0	06/22/2018	ND					

Surrogate: 1-Chlorooctane 57.2 % 41-142

Surrogate: 1-Chlorooctadecane 52.0 % 37.6-147

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 Fax To: (575) 397-0397

Received: 06/21/2018
 Reported: 06/25/2018
 Project Name: TYRELL FEE #002H
 Project Number: (5/15/18)
 Project Location: COG - LEA CO NM

Sampling Date: 06/08/2018
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SP 3 @ SURFACE (H801708-09)

BTX 8021B		mg/kg	Analyzed By: MS					S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.200	0.200	06/22/2018	ND	1.83	91.6	2.00	4.05	
Toluene*	2.65	0.200	06/22/2018	ND	1.83	91.3	2.00	3.38	
Ethylbenzene*	5.07	0.200	06/22/2018	ND	1.81	90.6	2.00	3.64	
Total Xylenes*	22.2	0.600	06/22/2018	ND	5.66	94.3	6.00	3.06	
Total BTX	30.0	1.20	06/22/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 143 % 69.8-142

Chloride, SM4500CI-B		mg/kg	Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	976	16.0	06/22/2018	ND	416	104	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*	673	50.0	06/22/2018	ND	160	80.1	200	17.9	
DRO >C10-C28*	28600	50.0	06/22/2018	ND	182	90.9	200	14.9	
EXT DRO >C28-C36	3740	50.0	06/22/2018	ND					

Surrogate: 1-Chlorooctane 205 % 41-142

Surrogate: 1-Chlorooctadecane 1580 % 37.6-147

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager



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Received: 06/21/2018
 Reported: 06/25/2018
 Project Name: TYRELL FEE #002H
 Project Number: (5/15/18)
 Project Location: COG - LEA CO NM

Sampling Date: 06/08/2018
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SP 3 @ 1' (H801708-10)

BTX 8021B		mg/kg		Analyzed By: MS				S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/22/2018	ND	1.83	91.6	2.00	4.05	
Toluene*	0.285	0.050	06/22/2018	ND	1.83	91.3	2.00	3.38	
Ethylbenzene*	<0.050	0.050	06/22/2018	ND	1.81	90.6	2.00	3.64	
Total Xylenes*	2.63	0.150	06/22/2018	ND	5.66	94.3	6.00	3.06	
Total BTX	2.92	0.300	06/22/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 175 % 69.8-142

Chloride, SM4500CI-B			mg/kg					Analyzed By: AC	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	304	16.0	06/22/2018	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*	96.5	10.0	06/22/2018	ND	160	80.1	200	17.9	
DRO >C10-C28*	2500	10.0	06/22/2018	ND	182	90.9	200	14.9	
EXT DRO >C28-C36	391	10.0	06/22/2018	ND					

Surrogate: 1-Chlorooctane 93.6 % 41-142

Surrogate: 1-Chlorooctadecane 135 % 37.6-147

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

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

Received: 06/21/2018
 Reported: 06/25/2018
 Project Name: TYRELL FEE #002H
 Project Number: (5/15/18)
 Project Location: COG - LEA CO NM

Sampling Date: 06/19/2018
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SP 3 @ 2' (H801708-11)

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	06/22/2018	ND	1.79	89.4	2.00	12.3		
Toluene*	<0.050	0.050	06/22/2018	ND	1.80	89.8	2.00	13.2		
Ethylbenzene*	0.146	0.050	06/22/2018	ND	1.79	89.4	2.00	13.6		
Total Xylenes*	0.651	0.150	06/22/2018	ND	5.21	86.8	6.00	13.3		
Total BTX	0.813	0.300	06/22/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 130 % 69.8-142

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	224	16.0	06/22/2018	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*	14.2	10.0	06/22/2018	ND	173	86.7	200	4.52	
DRO >C10-C28*	547	10.0	06/22/2018	ND	177	88.6	200	10.1	
EXT DRO >C28-C36	60.4	10.0	06/22/2018	ND					

Surrogate: 1-Chlorooctane 77.9 % 41-142

Surrogate: 1-Chlorooctadecane 100 % 37.6-147

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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

Received: 06/21/2018
 Reported: 06/25/2018
 Project Name: TYRELL FEE #002H
 Project Number: (5/15/18)
 Project Location: COG - LEA CO NM

Sampling Date: 06/19/2018
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SP 3 @ 3' (H801708-12)

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	06/22/2018	ND	1.79	89.4	2.00	12.3	
Toluene*	<0.050	0.050	06/22/2018	ND	1.80	89.8	2.00	13.2	
Ethylbenzene*	<0.050	0.050	06/22/2018	ND	1.79	89.4	2.00	13.6	
Total Xylenes*	<0.150	0.150	06/22/2018	ND	5.21	86.8	6.00	13.3	
Total BTX	<0.300	0.300	06/22/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 113 % 69.8-142

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	176	16.0	06/22/2018	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/22/2018	ND	173	86.7	200	4.52	
DRO >C10-C28*	<10.0	10.0	06/22/2018	ND	177	88.6	200	10.1	
EXT DRO >C28-C36	<10.0	10.0	06/22/2018	ND					

Surrogate: 1-Chlorooctane 65.6 % 41-142

Surrogate: 1-Chlorooctadecane 60.2 % 37.6-147

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Analytical Results For:

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

Received: 06/21/2018
 Reported: 06/25/2018
 Project Name: TYRELL FEE #002H
 Project Number: (5/15/18)
 Project Location: COG - LEA CO NM

Sampling Date: 06/08/2018
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SP 4 @ SURFACE (H801708-13)

BTX 8021B		mg/kg		Analyzed By: MS				S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.200	0.200	06/22/2018	ND	1.83	91.6	2.00	4.05	
Toluene*	2.24	0.200	06/22/2018	ND	1.83	91.3	2.00	3.38	
Ethylbenzene*	5.12	0.200	06/22/2018	ND	1.81	90.6	2.00	3.64	
Total Xylenes*	23.3	0.600	06/22/2018	ND	5.66	94.3	6.00	3.06	
Total BTX	30.6	1.20	06/22/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 151 % 69.8-142

Chloride, SM4500CI-B			mg/kg					Analyzed By: AC	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1600	16.0	06/22/2018	ND	416	104	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*	769	50.0	06/22/2018	ND	160	80.1	200	17.9	
DRO >C10-C28*	23900	50.0	06/22/2018	ND	182	90.9	200	14.9	
EXT DRO >C28-C36	3070	50.0	06/22/2018	ND					

Surrogate: 1-Chlorooctane 235 % 41-142

Surrogate: 1-Chlorooctadecane 1660 % 37.6-147

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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 Fax To: (575) 397-0397

Received: 06/21/2018
 Reported: 06/25/2018
 Project Name: TYRELL FEE #002H
 Project Number: (5/15/18)
 Project Location: COG - LEA CO NM

Sampling Date: 06/08/2018
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SP 4 @ 1' (H801708-14)

BTX 8021B		mg/kg	Analyzed By: MS					S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/22/2018	ND	1.83	91.6	2.00	4.05	
Toluene*	0.163	0.050	06/22/2018	ND	1.83	91.3	2.00	3.38	
Ethylbenzene*	<0.050	0.050	06/22/2018	ND	1.81	90.6	2.00	3.64	
Total Xylenes*	1.55	0.150	06/22/2018	ND	5.66	94.3	6.00	3.06	
Total BTX	1.71	0.300	06/22/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 162 % 69.8-142

Chloride, SM4500CI-B		mg/kg	Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	224	16.0	06/22/2018	ND	416	104	400	0.00	

TPH 8015M		mg/kg	Analyzed By: MS					S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	57.3	10.0	06/22/2018	ND	160	80.1	200	17.9	
DRO >C10-C28*	2260	10.0	06/22/2018	ND	182	90.9	200	14.9	
EXT DRO >C28-C36	390	10.0	06/22/2018	ND					

Surrogate: 1-Chlorooctane 99.1 % 41-142

Surrogate: 1-Chlorooctadecane 249 % 37.6-147

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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Received: 06/21/2018
 Reported: 06/25/2018
 Project Name: TYRELL FEE #002H
 Project Number: (5/15/18)
 Project Location: COG - LEA CO NM

Sampling Date: 06/20/2018
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SP 4 @ 2' (H801708-15)

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	06/22/2018	ND	1.79	89.4	2.00	12.3	
Toluene*	<0.050	0.050	06/22/2018	ND	1.80	89.8	2.00	13.2	
Ethylbenzene*	0.091	0.050	06/22/2018	ND	1.79	89.4	2.00	13.6	
Total Xylenes*	0.448	0.150	06/22/2018	ND	5.21	86.8	6.00	13.3	
Total BTX	0.563	0.300	06/22/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 120 % 69.8-142

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	224	16.0	06/22/2018	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/22/2018	ND	173	86.7	200	4.52	
DRO >C10-C28*	449	10.0	06/22/2018	ND	177	88.6	200	10.1	
EXT DRO >C28-C36	89.7	10.0	06/22/2018	ND					

Surrogate: 1-Chlorooctane 77.5 % 41-142

Surrogate: 1-Chlorooctadecane 99.0 % 37.6-147

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

BBC International, Inc.
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 P.O. Box 805
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 Fax To: (575) 397-0397

Received: 06/21/2018
 Reported: 06/25/2018
 Project Name: TYRELL FEE #002H
 Project Number: (5/15/18)
 Project Location: COG - LEA CO NM

Sampling Date: 06/20/2018
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SP 4 @ 3' (H801708-16)

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	06/22/2018	ND	1.79	89.4	2.00	12.3		
Toluene*	<0.050	0.050	06/22/2018	ND	1.80	89.8	2.00	13.2		
Ethylbenzene*	<0.050	0.050	06/22/2018	ND	1.79	89.4	2.00	13.6		
Total Xylenes*	<0.150	0.150	06/22/2018	ND	5.21	86.8	6.00	13.3		
Total BTX	<0.300	0.300	06/22/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 113 % 69.8-142

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	144	16.0	06/22/2018	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/22/2018	ND	173	86.7	200	4.52	
DRO >C10-C28*	<10.0	10.0	06/22/2018	ND	177	88.6	200	10.1	
EXT DRO >C28-C36	<10.0	10.0	06/22/2018	ND					

Surrogate: 1-Chlorooctane 68.7 % 41-142

Surrogate: 1-Chlorooctadecane 62.6 % 37.6-147

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Analytical Results For:

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 Fax To: (575) 397-0397

Received: 06/21/2018
 Reported: 06/25/2018
 Project Name: TYRELL FEE #002H
 Project Number: (5/15/18)
 Project Location: COG - LEA CO NM

Sampling Date: 06/08/2018
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SP 5 @ SURFACE (H801708-17)

BTX 8021B		mg/kg	Analyzed By: MS					S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/22/2018	ND	1.83	91.6	2.00	4.05	
Toluene*	0.286	0.050	06/22/2018	ND	1.83	91.3	2.00	3.38	
Ethylbenzene*	0.958	0.050	06/22/2018	ND	1.81	90.6	2.00	3.64	
Total Xylenes*	4.41	0.150	06/22/2018	ND	5.66	94.3	6.00	3.06	
Total BTX	5.66	0.300	06/22/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 164 % 69.8-142

Chloride, SM4500CI-B		mg/kg	Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1580	16.0	06/22/2018	ND	416	104	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*	129	50.0	06/22/2018	ND	160	80.1	200	17.9	
DRO >C10-C28*	11400	50.0	06/22/2018	ND	182	90.9	200	14.9	
EXT DRO >C28-C36	1700	50.0	06/22/2018	ND					

Surrogate: 1-Chlorooctane 114 % 41-142

Surrogate: 1-Chlorooctadecane 579 % 37.6-147

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Analytical Results For:

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 Fax To: (575) 397-0397

Received: 06/21/2018
 Reported: 06/25/2018
 Project Name: TYRELL FEE #002H
 Project Number: (5/15/18)
 Project Location: COG - LEA CO NM

Sampling Date: 06/08/2018
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SP 5 @ 1' (H801708-18)

BTX 8021B		mg/kg	Analyzed By: MS					S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/22/2018	ND	1.83	91.6	2.00	4.05	
Toluene*	0.308	0.050	06/22/2018	ND	1.83	91.3	2.00	3.38	
Ethylbenzene*	<0.050	0.050	06/22/2018	ND	1.81	90.6	2.00	3.64	
Total Xylenes*	2.63	0.150	06/22/2018	ND	5.66	94.3	6.00	3.06	
Total BTX	2.95	0.300	06/22/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 173 % 69.8-142

Chloride, SM4500CI-B		mg/kg	Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	288	16.0	06/22/2018	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*	118	10.0	06/22/2018	ND	160	80.1	200	17.9	
DRO >C10-C28*	2460	10.0	06/22/2018	ND	182	90.9	200	14.9	
EXT DRO >C28-C36	407	10.0	06/22/2018	ND					

Surrogate: 1-Chlorooctane 104 % 41-142

Surrogate: 1-Chlorooctadecane 145 % 37.6-147

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Analytical Results For:

BBC International, Inc.
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 P.O. Box 805
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 Fax To: (575) 397-0397

Received: 06/21/2018
 Reported: 06/25/2018
 Project Name: TYRELL FEE #002H
 Project Number: (5/15/18)
 Project Location: COG - LEA CO NM

Sampling Date: 06/20/2018
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SP 5 @ 2' (H801708-19)

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	06/22/2018	ND	1.79	89.4	2.00	12.3		
Toluene*	<0.050	0.050	06/22/2018	ND	1.80	89.8	2.00	13.2		
Ethylbenzene*	<0.050	0.050	06/22/2018	ND	1.79	89.4	2.00	13.6		
Total Xylenes*	0.209	0.150	06/22/2018	ND	5.21	86.8	6.00	13.3		
Total BTEX	<0.300	0.300	06/22/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 113 % 69.8-142

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	240	16.0	06/22/2018	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/22/2018	ND	173	86.7	200	4.52	
DRO >C10-C28*	487	10.0	06/22/2018	ND	177	88.6	200	10.1	
EXT DRO >C28-C36	103	10.0	06/22/2018	ND					

Surrogate: 1-Chlorooctane 85.2 % 41-142

Surrogate: 1-Chlorooctadecane 111 % 37.6-147

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

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

Received: 06/21/2018
 Reported: 06/25/2018
 Project Name: TYRELL FEE #002H
 Project Number: (5/15/18)
 Project Location: COG - LEA CO NM

Sampling Date: 06/20/2018
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SP 5 @ 3' (H801708-20)

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	06/22/2018	ND	1.79	89.4	2.00	12.3		
Toluene*	<0.050	0.050	06/22/2018	ND	1.80	89.8	2.00	13.2		
Ethylbenzene*	<0.050	0.050	06/22/2018	ND	1.79	89.4	2.00	13.6		
Total Xylenes*	<0.150	0.150	06/22/2018	ND	5.21	86.8	6.00	13.3		
Total BTX	<0.300	0.300	06/22/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 112 % 69.8-142

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	06/22/2018	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/22/2018	ND	173	86.7	200	4.52	
DRO >C10-C28*	<10.0	10.0	06/22/2018	ND	177	88.6	200	10.1	
EXT DRO >C28-C36	<10.0	10.0	06/22/2018	ND					

Surrogate: 1-Chlorooctane 67.7 % 41-142

Surrogate: 1-Chlorooctadecane 61.9 % 37.6-147

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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

Received: 06/21/2018
 Reported: 06/25/2018
 Project Name: TYRELL FEE #002H
 Project Number: (5/15/18)
 Project Location: COG - LEA CO NM

Sampling Date: 06/08/2018
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: NORTH @ SURFACE (H801708-21)

BTX 8021B		mg/kg	Analyzed By: MS					S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/22/2018	ND	1.83	91.6	2.00	4.05	
Toluene*	<0.050	0.050	06/22/2018	ND	1.83	91.3	2.00	3.38	
Ethylbenzene*	<0.050	0.050	06/22/2018	ND	1.81	90.6	2.00	3.64	
Total Xylenes*	<0.150	0.150	06/22/2018	ND	5.66	94.3	6.00	3.06	
Total BTX	<0.300	0.300	06/22/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 136 % 69.8-142

Chloride, SM4500CI-B		mg/kg	Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	320	16.0	06/22/2018	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	06/22/2018	ND	160	80.1	200	17.9	
DRO >C10-C28*	<50.0	50.0	06/22/2018	ND	182	90.9	200	14.9	
EXT DRO >C28-C36	<50.0	50.0	06/22/2018	ND					

Surrogate: 1-Chlorooctane 91.0 % 41-142

Surrogate: 1-Chlorooctadecane 94.2 % 37.6-147

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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

Received: 06/21/2018
 Reported: 06/25/2018
 Project Name: TYRELL FEE #002H
 Project Number: (5/15/18)
 Project Location: COG - LEA CO NM

Sampling Date: 06/08/2018
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: EAST @ SURFACE (H801708-22)

BTX 8021B		mg/kg		Analyzed By: MS				S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/22/2018	ND	1.83	91.6	2.00	4.05	
Toluene*	<0.050	0.050	06/22/2018	ND	1.83	91.3	2.00	3.38	
Ethylbenzene*	<0.050	0.050	06/22/2018	ND	1.81	90.6	2.00	3.64	
Total Xylenes*	<0.150	0.150	06/22/2018	ND	5.66	94.3	6.00	3.06	
Total BTX	<0.300	0.300	06/22/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 133 % 69.8-142

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	448	16.0	06/22/2018	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/22/2018	ND	160	80.1	200	17.9	
DRO >C10-C28*	<10.0	10.0	06/22/2018	ND	182	90.9	200	14.9	
EXT DRO >C28-C36	<10.0	10.0	06/22/2018	ND					

Surrogate: 1-Chlorooctane 80.0 % 41-142

Surrogate: 1-Chlorooctadecane 82.3 % 37.6-147

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

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

Received: 06/21/2018
 Reported: 06/25/2018
 Project Name: TYRELL FEE #002H
 Project Number: (5/15/18)
 Project Location: COG - LEA CO NM

Sampling Date: 06/08/2018
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: WEST @ SURFACE (H801708-23)

BTX 8021B		mg/kg	Analyzed By: MS					S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/22/2018	ND	1.83	91.6	2.00	4.05	
Toluene*	<0.050	0.050	06/22/2018	ND	1.83	91.3	2.00	3.38	
Ethylbenzene*	<0.050	0.050	06/22/2018	ND	1.81	90.6	2.00	3.64	
Total Xylenes*	<0.150	0.150	06/22/2018	ND	5.66	94.3	6.00	3.06	
Total BTX	<0.300	0.300	06/22/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 134 % 69.8-142

Chloride, SM4500CI-B		mg/kg	Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	432	16.0	06/22/2018	ND	416	104	400	3.77	

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	06/22/2018	ND	160	80.1	200	17.9	
DRO >C10-C28*	<10.0	10.0	06/22/2018	ND	182	90.9	200	14.9	
EXT DRO >C28-C36	<10.0	10.0	06/22/2018	ND					

Surrogate: 1-Chlorooctane 80.9 % 41-142

Surrogate: 1-Chlorooctadecane 83.4 % 37.6-147

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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

Received: 06/21/2018
 Reported: 06/25/2018
 Project Name: TYRELL FEE #002H
 Project Number: (5/15/18)
 Project Location: COG - LEA CO NM

Sampling Date: 06/08/2018
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SOUTH @ SURFACE (H801708-24)

BTX 8021B		mg/kg	Analyzed By: MS					S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/22/2018	ND	1.83	91.6	2.00	4.05	
Toluene*	<0.050	0.050	06/22/2018	ND	1.83	91.3	2.00	3.38	
Ethylbenzene*	<0.050	0.050	06/22/2018	ND	1.81	90.6	2.00	3.64	
Total Xylenes*	<0.150	0.150	06/22/2018	ND	5.66	94.3	6.00	3.06	
Total BTX	<0.300	0.300	06/22/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 144 % 69.8-142

Chloride, SM4500CI-B		mg/kg	Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	448	16.0	06/22/2018	ND	416	104	400	3.77	

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	06/22/2018	ND	160	80.1	200	17.9	
DRO >C10-C28*	<10.0	10.0	06/22/2018	ND	182	90.9	200	14.9	
EXT DRO >C28-C36	<10.0	10.0	06/22/2018	ND					

Surrogate: 1-Chlorooctane 82.6 % 41-142

Surrogate: 1-Chlorooctadecane 86.3 % 37.6-147

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

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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.
S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
E	The concentration indicated for this analyte is an estimated value above the calibration range of the instrument. This value is considered an estimate (CLP E-flag).
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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A handwritten signature in black ink, appearing to read "Mike Snyder", written over a horizontal line.

Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

**CARDINAL LABORATORIES**

101 East Marland, Hobbs, NM 88240

(505) 393-2326 FAX (505) 393-2476

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

103

Company Name: BBC International, Inc.				BILL TO				ANALYSIS REQUEST															
Project Manager: Cliff Brunson				P.O. #:				<div style="display: flex; justify-content: space-around;"> <div>CL</div> <div>BTEX</div> <div>TPHEXT</div> </div>															
Address: P.O. Box 805				Company: COG																			
City: Hobbs		State: NM		Zip: 88241		Attn: Becky Haskell																	
Phone #: 575-397-6388		Fax #: 575-397-0397		Address:																			
Project #:		Project Owner: COG		City:																			
Project Name: TYRELL FEE #002H (5/15/18)				State:																Zip:			
Project Location: LEA COUNTY, NM				Phone #:																			
Sampler Name: JEFF ORNELAS				Fax #:																			
FOR LAB USE ONLY																							
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX				PRESERV.		SAMPLING													
				GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	ACID/BASE:	ICE / COOL	OTHER:	DATE	TIME									
H801708																							
1	SP1 @ SURFACE	G	1			✓				✓			6/8/18	8:59 AM	✓	✓							
2	SP1 @ 1'	G	1			✓				✓			6/8/18	9:15 AM	✓	✓							
3	SP1 @ 2'	G	1			✓				✓			6/19/18	10:09 AM	✓	✓							
4	SP1 @ 3'	G	1			✓				✓			6/19/18	12:01 PM	✓	✓							
5	SP2 @ SURFACE	G	1			✓				✓			6/8/18	9:33 AM	✓	✓							
6	SP2 @ 1'	G	1			✓				✓			6/8/18	9:51 AM	✓	✓							
7	SP2 @ 2'	G	1			✓				✓			6/19/18	10:09 AM	✓	✓							
8	SP2 @ 3'	G	1			✓				✓			6/19/18	11:11 AM	✓	✓							
9	SP3 @ SURFACE	G	1			✓				✓			6/8/18	10:15 AM	✓	✓							
10	SP3 @ 1'	G	1			✓				✓			6/8/18	10:31 AM	✓	✓							

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Relinquished By: Jeff Ornelas	Date: 6/19/18	Received By: Israel Pen	Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Phone #:
	Time: 5:30pm		Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Fax #:
Relinquished By: Brad Pen	Date: 6-21-18	Received By: Tamara Blahut	REMARKS:	
	Time: 5:00			
Delivered By: (Circle One)	Sample Condition	CHECKED BY:	<div style="font-size: 2em; font-weight: bold;">Push!</div> <div style="font-size: 1.5em;">Some samples have head space</div>	
Sampler - UPS - Bus - Other:	Cool Intact <input type="checkbox"/> Yes <input type="checkbox"/> No	(Initials) T-#75		

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



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283

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CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

3083

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Relinquished By: <i>V. H. Williams</i>		Date: <i>6/9/18</i>	Received By: <i>[Signature]</i>		Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Phone #: _____
Time: <i>5:30pm</i>					Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Fax #: _____
Relinquished By: <i>[Signature]</i>		Date: <i>6-21-18</i>	Received By: <i>[Signature]</i>		REMARKS: <i>Rush!</i>	
Time: <i>9:00</i>						
Delivered By: (Circle One) <i>3.2°C</i>		Sample Condition	CHECKED BY: (Initials)			
Sampler - UPS - Bus - Other: <i>Corrected 3.15°C</i>		Cool <input type="checkbox"/> Intact <input type="checkbox"/>	<i>no. #15</i>		<i>Some samples have head space</i>	
		Yes <input type="checkbox"/> No <input type="checkbox"/>				

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

Released to Imaging: 12/2/2022 10:16:14 AM

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 April 3, 2017
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. (OGRID #229137)	Contact: Robert McNeill
Address: 600 West Illinois Avenue, Midland TX 79701	Telephone No. 432-683-7443
Facility Name: Tyrell Fee #002H	Facility Type: Well
Surface Owner: Private	Mineral Owner: Private
API No. 30-025-42789	

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
A	14	24S	33E	190	North	990	East	Lea

Latitude 32.22433799 Longitude -103.5378044 NAD83

NATURE OF RELEASE

Type of Release: Oil & Produced Water	Volume of Release: 3 bbl. Oil 10 bbl. Produced Water	Volume Recovered: 1 bbl. Oil 5 bbl. Produced Water
Source of Release: Closed Valve	Date and Hour of Occurrence: May 15, 2018 11:30am	Date and Hour of Discovery: May 15, 2018 11:30am
Was Immediate Notice Given? <input type="checkbox"/> Yes <input checked="" 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.*		

RECEIVED

By Olivia Yu at 2:29 pm, May 21, 2018

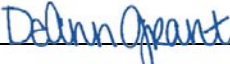

Describe Cause of Problem and Remedial Action Taken.*

The release was caused by the ball valve from the separator being closed and causing the sump tank to spill over.

Describe Area Affected and Cleanup Action Taken.*

The release was on location. A vacuum truck was dispatched to remove all freestanding fluids. Concho will have the spill area sampled to delineate any possible impact from the release and we will present a remediation work plan to the NMOCD for approval prior to any significant remediation activities.

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>OIL CONSERVATION DIVISION</u>	
Printed Name: DeAnn Grant		Approved by Environmental Specialist: 	
Title: HSE Administrative Assistant	Approval Date: 5/21/2018	Expiration Date:	
E-mail Address: agrant@concho.com	Conditions of Approval: see attached directive	Attached <input checked="" type="checkbox"/>	
Date: May 16, 2018	Phone: 432-253-4513		

* Attach Additional Sheets If Necessary

1RP-5063

nOY1814154301

pOY1814154471

Operator/Responsible Party,

The OCD has received the form C-141 you provided on _5/16/2018_ regarding an unauthorized release. The information contained on that form has been entered into our incident database and remediation case number _1RP-5063_ has been assigned. **Please refer to this case number in all future correspondence.**

It is the Division's obligation under both the Oil & Gas Act and Water Quality Act to provide for the protection of public health and the environment. Our regulations (19.15.29.11 NMAC) state the following,

The responsible person shall complete division-approved corrective action for releases that endanger public health or the environment. The responsible person shall address releases in accordance with a remediation plan submitted to and approved by the division or with an abatement plan submitted in accordance with 19.15.30 NMAC. [emphasis added]

Release characterization is the first phase of corrective action unless the release is ongoing or is of limited volume and all impacts can be immediately addressed. Proper and cost-effective remediation typically cannot occur without adequate characterization of the impacts of any release. Furthermore, the Division has the ability to impose reasonable conditions upon the efforts it oversees. **As such, the Division is requiring a workplan for the characterization of impacts associated with this release be submitted to the OCD District _1_ office in __Hobbs__ on or before _6/21/2018_. If and when the release characterization workplan is approved, there will be an associated deadline for submittal of the resultant investigation report. Modest extensions of time to these deadlines may be granted, but only with acceptable justification.**

The goals of a characterization effort are: 1) determination of the lateral and vertical extents along with the magnitude of soil contamination. 2) determine if groundwater or surface waters have been impacted. 3) If groundwater or surface waters have been impacted, what are the extents and magnitude of that impact. 4) The characterization of any other adverse impacts that may have occurred (examples: impacts on vegetation, impacts on wildlife, air quality, loss of use of property, etc.). To meet these goals as quickly as possible, the following items must, at a minimum, be addressed in the release characterization workplan and subsequent reporting:

- Horizontal delineation of soil impacts in each of the four cardinal compass directions. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C₆ thru C₃₆), and for chloride by Method 300. This is not an exclusive list of potential contaminants. Analyzed parameters should be modified based on the nature of the released substance(s). Soil sampling must be both within the impacted area and beyond.
- Vertical delineation of soil impacts. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C₆ thru C₃₆), and for chloride by Method 300. As above, this is not an exclusive list of potential contaminants and can be modified. Vertical characterization samples should be taken at depth intervals no greater than five feet apart. Lithologic description of encountered soils must also be provided. At least ten vertical feet of soils with contaminant concentrations at or below these values must be demonstrated as existing above the water table.
- Nominal detection limits for field and laboratory analyses must be provided.
- Composite sampling is not generally allowed.
- Field screening and assessment techniques are acceptable (headspace, titration, EC [include algorithm for validation purposes], EM, etc.), but the sampling and assay procedures must be clearly defined. Copies of field notes are highly desirable. A statistically significant set of split samples must be submitted for confirmatory laboratory analysis, including the laterally farthest and vertically deepest sets of soil samples. Make sure there are at least two soil samples submitted

for laboratory analysis from each borehole or test pit (highest observed contamination and deepest depth investigated). Copies of the actual laboratory results must be provided including chain of custody documentation.

- Probable depth to shallowest protectable groundwater and lateral distance to nearest surface water. If there is an estimate of groundwater depth, the information used to arrive at that estimate must be provided. If there is a reasonable assumption that the depth to protectable water is 50 feet or less, the responsible party should anticipate the need for at least one groundwater monitoring well to be installed in the area of likely maximum contamination.

- If groundwater contamination is encountered, an additional investigation workplan may be required to determine the extents of that contamination. Groundwater and/or surface water samples, if any, must be analyzed by a competent laboratory for volatile organic hydrocarbons (typically Method 8260 full list), total dissolved solids, pH, major anions and cations including chloride and sulfate, dissolved iron, and dissolved manganese. The investigation workplan must provide the groundwater sampling method(s) and sample handling protocols. To the fullest extent possible, aqueous analyses must be undertaken using nominal method detection limits. As with the soil analyses, copies of the actual laboratory results must be provided including chain of custody documentation.

- Accurately scaled and well-drafted site maps must be provided providing the location of borings, test pits, monitoring wells, potentially impacted areas, and significant surface features including roads and site infrastructure that might limit either the release characterization or remedial efforts. Field sketches may be included in subsequent reporting, but should not be considered stand-alone documentation of the site's layout. Digital photographic documentation of the location and fieldwork is recommended, especially if unusual circumstances are encountered.

Nothing herein should be interpreted to preclude emergency response actions or to imply immediate remediation by removal cannot proceed as warranted. Nonetheless, characterization of impacts and confirmation of the effectiveness of remedial efforts must still be provided to the OCD before any release incident will be closed.

Jim Griswold

OCD Environmental Bureau Chief
1220 South St. Francis Drive
Santa Fe, New Mexico 87505
505-476-3465
jim.griswold@state.nm.us

APPENDIX V



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

November 16, 2018

SHELDON HITCHCOCK

COG OPERATING

P. O. BOX 1630

ARTESIA, NM 88210

RE: TYRELL FEE #2H

Enclosed are the results of analyses for samples received by the laboratory on 11/13/18 12:40.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-18-11. 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



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

Analytical Results For:

COG OPERATING
SHELDON HITCHCOCK
P. O. BOX 1630
ARTESIA NM, 88210
Fax To: NONE

Received: 11/13/2018
Reported: 11/16/2018
Project Name: TYRELL FEE #2H
Project Number: NONE GIVEN
Project Location: NONE GIVEN

Sampling Date: 11/08/2018
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SP 1 / SP 2 - BTM (H803297-01)

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	11/15/2018	ND	1.82	90.8	2.00	1.37	
Toluene*	<0.050	0.050	11/15/2018	ND	2.01	101	2.00	4.62	
Ethylbenzene*	<0.050	0.050	11/15/2018	ND	2.10	105	2.00	4.65	
Total Xylenes*	<0.150	0.150	11/15/2018	ND	6.39	107	6.00	4.19	
Total BTEX	<0.300	0.300	11/15/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 103 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	11/15/2018	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	11/14/2018	ND	188	94.1	200	4.48	
DRO >C10-C28*	144	10.0	11/14/2018	ND	196	98.2	200	2.83	
EXT DRO >C28-C36	49.7	10.0	11/14/2018	ND					

Surrogate: 1-Chlorooctane 90.5 % 41-142

Surrogate: 1-Chlorooctadecane 97.0 % 37.6-147

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

COG OPERATING
SHELDON HITCHCOCK
P. O. BOX 1630
ARTESIA NM, 88210
Fax To: NONE

Received: 11/13/2018
Reported: 11/16/2018
Project Name: TYRELL FEE #2H
Project Number: NONE GIVEN
Project Location: NONE GIVEN

Sampling Date: 11/08/2018
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SP 1 / SP 2 - NORTH (H803297-02)

BTEx 8021B		mg/kg	Analyzed By: MS					S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	11/15/2018	ND	1.82	90.8	2.00	1.37	
Toluene*	0.154	0.050	11/15/2018	ND	2.01	101	2.00	4.62	
Ethylbenzene*	<0.050	0.050	11/15/2018	ND	2.10	105	2.00	4.65	
Total Xylenes*	8.55	0.150	11/15/2018	ND	6.39	107	6.00	4.19	
Total BTEX	8.71	0.300	11/15/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 168 % 73.3-129

Chloride, SM4500Cl-B		mg/kg	Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	11/15/2018	ND	432	108	400	0.00	

TPH 8015M		mg/kg	Analyzed By: MS					S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	196	10.0	11/14/2018	ND	188	94.1	200	4.48	
DRO >C10-C28*	3750	10.0	11/14/2018	ND	196	98.2	200	2.83	
EXT DRO >C28-C36	757	10.0	11/14/2018	ND					

Surrogate: 1-Chlorooctane 118 % 41-142

Surrogate: 1-Chlorooctadecane 224 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

COG OPERATING
SHELDON HITCHCOCK
P. O. BOX 1630
ARTESIA NM, 88210
Fax To: NONE

Received: 11/13/2018
Reported: 11/16/2018
Project Name: TYRELL FEE #2H
Project Number: NONE GIVEN
Project Location: NONE GIVEN

Sampling Date: 11/08/2018
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SP 1 / SP 2 - SOUTH (H803297-03)

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	11/15/2018	ND	1.82	90.8	2.00	1.37		
Toluene*	<0.050	0.050	11/15/2018	ND	2.01	101	2.00	4.62		
Ethylbenzene*	<0.050	0.050	11/15/2018	ND	2.10	105	2.00	4.65		
Total Xylenes*	1.02	0.150	11/15/2018	ND	6.39	107	6.00	4.19		
Total BTEx	1.02	0.300	11/15/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 121 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	11/15/2018	ND	416	104	400	12.2		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	20.6	10.0	11/14/2018	ND	188	94.1	200	4.48	
DRO >C10-C28*	505	10.0	11/14/2018	ND	196	98.2	200	2.83	
EXT DRO >C28-C36	123	10.0	11/14/2018	ND					

Surrogate: 1-Chlorooctane 93.5 % 41-142

Surrogate: 1-Chlorooctadecane 111 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

COG OPERATING
SHELDON HITCHCOCK
P. O. BOX 1630
ARTESIA NM, 88210
Fax To: NONE

Received: 11/13/2018
Reported: 11/16/2018
Project Name: TYRELL FEE #2H
Project Number: NONE GIVEN
Project Location: NONE GIVEN

Sampling Date: 11/08/2018
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SP 1 / SP 2 - EAST (H803297-04)

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	11/15/2018	ND	1.82	90.8	2.00	1.37		
Toluene*	<0.050	0.050	11/15/2018	ND	2.01	101	2.00	4.62		
Ethylbenzene*	<0.050	0.050	11/15/2018	ND	2.10	105	2.00	4.65		
Total Xylenes*	0.500	0.150	11/15/2018	ND	6.39	107	6.00	4.19		
Total BTEX	0.500	0.300	11/15/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 119 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	11/15/2018	ND	416	104	400	12.2		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	11.3	10.0	11/15/2018	ND	217	108	200	9.14	
DRO >C10-C28*	456	10.0	11/15/2018	ND	220	110	200	7.10	
EXT DRO >C28-C36	75.8	10.0	11/15/2018	ND					

Surrogate: 1-Chlorooctane 103 % 41-142

Surrogate: 1-Chlorooctadecane 113 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

COG OPERATING
 SHELDON HITCHCOCK
 P. O. BOX 1630
 ARTESIA NM, 88210
 Fax To: NONE

Received: 11/13/2018
 Reported: 11/16/2018
 Project Name: TYRELL FEE #2H
 Project Number: NONE GIVEN
 Project Location: NONE GIVEN

Sampling Date: 11/08/2018
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SP 1 / SP 2 - WEST (H803297-05)

BTX 8021B		mg/kg	Analyzed By: MS					S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	11/15/2018	ND	1.82	90.8	2.00	1.37	
Toluene*	0.214	0.050	11/15/2018	ND	2.01	101	2.00	4.62	
Ethylbenzene*	<0.050	0.050	11/15/2018	ND	2.10	105	2.00	4.65	
Total Xylenes*	5.02	0.150	11/15/2018	ND	6.39	107	6.00	4.19	
Total BTX	5.23	0.300	11/15/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 153 % 73.3-129

Chloride, SM4500CI-B		mg/kg	Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	11/15/2018	ND	416	104	400	12.2	

TPH 8015M		mg/kg	Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	103	10.0	11/15/2018	ND	217	108	200	9.14	
DRO >C10-C28*	1880	10.0	11/15/2018	ND	220	110	200	7.10	
EXT DRO >C28-C36	317	10.0	11/15/2018	ND					

Surrogate: 1-Chlorooctane 100 % 41-142

Surrogate: 1-Chlorooctadecane 103 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

COG OPERATING
SHELDON HITCHCOCK
P. O. BOX 1630
ARTESIA NM, 88210
Fax To: NONE

Received: 11/13/2018
Reported: 11/16/2018
Project Name: TYRELL FEE #2H
Project Number: NONE GIVEN
Project Location: NONE GIVEN

Sampling Date: 11/08/2018
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SP 3 - BTM (H803297-06)

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	11/15/2018	ND	1.82	90.8	2.00	1.37	
Toluene*	<0.050	0.050	11/15/2018	ND	2.01	101	2.00	4.62	
Ethylbenzene*	<0.050	0.050	11/15/2018	ND	2.10	105	2.00	4.65	
Total Xylenes*	1.09	0.150	11/15/2018	ND	6.39	107	6.00	4.19	
Total BTX	1.09	0.300	11/15/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 114 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	11/15/2018	ND	416	104	400	12.2	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	25.0	10.0	11/15/2018	ND	217	108	200	9.14	
DRO >C10-C28*	529	10.0	11/15/2018	ND	220	110	200	7.10	
EXT DRO >C28-C36	113	10.0	11/15/2018	ND					

Surrogate: 1-Chlorooctane 90.3 % 41-142

Surrogate: 1-Chlorooctadecane 102 % 37.6-147

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

COG OPERATING
SHELDON HITCHCOCK
P. O. BOX 1630
ARTESIA NM, 88210
Fax To: NONE

Received: 11/13/2018
Reported: 11/16/2018
Project Name: TYRELL FEE #2H
Project Number: NONE GIVEN
Project Location: NONE GIVEN

Sampling Date: 11/08/2018
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SP 3 - EAST (H803297-07)

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	11/15/2018	ND	1.82	90.8	2.00	1.37	
Toluene*	<0.050	0.050	11/15/2018	ND	2.01	101	2.00	4.62	
Ethylbenzene*	<0.050	0.050	11/15/2018	ND	2.10	105	2.00	4.65	
Total Xylenes*	<0.150	0.150	11/15/2018	ND	6.39	107	6.00	4.19	
Total BTX	<0.300	0.300	11/15/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 101 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	48.0	16.0	11/15/2018	ND	416	104	400	12.2		

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	11/15/2018	ND	217	108	200	9.14	
DRO >C10-C28*	340	10.0	11/15/2018	ND	220	110	200	7.10	
EXT DRO >C28-C36	91.4	10.0	11/15/2018	ND					

Surrogate: 1-Chlorooctane 64.6 % 41-142

Surrogate: 1-Chlorooctadecane 78.6 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

COG OPERATING
SHELDON HITCHCOCK
P. O. BOX 1630
ARTESIA NM, 88210
Fax To: NONE

Received: 11/13/2018
Reported: 11/16/2018
Project Name: TYRELL FEE #2H
Project Number: NONE GIVEN
Project Location: NONE GIVEN

Sampling Date: 11/08/2018
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SP 3 - WEST (H803297-08)

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	11/15/2018	ND	1.82	90.8	2.00	1.37		
Toluene*	<0.050	0.050	11/15/2018	ND	2.01	101	2.00	4.62		
Ethylbenzene*	<0.050	0.050	11/15/2018	ND	2.10	105	2.00	4.65		
Total Xylenes*	0.168	0.150	11/15/2018	ND	6.39	107	6.00	4.19		
Total BTEx	<0.300	0.300	11/15/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 103 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	11/15/2018	ND	416	104	400	12.2		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	11.2	10.0	11/15/2018	ND	217	108	200	9.14	
DRO >C10-C28*	292	10.0	11/15/2018	ND	220	110	200	7.10	
EXT DRO >C28-C36	54.7	10.0	11/15/2018	ND					

Surrogate: 1-Chlorooctane 103 % 41-142

Surrogate: 1-Chlorooctadecane 110 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

COG OPERATING
SHELDON HITCHCOCK
P. O. BOX 1630
ARTESIA NM, 88210
Fax To: NONE

Received: 11/13/2018
Reported: 11/16/2018
Project Name: TYRELL FEE #2H
Project Number: NONE GIVEN
Project Location: NONE GIVEN

Sampling Date: 11/08/2018
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SP 4 - BTM (H803297-09)

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	11/15/2018	ND	1.82	90.8	2.00	1.37		
Toluene*	<0.050	0.050	11/15/2018	ND	2.01	101	2.00	4.62		
Ethylbenzene*	<0.050	0.050	11/15/2018	ND	2.10	105	2.00	4.65		
Total Xylenes*	<0.150	0.150	11/15/2018	ND	6.39	107	6.00	4.19		
Total BTEx	<0.300	0.300	11/15/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 101 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	11/15/2018	ND	416	104	400	12.2		

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	11/15/2018	ND	217	108	200	9.14	
DRO >C10-C28*	<10.0	10.0	11/15/2018	ND	220	110	200	7.10	
EXT DRO >C28-C36	<10.0	10.0	11/15/2018	ND					

Surrogate: 1-Chlorooctane 101 % 41-142

Surrogate: 1-Chlorooctadecane 97.3 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

COG OPERATING
SHELDON HITCHCOCK
P. O. BOX 1630
ARTESIA NM, 88210
Fax To: NONE

Received: 11/13/2018
Reported: 11/16/2018
Project Name: TYRELL FEE #2H
Project Number: NONE GIVEN
Project Location: NONE GIVEN

Sampling Date: 11/08/2018
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SP 4 - WEST (H803297-10)

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	11/15/2018	ND	2.34	117	2.00	9.59		
Toluene*	<0.050	0.050	11/15/2018	ND	2.29	114	2.00	12.7		
Ethylbenzene*	<0.050	0.050	11/15/2018	ND	2.20	110	2.00	10.9		
Total Xylenes*	0.383	0.150	11/15/2018	ND	6.84	114	6.00	10.5		
Total BTEX	0.383	0.300	11/15/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 108 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	11/15/2018	ND	416	104	400	12.2		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	23.8	10.0	11/15/2018	ND	217	108	200	9.14	
DRO >C10-C28*	797	10.0	11/15/2018	ND	220	110	200	7.10	
EXT DRO >C28-C36	125	10.0	11/15/2018	ND					

Surrogate: 1-Chlorooctane 106 % 41-142

Surrogate: 1-Chlorooctadecane 119 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

COG OPERATING
SHELDON HITCHCOCK
P. O. BOX 1630
ARTESIA NM, 88210
Fax To: NONE

Received: 11/13/2018
Reported: 11/16/2018
Project Name: TYRELL FEE #2H
Project Number: NONE GIVEN
Project Location: NONE GIVEN

Sampling Date: 11/08/2018
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SP 4 - EAST (H803297-11)

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	11/15/2018	ND	2.34	117	2.00	9.59	
Toluene*	<0.050	0.050	11/15/2018	ND	2.29	114	2.00	12.7	
Ethylbenzene*	<0.050	0.050	11/15/2018	ND	2.20	110	2.00	10.9	
Total Xylenes*	<0.150	0.150	11/15/2018	ND	6.84	114	6.00	10.5	
Total BTEX	<0.300	0.300	11/15/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 105 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	11/15/2018	ND	416	104	400	12.2		

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	11/15/2018	ND	217	108	200	9.14	
DRO >C10-C28*	117	10.0	11/15/2018	ND	220	110	200	7.10	
EXT DRO >C28-C36	35.0	10.0	11/15/2018	ND					

Surrogate: 1-Chlorooctane 99.3 % 41-142

Surrogate: 1-Chlorooctadecane 99.6 % 37.6-147

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Analytical Results For:

COG OPERATING
SHELDON HITCHCOCK
P. O. BOX 1630
ARTESIA NM, 88210
Fax To: NONE

Received: 11/13/2018
Reported: 11/16/2018
Project Name: TYRELL FEE #2H
Project Number: NONE GIVEN
Project Location: NONE GIVEN

Sampling Date: 11/08/2018
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SP 5 - BTM (H803297-12)

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	11/15/2018	ND	2.34	117	2.00	9.59		
Toluene*	<0.050	0.050	11/15/2018	ND	2.29	114	2.00	12.7		
Ethylbenzene*	<0.050	0.050	11/15/2018	ND	2.20	110	2.00	10.9		
Total Xylenes*	<0.150	0.150	11/15/2018	ND	6.84	114	6.00	10.5		
Total BTEx	<0.300	0.300	11/15/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 106 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	11/15/2018	ND	416	104	400	12.2		

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	11/15/2018	ND	217	108	200	9.14	
DRO >C10-C28*	<10.0	10.0	11/15/2018	ND	220	110	200	7.10	
EXT DRO >C28-C36	<10.0	10.0	11/15/2018	ND					

Surrogate: 1-Chlorooctane 97.7 % 41-142

Surrogate: 1-Chlorooctadecane 93.9 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

COG OPERATING
SHELDON HITCHCOCK
P. O. BOX 1630
ARTESIA NM, 88210
Fax To: NONE

Received: 11/13/2018
Reported: 11/16/2018
Project Name: TYRELL FEE #2H
Project Number: NONE GIVEN
Project Location: NONE GIVEN

Sampling Date: 11/08/2018
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SP 5 - EAST (H803297-13)

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	11/15/2018	ND	2.34	117	2.00	9.59		
Toluene*	<0.050	0.050	11/15/2018	ND	2.29	114	2.00	12.7		
Ethylbenzene*	<0.050	0.050	11/15/2018	ND	2.20	110	2.00	10.9		
Total Xylenes*	<0.150	0.150	11/15/2018	ND	6.84	114	6.00	10.5		
Total BTEX	<0.300	0.300	11/15/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 107 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	16.0	16.0	11/15/2018	ND	416	104	400	12.2		

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	11/15/2018	ND	217	108	200	9.14	
DRO >C10-C28*	449	10.0	11/15/2018	ND	220	110	200	7.10	
EXT DRO >C28-C36	79.4	10.0	11/15/2018	ND					

Surrogate: 1-Chlorooctane 98.1 % 41-142

Surrogate: 1-Chlorooctadecane 111 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

COG OPERATING
SHELDON HITCHCOCK
P. O. BOX 1630
ARTESIA NM, 88210
Fax To: NONE

Received: 11/13/2018
Reported: 11/16/2018
Project Name: TYRELL FEE #2H
Project Number: NONE GIVEN
Project Location: NONE GIVEN

Sampling Date: 11/08/2018
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SP 5 - WEST (H803297-14)

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	11/15/2018	ND	2.34	117	2.00	9.59		
Toluene*	<0.050	0.050	11/15/2018	ND	2.29	114	2.00	12.7		
Ethylbenzene*	<0.050	0.050	11/15/2018	ND	2.20	110	2.00	10.9		
Total Xylenes*	<0.150	0.150	11/15/2018	ND	6.84	114	6.00	10.5		
Total BTEX	<0.300	0.300	11/15/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 104 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	11/15/2018	ND	416	104	400	12.2		

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	11/15/2018	ND	217	108	200	9.14	
DRO >C10-C28*	342	10.0	11/15/2018	ND	220	110	200	7.10	
EXT DRO >C28-C36	89.5	10.0	11/15/2018	ND					

Surrogate: 1-Chlorooctane 90.7 % 41-142

Surrogate: 1-Chlorooctadecane 106 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

COG OPERATING
 SHELDON HITCHCOCK
 P. O. BOX 1630
 ARTESIA NM, 88210
 Fax To: NONE

Received: 11/13/2018
 Reported: 11/16/2018
 Project Name: TYRELL FEE #2H
 Project Number: NONE GIVEN
 Project Location: NONE GIVEN

Sampling Date: 11/08/2018
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SP 5 - NORTH (H803297-15)

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	11/15/2018	ND	2.34	117	2.00	9.59	
Toluene*	<0.050	0.050	11/15/2018	ND	2.29	114	2.00	12.7	
Ethylbenzene*	<0.050	0.050	11/15/2018	ND	2.20	110	2.00	10.9	
Total Xylenes*	<0.150	0.150	11/15/2018	ND	6.84	114	6.00	10.5	
Total BTEX	<0.300	0.300	11/15/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 105 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	11/15/2018	ND	416	104	400	12.2		

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	11/15/2018	ND	217	108	200	9.14	
DRO >C10-C28*	386	10.0	11/15/2018	ND	220	110	200	7.10	
EXT DRO >C28-C36	83.2	10.0	11/15/2018	ND					

Surrogate: 1-Chlorooctane 97.8 % 41-142

Surrogate: 1-Chlorooctadecane 105 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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

Notes and Definitions

S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
QR-02	The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.
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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A handwritten signature in black ink, appearing to read "C. D. Keene", is written over a horizontal line.

Celey D. Keene, Lab Director/Quality Manager



CARDINAL

Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Company Name: Concho Resources		BILL TO		ANALYSIS REQUEST	
Project Manager: Sheldon Hitchcock		P.O. #:			
Address: 2407 Pecos Avenue		Company: COG			
City: Artesia		Attn: Robert McNeill			
Phone #: 575-703-6475		Address:			
Fax #: Project Owner: Concho		City:			
Project Name: T/REIL FES 4214		State: Zip:			
Project Location:		Phone #: Fax #:			
Sampler Name:		FOR LAB USE ONLY			
Lab I.D.		Sample I.D.			
H803297		SP1/SP2 - BTM		DATE TIME	
1		SP1/SP2 - NORTH		11-8-18 9:10AM	
2		SP1/SP2 - SOUTH		9:15AM	
3		SP1/SP2 - EAST		9:20AM	
4		SP1/SP2 - WEST		9:25AM	
5		SP3 - BTM		9:30AM	
6		SP3 - EAST		9:35AM	
7		SP3 - WEST		9:40AM	
8		SP4 - BTM		9:45AM	
9		SP4 - WEST		9:50AM	
10				9:55AM	
		(G)RAB OR (C)OMP.			
		# CONTAINERS			
		GROUNDWATER			
		WASTEWATER			
		SOIL			
		OIL			
		SLUDGE			
		OTHER :			
		ACID/BASE:			
		ICE / COOL			
		OTHER :			
		DATE			
		TIME			
		BTX -			
		TPH - EXTENDED			
		CHLORIDES			

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Relinquished By: *[Signature]* Date: 11-13-18 Received By: *[Signature]* Date: 12-2-18
Time: 12:40
Relinquished By: *[Signature]* Received By: *[Signature]*

Delivered By: (Circle One) Sample Condition Cool ☒ Intact ☐ Yes ☐ No ☐ No ☐ No

Sampler - UPS - Bus - Other: 4.6c #97

CHECKED BY: (Initials) *YQ.*

REMARKS:

Phone Result: ☐ Yes ☐ No Add'l Phone #:
Fax Result: ☐ Yes ☐ No Add'l Fax #:
REMARKS:

† Cardinal cannot accept verbal changes. Please fax written changes to (575) 393-2326

61 jo 19 1 e age



CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Company Name: Concho Resources		BILL TO		ANALYSIS REQUEST	
Project Manager: Sheldon Hitchcock		P.O. #:			
Address: 2407 Pecos Avenue		Company: COG			
City: Artesia		Attn: Robert McNeill			
Phone #: 575-703-6475		Address:			
Fax #: Project Owner: Concho		City:			
Project Name: T-10341 PZ # 24		State: Zip:			
Project Location:		Phone #:			
Sample Name:		Fax #:			
FOR LAB USE ONLY		MATRIX		PRESERV	
Lab I.D.		(G)RAB OR (C)OMP.		DATE	
Sample I.D.		# CONTAINERS		TIME	
		GROUNDWATER			
		WASTEWATER			
		SOIL			
		OIL			
		SLUDGE			
		OTHER :			
		ACID/BASE:			
		ICE / COOL			
		OTHER :			
H603297		11-8-18		10:00 AM	
11		SP4 - EAST		X	
12		SP5 - BTM		X	
13		SP5 - EAST		X	
14		SP5 - WEST		X	
15		SP5 - NORTH		X	

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Relinquished By: *[Signature]* Date: 11-13-18 Received By: *[Signature]* Date: 11-13-18
Time: 12:40
Relinquished By: *[Signature]* Time: *[Signature]*

Delivered By: (Circle One) ☒ UPS ☐ Bus ☐ Other: *4.16.9 #97*

Sample Condition: ☒ Cool ☐ Intact ☐ Yes ☐ No ☐ Yes ☐ No ☒ Yes ☐ No

CHECKED BY: *[Signature]*

Phone Result: ☐ Yes ☐ No Add'l Phone #: *[Signature]*
Fax Result: ☐ Yes ☐ No Add'l Fax #: *[Signature]*

REMARKS:

† Cardinal cannot accept verbal changes. Please fax written changes to (575) 393-2326



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

December 11, 2018

DAKOTA NEEL

COG OPERATING

P. O. BOX 1630

ARTESIA, NM 88210

RE: TYRELL FEE #2H

Enclosed are the results of analyses for samples received by the laboratory on 12/06/18 15:05.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-18-11. 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



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

Analytical Results For:

COG OPERATING
 DAKOTA NEEL
 P. O. BOX 1630
 ARTESIA NM, 88210
 Fax To: NONE

Received:	12/06/2018	Sampling Date:	12/04/2018
Reported:	12/11/2018	Sampling Type:	Soil
Project Name:	TYRELL FEE #2H	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NONE GIVEN		

Sample ID: SP 1 / SP 2 - NORTH (H803597-01)

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	12/08/2018	ND	1.95	97.3	2.00	1.76		
Toluene*	<0.050	0.050	12/08/2018	ND	1.96	98.1	2.00	1.95		
Ethylbenzene*	<0.050	0.050	12/08/2018	ND	1.90	95.1	2.00	2.12		
Total Xylenes*	<0.150	0.150	12/08/2018	ND	5.71	95.1	6.00	1.84		
Total BTEX	<0.300	0.300	12/08/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 95.5 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	256	16.0	12/11/2018	ND	400	100	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	12/07/2018	ND	197	98.4	200	2.38	
DRO >C10-C28*	<10.0	10.0	12/07/2018	ND	206	103	200	4.30	
EXT DRO >C28-C36	<10.0	10.0	12/07/2018	ND					

Surrogate: 1-Chlorooctane 97.2 % 41-142

Surrogate: 1-Chlorooctadecane 105 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

COG OPERATING
 DAKOTA NEEL
 P. O. BOX 1630
 ARTESIA NM, 88210
 Fax To: NONE

Received: 12/06/2018
 Reported: 12/11/2018
 Project Name: TYRELL FEE #2H
 Project Number: NONE GIVEN
 Project Location: NONE GIVEN

Sampling Date: 12/04/2018
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SP 1 / SP 2 - WEST (H803597-02)

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	12/08/2018	ND	1.95	97.3	2.00	1.76		
Toluene*	<0.050	0.050	12/08/2018	ND	1.96	98.1	2.00	1.95		
Ethylbenzene*	<0.050	0.050	12/08/2018	ND	1.90	95.1	2.00	2.12		
Total Xylenes*	<0.150	0.150	12/08/2018	ND	5.71	95.1	6.00	1.84		
Total BTEx	<0.300	0.300	12/08/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 95.3 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	128	16.0	12/11/2018	ND	400	100	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	12/07/2018	ND	197	98.4	200	2.38	
DRO >C10-C28*	<10.0	10.0	12/07/2018	ND	206	103	200	4.30	
EXT DRO >C28-C36	<10.0	10.0	12/07/2018	ND					

Surrogate: 1-Chlorooctane 87.8 % 41-142

Surrogate: 1-Chlorooctadecane 95.4 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

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Notes and Definitions

QR-03	The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
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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A handwritten signature in black ink, appearing to read "Celey D. Keene".

Celey D. Keene, Lab Director/Quality Manager

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

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

CONDITIONS

Action 163330

CONDITIONS

Operator: COG OPERATING LLC 600 W Illinois Ave Midland, TX 79701	OGRID: 229137
	Action Number: 163330
	Action Type: [IM-SD] Incident File Support Doc (ENV) (IM-BNF)

CONDITIONS

Created By	Condition	Condition Date
bhall	None	12/2/2022