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APPROVED

By Olivia Yu at 3:30 pm, Jul 03, 2018

**NMOCD approves
1RP-4921 for closure.**

June 19, 2018

Olivia Yu
New Mexico Energy, Minerals and Natural Resources Department
Oil Conservation Division, District 1
1625 French Drive
Hobbs, NM 88240

Ryan Mann
Hobbs Field Office
New Mexico State Land Office
2827 N. Dal Paso Suite 117
Hobbs, NM 88240

**Re: Remediation Summary and Closure Report
Bobwhite 12 State Com #004H
API No. 30-025-41092
GPS: 32.501671, -103.525217
UL "O", Sec. 1, T21S, R33E
Lea Co, NM
NMOCD Ref. No. 1RP-4921**

TRC Environmental Corporation (TRC), on behalf of COG Operating, LLC (COG), has prepared this *Remediation Summary and Closure Report* for the release site known as the Bobwhite 12 State Com #004H. Details of the release are summarized below:

RELEASE DETAILS			
Type of Release: Crude Oil and Produced Water	Volume of Release: 20 bbls Oil, 40 bbls Produced Water		
	Volume Recovered: 5 bbls Oil, 10 bbls Produced Water		
Source of Release: Flowline	Date of Release: 01/04/18	Date of Discovery: 01/04/18	
Was Immediate Notice Given? Yes	If YES, to Whom? NMOC District I/NMSLO		
Was a Watercourse Reached? No	Volume Impacted the Watercourse: Not Applicable		
Cause of Problem and Remedial Action Taken:			
The release was attributed to the failure of a nipple near a hammer union.			

A Site Location Map is provided as Attachment #1. A copy of the initial Release Notification and Corrective Action (NMOCD Form C-141) is provided as Attachment #6.

REGULATORY FRAMEWORK

Crude oil facilities in New Mexico are generally regulated by the New Mexico Oil Conservation Division (NMOCD). Impact of soil due to a surface release is addressed in the NMOCD guidance document titled *Guidelines for Remediation of Leaks, Spills and Releases*, dated August 13, 1993.

The guidance document provides direction for initial response actions, site assessment, sampling procedures and provides a total ranking score based on the depth to groundwater, distance to private and domestic water sources, and the distance to the nearest surface water body as follows:

RANKING SCORE CRITERIA		
General Site Characteristics		Score
Depth to Groundwater	< 50 Feet	20
	50-99 Feet	10
	> 100 Feet	0
Well Head Protection Area, <1,000 Feet from water source, or <200 Feet from private domestic water source	Yes	20
	No	0
Distance to Surface Water Body	< 200 Feet	20
	200 - 1,000 Feet	10
	> 1,000 Feet	0

A search of a groundwater database maintained by The New Mexico Office of the State Engineer (NMOSE) was conducted to determine the average depth to groundwater within the Section and identify any registered water wells within 1,000 ft. of the release site. If none were identified, the approximate depth to groundwater was extrapolated from a 2005 Chevron Texaco Groundwater Trend Map. The results of the groundwater database search are provided as Attachment #3.

TOTAL RANKING SCORE FOR SITE		
Ranking Score Criteria		Score
Depth to Groundwater	100 Feet	0
Well Head Protection Area, <1,000 Feet from water source, or <200 Feet from private domestic water source	No	0
Distance to Surface Water Body	> 1,000 Feet	0
TOTAL RANKING SCORE FOR SITE		0

Based on impacts being present beyond one (1) ft. bgs, NMOCD guidelines indicated the Site has an adjusted ranking score of 10 points. The NMOCD Recommended Remediation Action Levels (RRAL) for a Site with a ranking score of 10 points are as follows:

RECOMMENDED REMEDIATION ACTION LEVELS	
Benzene	10 mg/kg
Benzene, Toluene, Ethylbenzene and Total Xylenes (BTEX)	50 mg/kg
Total Petroleum Hydrocarbons (TPH)	1,000 mg/kg
Chloride	600 mg/kg

INITIAL INVESTIGATION

On January 30, 2018, an initial soil investigation was conducted at the Site by COG representatives. During the initial soil investigation, nineteen (19) representative soil samples were collected from within the affected area in an effort to determine the vertical extent of soil impacts. In addition, four (4) samples were collected from the edges of the release in an effort to determine the horizontal extent of soil impacts. The collected soil samples were submitted to an NMOCD-approved laboratory for analysis of benzene, BTEX, TPH and chloride concentrations. A table summarizing laboratory analytical results from soil samples collected during the initial assessment is provided below:

Sample ID	Depth	Soil Status	SW 846-8021b		SW-846 8015M				E300
			Benzene	Total BTEX	TPH GRO C ₆ -C ₁₀	TPH DRO C ₁₀ -C ₂₈	TPH ORO C ₂₈ -C ₃₅	TOTAL TPH C ₆ -C ₃₅	CHLORIDE
NORTH	1'	In-Situ	<0.00201	<0.00201	<15.0	<15.0	<15.0	<15.0	28.9
SOUTH	1'	In-Situ	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	7.11
EAST	1'	In-Situ	<0.00199	<0.00199	<15.0	<15.0	<15.0	<15.0	15.5
WEST	1'	In-Situ	<0.00198	<0.00198	<15.0	<15.0	<15.0	<15.0	21.5
T1	0'	In-Situ	0.00473	0.0294	<15.0	<15.0	<15.0	<15.0	14.8
T1	1'	In-Situ	0.00914	0.0589	<15.0	17.3	<15.0	17.3	9.71
T1	2'	In-Situ	<0.00200	0.0249	<14.9	<14.9	<14.9	<14.9	<4.91
T1	3'	In-Situ	0.00308	0.0154	<14.9	<14.9	<14.9	<14.9	16.6
T1	4'	In-Situ	<0.00200	0.0113	<15.0	<15.0	<15.0	<15.0	23.2
T2	0'	Excavated	29.3	860	10,700	12,400	931	24,000	317
T2	1'	Excavated	0.0121	1.47	323	779	46.6	1,150	70.8
T2	2'	In-Situ	0.00206	0.113	96.2	329	17.9	443	57.5
T2	3'	In-Situ	<0.00202	0.0165	<15.0	109	<15.0	109	36.5
T3	0'	In-Situ	0.00773	0.0631	<15.0	18.9	<15.0	18.9	9.40
T3	1'	In-Situ	0.00691	0.0680	<15.0	23.7	<15.0	23.7	30.5
T3	2'	In-Situ	<0.00200	0.0107	<15.0	28.7	<15.0	28.7	9.10
T3	3'	In-Situ	<0.00200	0.00315	<15.0	<15.0	<15.0	<15.0	25.5
T4	0'	Excavated	4.51	270	3,920	4,330	374	8,620	8,120
T4	1'	Excavated	41.1	826	6,910	5,980	485	13,400	10,300
T4	2'	Excavated	0.00620	1.31	79.8	144	<15.0	224	10,300
T4	3'	Excavated	<0.00201	0.111	21.4	99.0	<15.0	120	1,340
T4	4'	Excavated	0.00417	1.59	178	416	30.6	625	743
T4	6'	In-Situ	<0.00198	<0.00198	<15.0	31.5	<15.0	31.5	32.6
NMOCD RRAL			10	50	-	-	-	1,000	600

Laboratory analytical reports are provided as Attachment #4.

PROPOSED REMEDIATION ACTIVITIES AND REMEDIATION WORKPLAN

Based on laboratory analytical results, site conditions and field observations made during the initial release assessment, COG proposed the following remediation activities designed to advance the Release Site toward an approved closure:

- Utilizing a backhoe, excavate the Release Site to a depth of approximately one (1) feet bgs in the area represented by soil samples collected from sample point T2 and to approximately five (5) feet bgs in the area represented by soil samples collected from sample point T4. The excavated soils will be stockpiled on a plastic liner adjacent to the excavation in preparation to be transported to a NMOCD-approved facility for disposal .
- Collect confirmation samples from the sidewalls of the excavation at approximately fifty (50) foot intervals until analytical results confirm the soil is below the NMOCD RRALs for TPH and chlorides. In addition (1) confirmation soil sample will be collected from sample point T4 at five (5) ft. bgs to confirm vertical delineation.
- On receipt of favorable analytical results (below NMOCD RRALs), the excavation will be backfilled with locally purchased, non-impacted "like" material.
- Upon completion of remediation activities, prepare and submit a "Remediation Summary and Site Closure Request" to the NMOCD and NMSLO.

The *Workplan* was subsequently approved.

SUMMARY OF FIELD ACTIVITIES

Impacted soil within the release margins was excavated in accordance with the approved *Workplan* and temporarily stockpiled on-site, atop an impermeable liner, pending final disposition. The floor and sidewalls of the excavated area were advanced until field observations indicated TPH and chloride concentrations were below the NMOCD RRAL. Upon excavating impacted soil from within the release margins, nine (9) excavation confirmation soil samples were collected from the floor and sidewalls of the excavated area. The collected soil samples were submitted to the laboratory for analysis of TPH and/or chloride. Excavated soil was transported to an NMOCD-approved disposal facility. A table summarizing laboratory analytical results from confirmation soil samples is provided below:

Sample ID	Depth	Soil Status	SW 846-8021b		SW-846 8015M				E300
			Benzene	Total BTEX	TPH GRO C ₆ -C ₁₀	TPH DRO C ₁₀ -C ₂₈	TPH ORO C ₂₈ -C ₃₅	TOTAL TPH C ₆ -C ₃₅	CHLORIDE
May 9, 2018									
T-2 NSW	6"	In-Situ	-	-	-	-	-	-	119
T-2 ESW	6"	In-Situ	-	-	-	-	-	-	136
T-2 SSW	6"	In-Situ	-	-	-	-	-	-	95.9
T-2 WSW	6"	In-Situ	-	-	-	-	-	-	48.8
T-4 FL @ 5'	5'	In-Situ	-	-	-	-	-	-	32.0
T-4 NSW	2.5'	In-Situ	-	-	-	-	-	-	<25.0
T-4 ESW	2.5'	In-Situ	-	-	-	-	-	-	69.6
T-4 SSW	2.5'	In-Situ	-	-	-	-	-	-	<25.0
T4 WSW	2.5'	In-Situ	-	-	-	-	-	-	<25.0
May 24, 2018									
T-2 NSW	6"	In-Situ	-	-	<3.94	<25.0	<25.0	<25.0	-
T-2 ESW	6"	In-Situ	-	-	<3.98	29.6	<25.2	29.6	-
T-2 SSW	6"	In-Situ	-	-	<3.69	37.6	<25.3	37.6	-
T-2 WSW	6"	In-Situ	-	-	<3.98	<25.0	<25.0	<25.0	-
T-4 NSW	2.5'	In-Situ	-	-	<3.98	55.7	<25.2	55.7	-
T-4 ESW	2.5'	In-Situ	-	-	<3.87	78.5	<25.0	78.5	-
T-4 SSW	2.5'	In-Situ	-	-	<3.81	<25.1	<25.1	<25.1	-
T4 WSW	2.5'	In-Situ	-	-	<3.88	<24.9	<24.9	<24.9	-
NMOCD RRAL			10	50	-	-	-	1,000	600

A "Site & Confirmation Sample Location Map" is provided as Attachment #2.

Upon receiving laboratory analytical results from confirmation soil samples, the excavated area was backfilled with locally sourced, non-impacted "like" material. A Photographic Log is provided as Attachment #5.

EXCAVATION/REMEDATION DETAIL SUMMARY			
Type of Remediation:	Dig and Haul, backfill with imported, non-impacted "like" material.		
Date Remediation Activities Began:	May 4, 2018		
Excavation Dimensions:	Length: 120 Ft.	Width: 25 to 40 Ft.	Depth: 1 to 5 Ft. bgs
Soil Transportation Start Date:	May 10, 2018	Backfill Date:	June 6, 2018
Total Yards Transported to Disposal:	300 YDS	Disposal Facility:	R360 Halfway Facility

LIMITATIONS

TRC has prepared this Remediation Summary and Soil Closure Request to the best of its ability. No other warranty, expressed or implied, is made or intended.

TRC has examined and relied upon documents referenced in the report and has relied on oral statements made by certain individuals. TRC has not conducted an independent examination of the facts contained in referenced materials and statements. We have presumed the genuineness of the documents and that the information provided in documents or statements is true and accurate. TRC has prepared this report, in a professional manner, using the degree of skill and care exercised by similar environmental consultants. TRC also notes that the facts and conditions referenced in this report may change over time and the conclusions and recommendations set forth herein are applicable only to the facts and conditions as described at the time of this report.

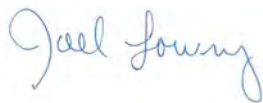
This report has been prepared for the benefit of COG Operating, LLC. The information contained in this report, including all exhibits and attachments, may not be used by any other party without the express consent of TRC and/or COG Operating, LLC.

SITE CLOSURE REQUEST

Remediation activities were conducted in accordance with the NMOCD- and NMSLO-approved *Workplan*. Impacted material was excavated and transported to an NMOCD-approved disposal facility. Upon receiving laboratory analytical results from confirmation soil samples, the site was backfilled with locally sourced, non-impacted "like" material. TRC on behalf of COG Operating, LLC respectfully requests the NMOCD and NMSLO grant closure approval for the Bobwhite 12 State Com #004H release which occurred on January 4, 2018.

If you have any questions, or if additional is required, please feel free to contact Becky Haskell or either of the undersigned by phone or email.

Respectfully,

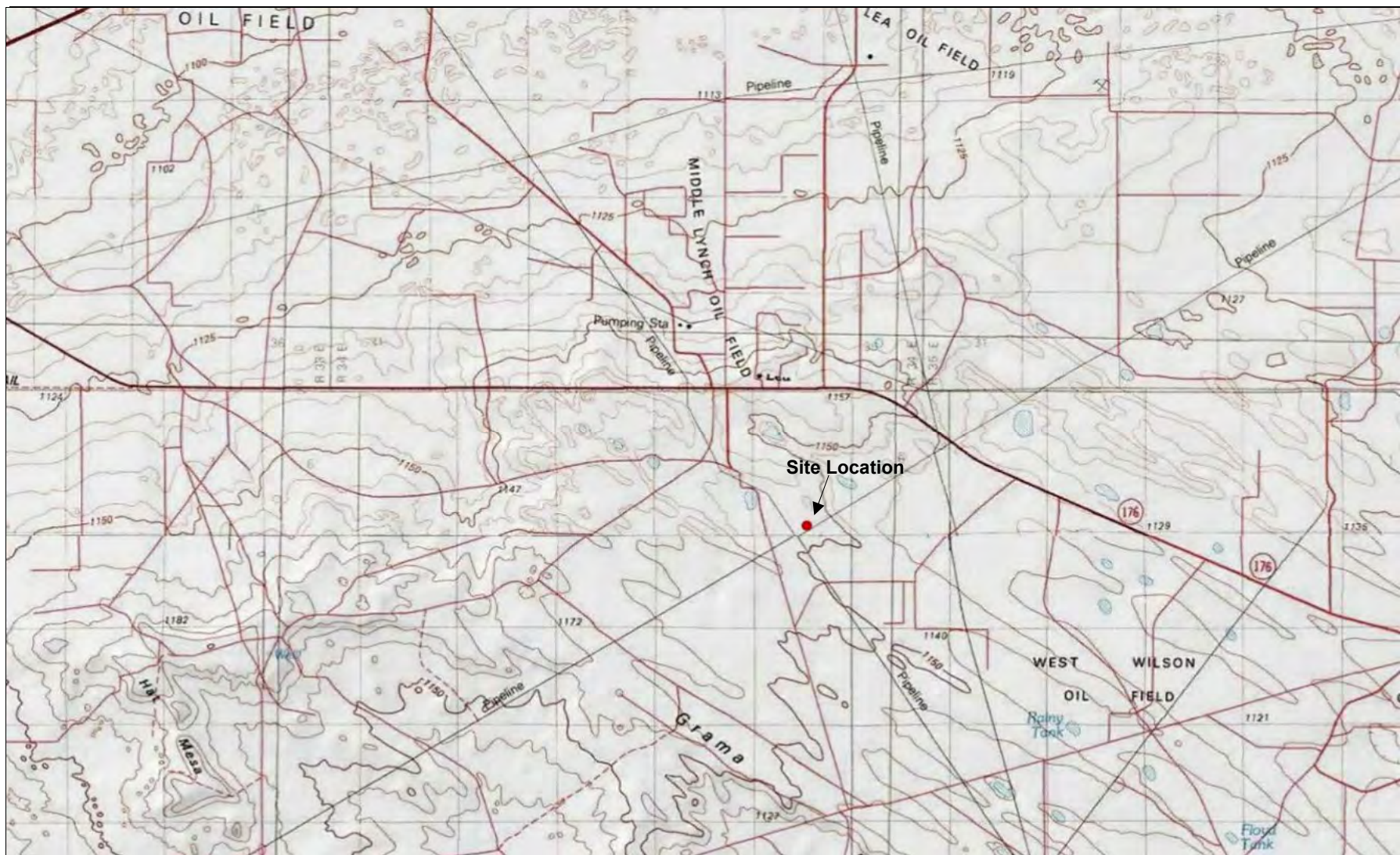


Joel Lowry
Senior Project Manager
TRC Environmental Corp.



Curt Stanley
Senior Project Manager
TRC Environmental Corp.

Attachments:	Attachment #1-	Figure 1 - Site Location Map
	Attachment #2-	Figure 2 - Site & Sample Location Map
	Attachment #3-	Groundwater Database Search
	Attachment #4-	Laboratory Analytical Reports
	Attachment #5-	Photographic Log
	Attachment #6-	Release Notification and Corrective Action (FORM C-141)



LEGEND:

● Site Location

Figure 1

Site Location Map
COG Operating, LLC
Bobwhite 12 State Com #004H
Lea Co, NM

Scale 1" = 7,600'

Drafted by: ZC | Checked by: JL

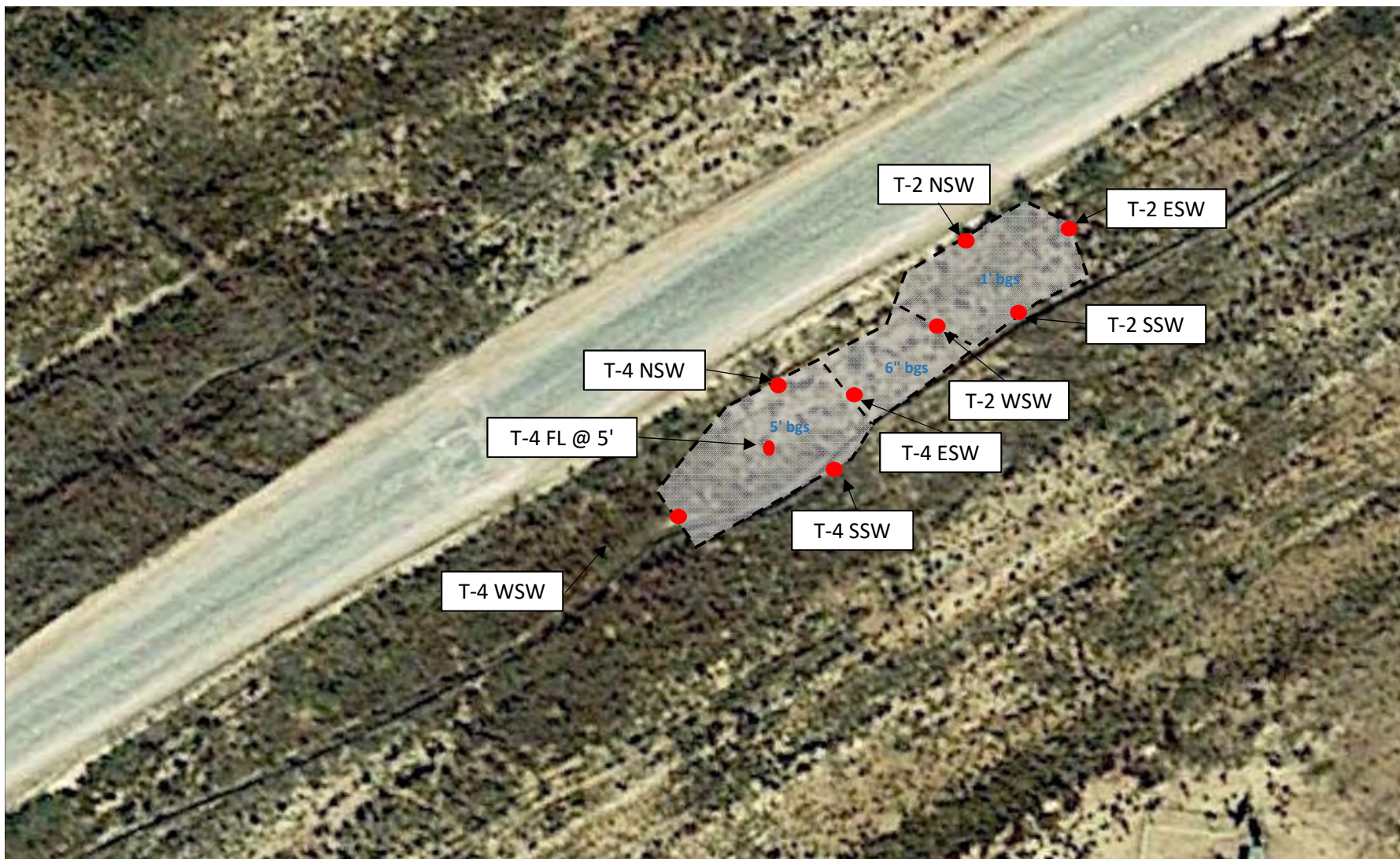
Draft: April 20, 2018

GPS: 32.501671, -103.525217

UL "O", Sec. 1, T21S, R33E

TRC Proj. No: 302646





LEGEND:  Remediated Area  Soil Sample Location	Figure 2 Site & Confirmation Sample Location Map COG Operating, LLC Bobwhite 12 State Com #004H Lea Co, NM	Scale 1" = 40'	 <i>Results you can rely on</i>
		Drafted by: ZC Checked by: JL	
		Draft: June 16, 2018	
		GPS: 32.501671, -103.525217	
		UL "O", Sec. 1, T21S, R33E	
		TRC Proj. No: 302646	



New Mexico Office of the State Engineer

Water Column/Average Depth to Water

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters)

No records found.

UTMNAD83 Radius Search (in meters):

Easting (X): 638544.5

Northing (Y): 3597002.4

Radius: 330

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.

6/19/18 10:24 AM

WATER COLUMN/ AVERAGE
DEPTH TO WATER



Certificate of Analysis Summary 575479

COG Operating LLC, Artesia, NM

Project Name: BOBWHITE 12 STATE CAM #4H



Project Id:

Contact: Dakota Neel

Project Location:

Date Received in Lab: Tue Feb-06-18 09:45 am

Report Date: 13-FEB-18

Project Manager: Kelsey Brooks

<i>Analysis Requested</i>	<i>Lab Id:</i>	575479-001	575479-002	575479-003	575479-004		
	<i>Field Id:</i>	North	South	East	West		
	<i>Depth:</i>	1- ft	1- ft	1- ft	1- ft		
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL		
	<i>Sampled:</i>	Jan-30-18 11:00	Jan-30-18 11:00	Jan-30-18 11:00	Jan-30-18 11:00		
BTEX by EPA 8021B SUB: T104704400-18-14	<i>Extracted:</i>	Feb-09-18 15:45	Feb-09-18 15:45	Feb-09-18 15:45	Feb-09-18 15:45		
	<i>Analyzed:</i>	Feb-13-18 13:59	Feb-13-18 13:59	Feb-13-18 13:59	Feb-13-18 13:59		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Benzene		<0.00201 0.00201	<0.00200 0.00200	<0.00199 0.00199	<0.00198 0.00198		
Toluene		<0.00201 0.00201	<0.00200 0.00200	<0.00199 0.00199	<0.00198 0.00198		
Ethylbenzene		<0.00201 0.00201	<0.00200 0.00200	<0.00199 0.00199	<0.00198 0.00198		
m,p-Xylenes		<0.00402 0.00402	<0.00399 0.00399	<0.00398 0.00398	<0.00396 0.00396		
o-Xylene		<0.00201 0.00201	<0.00200 0.00200	<0.00199 0.00199	<0.00198 0.00198		
Total Xylenes		<0.00201 0.00201	<0.00200 0.00200	<0.00199 0.00199	<0.00198 0.00198		
Total BTEX		<0.00201 0.00201	<0.00200 0.00200	<0.00199 0.00199	<0.00198 0.00198		
Chloride by EPA 300 SUB: T104704400-18-14	<i>Extracted:</i>	Feb-12-18 17:30	Feb-12-18 17:30	Feb-12-18 17:30	Feb-12-18 17:30		
	<i>Analyzed:</i>	Feb-13-18 02:22	Feb-13-18 02:43	Feb-13-18 02:50	Feb-13-18 02:57		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Chloride		28.9 4.99	7.11 4.94	15.5 4.92	21.5 4.95		
TPH By SW8015 Mod SUB: T104704400-18-14	<i>Extracted:</i>	Feb-09-18 16:00	Feb-09-18 16:00	Feb-09-18 16:00	Feb-09-18 16:00		
	<i>Analyzed:</i>	Feb-10-18 19:48	Feb-10-18 20:08	Feb-10-18 20:30	Feb-10-18 20:50		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Gasoline Range Hydrocarbons (GRO)		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0		
Diesel Range Organics (DRO)		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0		
Oil Range Hydrocarbons (ORO)		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0		
Total TPH		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0		

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use.
The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories.
XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented.
Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

Houston - Dallas - San Antonio - Atlanta - Tampa - Boca Raton - Latin America - Odessa - Corpus Christi

Kelsey Brooks
Project Manager

Analytical Report 575479

for COG Operating LLC

Project Manager: Dakota Neel
BOBWHITE 12 STATE CAM #4H

13-FEB-18

Collected By: Client



4147 Greenbriar Dr.
Stafford, TX 77477

Xenco-Houston (EPA Lab code: TX00122):
Texas (T104704215-17-23), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142)

Xenco-Dallas (EPA Lab code: TX01468):
Texas (T104704295-17-15), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab code: TX00127): Texas (T104704221-17-12)
Xenco-Lubbock (EPA Lab code: TX00139): Texas (T104704219-17-16)
Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-17-13)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-17-3)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)



13-FEB-18

Project Manager: **Dakota Neel**

COG Operating LLC

2407 Pecos Avenue

Artesia, NM 88210

Reference: XENCO Report No(s): **575479**

BOBWHITE 12 STATE CAM #4H

Project Address:

Dakota Neel:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 575479. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 575479 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Kelsey Brooks

Project Manager

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.

Certified and approved by numerous States and Agencies.

A Small Business and Minority Status Company that delivers SERVICE and QUALITY

Houston - Dallas - Midland - San Antonio - Phoenix - Oklahoma - Latin America



Sample Cross Reference 575479



COG Operating LLC, Artesia, NM

BOBWHITE 12 STATE CAM #4H

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
North	S	01-30-18 11:00	1 ft	575479-001
South	S	01-30-18 11:00	1 ft	575479-002
East	S	01-30-18 11:00	1 ft	575479-003
West	S	01-30-18 11:00	1 ft	575479-004



CASE NARRATIVE

Client Name: COG Operating LLC

Project Name: BOBWHITE 12 STATE CAM #4H

Project ID:

Work Order Number(s): 575479

Report Date: 13-FEB-18

Date Received: 02/06/2018

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3040879 BTEX by EPA 8021B

Soil samples were not received in Terracore kits and therefore were prepared by method 5030.



Certificate of Analytical Results 575479



COG Operating LLC, Artesia, NM

BOBWHITE 12 STATE CAM #4H

Sample Id: **North**
Lab Sample Id: 575479-001

Matrix: Soil
Date Collected: 01.30.18 11.00

Date Received: 02.06.18 09.45
Sample Depth: 1 ft

Analytical Method: Chloride by EPA 300

Tech: LRI

Analyst: LRI

Seq Number: 3040821

Date Prep: 02.12.18 17.30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	28.9	4.99	mg/kg	02.13.18 02.22		1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3040791

Date Prep: 02.09.18 16.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	02.10.18 19.48	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	02.10.18 19.48	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	02.10.18 19.48	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	02.10.18 19.48	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	106	%	70-135	02.10.18 19.48	
o-Terphenyl	84-15-1	106	%	70-135	02.10.18 19.48	



Certificate of Analytical Results 575479



COG Operating LLC, Artesia, NM

BOBWHITE 12 STATE CAM #4H

Sample Id: **North**
Lab Sample Id: 575479-001

Matrix: Soil
Date Collected: 01.30.18 11.00

Date Received: 02.06.18 09.45
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Tech: ALJ

Analyst: ALJ

Seq Number: 3040879

Date Prep: 02.09.18 15.45

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	02.13.18 13.59	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	02.13.18 13.59	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	02.13.18 13.59	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	02.13.18 13.59	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	02.13.18 13.59	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	02.13.18 13.59	U	1
Total BTEX		<0.00201	0.00201	mg/kg	02.13.18 13.59	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	86	%	80-120	02.13.18 13.59		
4-Bromofluorobenzene	460-00-4	96	%	80-120	02.13.18 13.59		



Certificate of Analytical Results 575479



COG Operating LLC, Artesia, NM

BOBWHITE 12 STATE CAM #4H

Sample Id: **South**
Lab Sample Id: 575479-002

Matrix: Soil
Date Collected: 01.30.18 11.00

Date Received: 02.06.18 09.45
Sample Depth: 1 ft

Analytical Method: Chloride by EPA 300

Tech: LRI

Analyst: LRI

Seq Number: 3040821

Date Prep: 02.12.18 17.30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	7.11	4.94	mg/kg	02.13.18 02.43		1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3040791

Date Prep: 02.09.18 16.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	02.10.18 20.08	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	02.10.18 20.08	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	02.10.18 20.08	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	02.10.18 20.08	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	109	%	70-135	02.10.18 20.08	
o-Terphenyl	84-15-1	107	%	70-135	02.10.18 20.08	



Certificate of Analytical Results 575479



COG Operating LLC, Artesia, NM

BOBWHITE 12 STATE CAM #4H

Sample Id: **South**
Lab Sample Id: 575479-002

Matrix: Soil
Date Collected: 01.30.18 11.00

Date Received: 02.06.18 09.45
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Tech: ALJ

Analyst: ALJ

Seq Number: 3040879

Date Prep: 02.09.18 15.45

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	02.13.18 13.59	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	02.13.18 13.59	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	02.13.18 13.59	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	02.13.18 13.59	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	02.13.18 13.59	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	02.13.18 13.59	U	1
Total BTEX		<0.00200	0.00200	mg/kg	02.13.18 13.59	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	99	%	80-120	02.13.18 13.59		
1,4-Difluorobenzene	540-36-3	90	%	80-120	02.13.18 13.59		



Certificate of Analytical Results 575479



COG Operating LLC, Artesia, NM

BOBWHITE 12 STATE CAM #4H

Sample Id: **East**
Lab Sample Id: 575479-003

Matrix: Soil
Date Collected: 01.30.18 11.00

Date Received: 02.06.18 09.45
Sample Depth: 1 ft

Analytical Method: Chloride by EPA 300

Tech: LRI

Analyst: LRI

Seq Number: 3040821

Date Prep: 02.12.18 17.30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	15.5	4.92	mg/kg	02.13.18 02.50		1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3040791

Date Prep: 02.09.18 16.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	02.10.18 20.30	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	02.10.18 20.30	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	02.10.18 20.30	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	02.10.18 20.30	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	92	%	70-135	02.10.18 20.30	
o-Terphenyl	84-15-1	95	%	70-135	02.10.18 20.30	



Certificate of Analytical Results 575479



COG Operating LLC, Artesia, NM

BOBWHITE 12 STATE CAM #4H

Sample Id: **East**
Lab Sample Id: 575479-003

Matrix: Soil
Date Collected: 01.30.18 11.00

Date Received: 02.06.18 09.45
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Tech: ALJ

Analyst: ALJ

Seq Number: 3040879

Date Prep: 02.09.18 15.45

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	02.13.18 13.59	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	02.13.18 13.59	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	02.13.18 13.59	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	02.13.18 13.59	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	02.13.18 13.59	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	02.13.18 13.59	U	1
Total BTEX		<0.00199	0.00199	mg/kg	02.13.18 13.59	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	97	%	80-120	02.13.18 13.59		
1,4-Difluorobenzene	540-36-3	90	%	80-120	02.13.18 13.59		



Certificate of Analytical Results 575479



COG Operating LLC, Artesia, NM

BOBWHITE 12 STATE CAM #4H

Sample Id: **West**
Lab Sample Id: 575479-004

Matrix: Soil
Date Collected: 01.30.18 11.00

Date Received: 02.06.18 09.45
Sample Depth: 1 ft

Analytical Method: Chloride by EPA 300

Tech: LRI

Analyst: LRI

Seq Number: 3040821

Date Prep: 02.12.18 17.30

Prep Method: E300P

% Moisture:

Basis: Wet Weight

SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	21.5	4.95	mg/kg	02.13.18 02.57		1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3040791

Date Prep: 02.09.18 16.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	02.10.18 20.50	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	02.10.18 20.50	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	02.10.18 20.50	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	02.10.18 20.50	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	95	%	70-135	02.10.18 20.50	
o-Terphenyl	84-15-1	96	%	70-135	02.10.18 20.50	



Certificate of Analytical Results 575479



COG Operating LLC, Artesia, NM

BOBWHITE 12 STATE CAM #4H

Sample Id: **West**
Lab Sample Id: 575479-004

Matrix: Soil
Date Collected: 01.30.18 11.00

Date Received: 02.06.18 09.45
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Tech: ALJ

Analyst: ALJ

Seq Number: 3040879

Date Prep: 02.09.18 15.45

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	02.13.18 13.59	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	02.13.18 13.59	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	02.13.18 13.59	U	1
m,p-Xylenes	179601-23-1	<0.00396	0.00396	mg/kg	02.13.18 13.59	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	02.13.18 13.59	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	02.13.18 13.59	U	1
Total BTEX		<0.00198	0.00198	mg/kg	02.13.18 13.59	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	83	%	80-120	02.13.18 13.59		
4-Bromofluorobenzene	460-00-4	99	%	80-120	02.13.18 13.59		

- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the quantitation limit and above the detection limit.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

+ NELAC certification not offered for this compound.

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

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(602) 437-0330	



QC Summary 575479

COG Operating LLC BOBWHITE 12 STATE CAM #4H

Analytical Method: Chloride by EPA 300

Seq Number: 3040821

MB Sample Id: 7638980-1-BLK

Matrix: Solid

LCS Sample Id: 7638980-1-BKS

Prep Method: E300P

Date Prep: 02.12.18

LCSD Sample Id: 7638980-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	271	108	262	105	90-110	3	20	mg/kg	02.13.18 02:08	

Analytical Method: Chloride by EPA 300

Seq Number: 3040821

Parent Sample Id: 575479-001

Matrix: Soil

MS Sample Id: 575479-001 S

Prep Method: E300P

Date Prep: 02.12.18

MSD Sample Id: 575479-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	28.9	250	300	108	302	109	90-110	1	20	mg/kg	02.13.18 02:29	

Analytical Method: Chloride by EPA 300

Seq Number: 3040821

Parent Sample Id: 575484-007

Matrix: Soil

MS Sample Id: 575484-007 S

Prep Method: E300P

Date Prep: 02.12.18

MSD Sample Id: 575484-007 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	70.8	247	335	107	325	103	90-110	3	20	mg/kg	02.13.18 04:07	

Analytical Method: TPH By SW8015 Mod

Seq Number: 3040791

MB Sample Id: 7638961-1-BLK

Matrix: Solid

LCS Sample Id: 7638961-1-BKS

Prep Method: TX1005P

Date Prep: 02.09.18

LCSD Sample Id: 7638961-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<15.0	1000	844	84	894	89	70-135	6	35	mg/kg	02.10.18 11:55	
Diesel Range Organics (DRO)	<15.0	1000	959	96	1020	102	70-135	6	35	mg/kg	02.10.18 11:55	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	102		93		100		70-135	%	02.10.18 11:55
o-Terphenyl	105		102		106		70-135	%	02.10.18 11:55

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery

$[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$

LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD Result

MS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec



QC Summary 575479

COG Operating LLC BOBWHITE 12 STATE CAM #4H

Analytical Method: TPH By SW8015 Mod

Seq Number: 3040791

Parent Sample Id: 575485-001

Matrix: Soil

MS Sample Id: 575485-001 S

Prep Method: TX1005P

Date Prep: 02.09.18

MSD Sample Id: 575485-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<15.0	998	887	89	838	84	70-135	6	35	mg/kg	02.10.18 12:57	
Diesel Range Organics (DRO)	<15.0	998	987	99	972	97	70-135	2	35	mg/kg	02.10.18 12:57	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	98		94		70-135	%	02.10.18 12:57
o-Terphenyl	100		99		70-135	%	02.10.18 12:57

Analytical Method: BTEX by EPA 8021B

Seq Number: 3040879

MB Sample Id: 7638895-1-BLK

Matrix: Solid

LCS Sample Id: 7638895-1-BKS

Prep Method: SW5030B

Date Prep: 02.09.18

LCSD Sample Id: 7638895-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00199	0.0996	0.0871	87	0.0850	85	70-130	2	35	mg/kg	02.13.18 13:59	
Toluene	<0.00199	0.0996	0.0863	87	0.0851	85	70-130	1	35	mg/kg	02.13.18 13:59	
Ethylbenzene	<0.00199	0.0996	0.0921	92	0.0911	91	71-129	1	35	mg/kg	02.13.18 13:59	
m,p-Xylenes	<0.00398	0.199	0.179	90	0.176	88	70-135	2	35	mg/kg	02.13.18 13:59	
o-Xylene	<0.00199	0.0996	0.0915	92	0.0904	90	71-133	1	35	mg/kg	02.13.18 13:59	

Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	88		80		83		80-120	%	02.13.18 13:59
4-Bromofluorobenzene	104		108		106		80-120	%	02.13.18 13:59

Analytical Method: BTEX by EPA 8021B

Seq Number: 3040879

Parent Sample Id: 575479-004

Matrix: Soil

MS Sample Id: 575479-004 S

Prep Method: SW5030B

Date Prep: 02.09.18

MSD Sample Id: 575479-004 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.0998	0.0851	85	0.0731	73	70-130	15	35	mg/kg	02.13.18 13:59	
Toluene	<0.00200	0.0998	0.0788	79	0.0730	73	70-130	8	35	mg/kg	02.13.18 13:59	
Ethylbenzene	<0.00200	0.0998	0.0841	84	0.0770	77	71-129	9	35	mg/kg	02.13.18 13:59	
m,p-Xylenes	<0.00399	0.200	0.163	82	0.149	75	70-135	9	35	mg/kg	02.13.18 13:59	
o-Xylene	<0.00200	0.0998	0.0831	83	0.0761	76	71-133	9	35	mg/kg	02.13.18 13:59	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	91		88		80-120	%	02.13.18 13:59
4-Bromofluorobenzene	99		97		80-120	%	02.13.18 13:59

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery

$[D] = 100 * (C-A) / B$
 $RPD = 200 * | (C-E) / (C+E) |$
 $[D] = 100 * (C) / [B]$

LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD Result

MS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec



Setting the Standard since 1990
Stafford, Texas (281-240-4200)
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CHAIN OF CUSTODY

Page 1 of 1

San Antonio, Texas (210-509-3334)
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Phoenix, Arizona (480-355-0900)

Client / Reporting Information				Project Information				Analytical Information				Matrix Codes			
Company Name / Branch: COG Operating LLC				Project Name/Number: 808 WHITE 12 STATE COR #44											
Company Address: 2407 Pecos Ave. Artesia NM 88210				Project Location:											
Email: dneez2@concho.com shilchuck@concho.com tgray@concho.com; raskel@concho.com				Invoice To: COG Operating LLC Attn: Robert McNeill 600 W. Illinois Ave. Midland TX, 79701											
Project Contact: Dakota Neel				PO Number:											
Sampler's Name: AL															
No.	Field ID / Point of Collection	Sample Depth	Collection Date	Time	Matrix	# of bottles	Number of preserved bottles				Field Comments				
							HCl	NaOH/Zn	HNO3	H2SO4	NaOH	NaHSO4	MeOH	NONE	
1	NORTH	1'	1/30/18	11:00	S	5									CHLORIDES
2	SOUTH	1'													BTEX
3	EAST	1'													TPH Extended
4	WEST	1'													
5															
6															
7															
8															
9															
10															

Turnaround Time (Business days)				Data Deliverable Information				Notes:			
☐ Same Day TAT	☐ 5 Day TAT	☐ Level II Std QC	☐ Level IV (Full Data Pkg / raw data)								
☐ Next Day EMERGENCY	☐ 7 Day TAT	☐ Level III Std QC+ Forms	☐ TRRP Level IV								
☐ 2 Day EMERGENCY	☐ Contract TAT	☐ Level 3 (CLP Forms)	☐ UST / RG -411								
☐ 3 Day EMERGENCY		☐ TRRP Checklist									

TAT Starts Day received by Lab, if received by 5:00 pm				FED-EX / UPS: Tracking #			

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY			
Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:
1		1	2
Relinquished by:	Date Time:	Received By:	Relinquished By:
3	2-5-18 1:30 PM	3	4
Relinquished by:	Date Time:	Received By:	Relinquished By:
5	2/6/18 9:45	5	6

IR ID: HOU-068
Temp: 4.2
Cooler Temp: 4.8°C

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenco will be liable only for the cost of samples and shall not assume any losses or expenses incurred by the Client if such losses are due to circumstances beyond the control of Xenco. A minimum charge of \$75 will be applied to each project. Xenco's liability will be limited to the cost of samples. Any samples received by Xenco but not analyzed will be invoiced at \$5 per sample. These terms will be enforced unless previously negotiated under a fully executed client contract.

ORIGIN ID: H0BA (575) 392
**
MAIL SERVICES ETC, LLC
4008 N GRIMES

HOBBS, NM 88240
UNITED STATES US

DATE: 05FEB18
: 53.00 LB MAN
0909328/CAFE3108
: 26x15x14 IN

L RECIPIENT

TO XENCO LABORATORIES
XENCO LABORATORIES
4143 GREENBRIAR DR

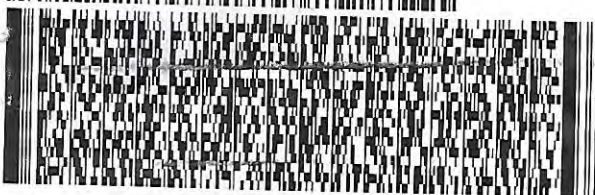
STAFFORD TX 77477

(281) 240-4200

REF:

INV:
PO:

DEPT:



FedEx
Express



1 of 2

TRK#

0201

6606 3916 1069

MASTER

TUE - 06 FEB 10:30A
PRIORITY OVERNIGHT

AB SGRA

77477
TX-US IAH



5148-434 RRD 09/16



Inter-Office Shipment

Page 1 of 1

IOS Number **1055588**

Date/Time: 02/06/18 10:50

Created by: Maria Paula Guerra

Please send report to: Kelsey Brooks

Lab# From: **Houston**

Delivery Priority:

Address: 4147 Greenbriar Dr.

Lab# To: **Midland**

Air Bill No.:

Phone: Stafford, TX 77477

E-Mail: kelsey.brooks@xenco.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
575479-001	S	North	01/30/18 11:00	E300_CL	Chloride by EPA 300	02/12/18	02/27/18	KEB	CL	
575479-001	S	North	01/30/18 11:00	SW8015MOD_NM	TPH By SW8015 Mod	02/12/18	02/13/18	KEB	PHCC10C28 PHCC28C35 I	
575479-001	S	North	01/30/18 11:00	SW8021B	BTEX by EPA 8021B	02/12/18	02/13/18	KEB	BR4FBZ BZ BZME EBZ X	
575479-002	S	South	01/30/18 11:00	SW8015MOD_NM	TPH By SW8015 Mod	02/12/18	02/13/18	KEB	PHCC10C28 PHCC28C35 I	
575479-002	S	South	01/30/18 11:00	E300_CL	Chloride by EPA 300	02/12/18	02/27/18	KEB	CL	
575479-002	S	South	01/30/18 11:00	SW8021B	BTEX by EPA 8021B	02/12/18	02/13/18	KEB	BR4FBZ BZ BZME EBZ X	
575479-003	S	East	01/30/18 11:00	SW8015MOD_NM	TPH By SW8015 Mod	02/12/18	02/13/18	KEB	PHCC10C28 PHCC28C35 I	
575479-003	S	East	01/30/18 11:00	E300_CL	Chloride by EPA 300	02/12/18	02/27/18	KEB	CL	
575479-003	S	East	01/30/18 11:00	SW8021B	BTEX by EPA 8021B	02/12/18	02/13/18	KEB	BR4FBZ BZ BZME EBZ X	
575479-004	S	West	01/30/18 11:00	SW8015MOD_NM	TPH By SW8015 Mod	02/12/18	02/13/18	KEB	PHCC10C28 PHCC28C35 I	
575479-004	S	West	01/30/18 11:00	SW8021B	BTEX by EPA 8021B	02/12/18	02/13/18	KEB	BR4FBZ BZ BZME EBZ X	
575479-004	S	West	01/30/18 11:00	E300_CL	Chloride by EPA 300	02/12/18	02/27/18	KEB	CL	

Inter Office Shipment or Sample Comments:

Relinquished By

Maria Paula Guerra

Received By:

Connie Hernandez

Date Relinquished: 02/06/2018

Date Received: 02/08/2018 11:30

Cooler Temperature: 2.4



XENCO Laboratories

Inter Office Report- Sample Receipt Checklist



Sent To: Midland

IOS #: 1055588

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R8

Sent By: Maria Paula Guerra

Date Sent: 02/06/2018 10:50 AM

Received By: Connie Hernandez

Date Received: 02/08/2018 11:30 AM

Sample Receipt Checklist

Comments

#1 *Temperature of cooler(s)?	2.4
#2 *Shipping container in good condition?	Yes
#3 *Samples received with appropriate temperature?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	N/A
#5 *Custody Seals Signed and dated for Containers/coolers	N/A
#6 *IOS present?	Yes
#7 Any missing/extra samples?	No
#8 IOS agrees with sample label(s)/matrix?	Yes
#9 Sample matrix/ properties agree with IOS?	Yes
#10 Samples in proper container/ bottle?	Yes
#11 Samples properly preserved?	Yes
#12 Sample container(s) intact?	Yes
#13 Sufficient sample amount for indicated test(s)?	Yes
#14 All samples received within hold time?	Yes

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

NonConformance:

Corrective Action Taken:

Nonconformance Documentation

Contact: _____ Contacted by : _____ Date: _____

Checklist reviewed by:

Connie Hernandez

Date: 02/08/2018



XENCO Laboratories
Prelogin/Nonconformance Report- Sample Log-In



Client: COG Operating LLC

Date/ Time Received: 02/06/2018 09:45:00 AM

Work Order #: 575479

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : IR:HOU068

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	4.5
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	No
#5 Custody Seals intact on sample bottles?	N/A
#6 *Custody Seals Signed and dated?	N/A
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	Yes Xenco Midland
#18 Water VOC samples have zero headspace?	N/A

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

Analyst:

PH Device/Lot#:

Checklist completed by: 
Maria Paula Guerra

Date: 02/06/2018

Checklist reviewed by: 
Kelsey Brooks

Date: 02/06/2018



Certificate of Analysis Summary 575484

COG Operating LLC, Artesia, NM

Project Name: BOBWHITE 12 STATE CAM #4H



Project Id:

Contact: Dakota Neel

Project Location:

Date Received in Lab: Tue Feb-06-18 09:45 am

Report Date: 13-FEB-18

Project Manager: Kelsey Brooks

Analysis Requested	Lab Id:	575484-001	575484-002	575484-003	575484-004	575484-005	575484-006
	Field Id:	T1	T1	T1	T1	T1	T2
	Depth:	0- ft	1- ft	2- ft	3- ft	4- ft	0- ft
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	Jan-30-18 10:30	Jan-30-18 10:30	Jan-30-18 10:30	Jan-30-18 10:30	Jan-30-18 10:30	Jan-30-18 10:30
BTX by EPA 8021B SUB: T104704400-18-14	Extracted:	Feb-09-18 15:45	Feb-09-18 15:45	Feb-09-18 15:45	Feb-09-18 15:45	Feb-09-18 15:45	Feb-12-18 09:00
	Analyzed:	Feb-13-18 13:59	Feb-13-18 13:59	Feb-13-18 13:59	Feb-13-18 13:59	Feb-13-18 13:59	Feb-12-18 12:10
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
	Benzene	0.00473 0.00200	0.00914 0.00199	<0.00200 0.00200	0.00308 0.00201	<0.00200 0.00200	29.3 9.94
	Toluene	0.0140 0.00200	0.0305 0.00199	0.0116 0.00200	0.00686 0.00201	0.00644 0.00200	303 9.94
Ethylbenzene		0.00229 0.00200	0.00425 0.00199	0.00263 0.00200	<0.00201 0.00201	<0.00200 0.00200	92.3 9.94
m,p-Xylenes		0.00638 0.00401	0.0112 0.00398	0.00803 0.00399	0.00548 0.00402	0.00486 0.00401	300 19.9
o-Xylene		0.00201 0.00200	0.00382 0.00199	0.00268 0.00200	<0.00201 0.00201	<0.00200 0.00200	135 9.94
Total Xylenes		0.00839 0.00200	0.0150 0.00199	0.0107 0.00200	0.00548 0.00201	0.00486 0.00200	435 9.94
Total BTX		0.0294 0.00200	0.0589 0.00199	0.0249 0.00200	0.0154 0.00201	0.0113 0.00200	860 9.94
Chloride by EPA 300 SUB: T104704400-18-14	Extracted:	Feb-12-18 17:30	Feb-12-18 17:30	Feb-12-18 17:30	Feb-12-18 17:30	Feb-12-18 17:30	Feb-12-18 17:30
	Analyzed:	Feb-13-18 03:04	Feb-13-18 03:25	Feb-13-18 03:32	Feb-13-18 03:39	Feb-13-18 03:46	Feb-13-18 03:53
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
	Chloride	14.8 4.94	9.71 4.99	<4.91 4.91	16.6 4.92	23.2 5.01	317 4.92
TPH By SW8015 Mod SUB: T104704400-18-14	Extracted:	Feb-09-18 07:00	Feb-09-18 07:00	Feb-09-18 07:00	Feb-09-18 07:00	Feb-09-18 07:00	Feb-09-18 07:00
	Analyzed:	Feb-09-18 10:02	Feb-09-18 11:03	Feb-09-18 11:23	Feb-09-18 11:44	Feb-09-18 12:04	Feb-09-18 12:24
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
	Gasoline Range Hydrocarbons (GRO)	<15.0 15.0	<15.0 15.0	<14.9 14.9	<14.9 14.9	<15.0 15.0	10700 74.9
	Diesel Range Organics (DRO)	<15.0 15.0	17.3 15.0	<14.9 14.9	<14.9 14.9	<15.0 15.0	12400 74.9
Oil Range Hydrocarbons (ORO)		<15.0 15.0	<15.0 15.0	<14.9 14.9	<14.9 14.9	<15.0 15.0	931 74.9
Total TPH		<15.0 15.0	17.3 15.0	<14.9 14.9	<14.9 14.9	<15.0 15.0	24000 74.9

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Houston - Dallas - San Antonio - Atlanta - Tampa - Boca Raton - Latin America - Odessa - Corpus Christi

Kelsey Brooks
Project Manager



Certificate of Analysis Summary 575484

COG Operating LLC, Artesia, NM

Project Name: BOBWHITE 12 STATE CAM #4H



Project Id:

Contact: Dakota Neel

Project Location:

Date Received in Lab: Tue Feb-06-18 09:45 am

Report Date: 13-FEB-18

Project Manager: Kelsey Brooks

Analysis Requested	Lab Id:	575484-007	575484-008	575484-009	575484-010	575484-011	575484-012
	Field Id:	T2	T2	T2	T3	T3	T3
	Depth:	1- ft	2- ft	3- ft	0- ft	1- ft	2- ft
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	Jan-30-18 10:30	Jan-30-18 10:30	Jan-30-18 10:30	Jan-30-18 10:45	Jan-30-18 10:45	Jan-30-18 10:45
BTX by EPA 8021B SUB: T104704400-18-14	Extracted:	Feb-10-18 08:45	Feb-09-18 15:45	Feb-09-18 15:45	Feb-09-18 15:45	Feb-09-18 15:45	Feb-09-18 15:45
	Analyzed:	Feb-13-18 14:46	Feb-13-18 13:59	Feb-13-18 13:59	Feb-13-18 13:59	Feb-13-18 13:59	Feb-13-18 13:59
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		0.0121 0.00200	0.00206 0.00200	<0.00202 0.00202	0.00773 0.00201	0.00691 0.00199	<0.00200 0.00200
Toluene		0.228 0.00200	0.0168 0.00200	0.00486 0.00202	0.0324 0.00201	0.0309 0.00199	0.00652 0.00200
Ethylbenzene		0.212 0.00200	0.0106 0.00200	<0.00202 0.00202	0.00484 0.00201	0.00617 0.00199	<0.00200 0.00200
m,p-Xylenes		0.695 0.00399	0.0503 0.00401	0.00745 0.00403	0.0135 0.00402	0.0178 0.00398	0.00414 0.00399
o-Xylene		0.319 0.00200	0.0328 0.00200	0.00420 0.00202	0.00464 0.00201	0.00621 0.00199	<0.00200 0.00200
Total Xylenes		1.01 0.00200	0.0831 0.00200	0.0117 0.00202	0.0181 0.00201	0.0240 0.00199	0.00414 0.00200
Total BTX		1.47 0.00200	0.113 0.00200	0.0165 0.00202	0.0631 0.00201	0.0680 0.00199	0.0107 0.00200
Chloride by EPA 300 SUB: T104704400-18-14	Extracted:	Feb-12-18 17:30	Feb-12-18 17:30	Feb-12-18 15:00	Feb-12-18 15:00	Feb-12-18 15:00	Feb-12-18 15:00
	Analyzed:	Feb-13-18 04:00	Feb-13-18 04:21	Feb-12-18 17:22	Feb-12-18 17:29	Feb-12-18 17:36	Feb-12-18 17:43
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		70.8 5.03	57.5 5.02	36.5 4.99	9.40 4.97	30.5 4.96	9.10 4.99
TPH By SW8015 Mod SUB: T104704400-18-14	Extracted:	Feb-09-18 07:00	Feb-09-18 07:00	Feb-09-18 07:00	Feb-09-18 07:00	Feb-09-18 07:00	Feb-09-18 07:00
	Analyzed:	Feb-09-18 12:44	Feb-09-18 13:04	Feb-09-18 13:26	Feb-09-18 13:46	Feb-09-18 14:47	Feb-09-18 15:07
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		323 15.0	96.2 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0
Diesel Range Organics (DRO)		779 15.0	329 15.0	109 15.0	18.9 15.0	23.7 15.0	28.7 15.0
Oil Range Hydrocarbons (ORO)		46.6 15.0	17.9 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0
Total TPH		1150 15.0	443 15.0	109 15.0	18.9 15.0	23.7 15.0	28.7 15.0

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Kelsey Brooks
Project Manager



Certificate of Analysis Summary 575484

COG Operating LLC, Artesia, NM

Project Name: BOBWHITE 12 STATE CAM #4H



Project Id:

Contact: Dakota Neel

Project Location:

Date Received in Lab: Tue Feb-06-18 09:45 am

Report Date: 13-FEB-18

Project Manager: Kelsey Brooks

Analysis Requested	Lab Id:	575484-013	575484-014	575484-015	575484-016	575484-017	575484-018
	Field Id:	T3	T4	T4	T4	T4	T4
	Depth:	3- ft	0- ft	1- ft	2- ft	3- ft	4- ft
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	Jan-30-18 10:45	Jan-30-18 10:45	Jan-30-18 10:45	Jan-30-18 10:45	Jan-30-18 10:45	Jan-30-18 10:45
BTEx by EPA 8021B SUB: T104704400-18-14	Extracted:	Feb-09-18 15:45	Feb-09-18 15:45	Feb-12-18 09:00	Feb-10-18 08:45	Feb-10-18 09:15	Feb-10-18 09:15
	Analyzed:	Feb-13-18 13:59	Feb-13-18 13:59	Feb-12-18 12:29	Feb-13-18 14:46	Feb-11-18 02:19	Feb-11-18 02:00
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00200 0.00200	4.51 2.02	41.1 9.98	0.00620 0.00199	<0.00201 0.00201	0.00417 0.00199
Toluene		0.00315 0.00200	100 2.02	323 9.98	0.168 0.00199	0.00733 0.00201	0.212 0.00199
Ethylbenzene		<0.00200 0.00200	30.8 2.02	84.9 9.98	0.189 0.00199	0.0136 0.00201	0.262 0.00199
m,p-Xylenes		<0.00401 0.00401	95.1 4.03	264 20.0	0.645 0.00398	0.0583 0.00402	0.786 0.00398
o-Xylene		<0.00200 0.00200	39.5 2.02	113 9.98	0.303 0.00199	0.0314 0.00201	0.326 0.00199
Total Xylenes		<0.00200 0.00200	135 2.02	377 9.98	0.948 0.00199	0.0897 0.00201	1.11 0.00199
Total BTEx		0.00315 0.00200	270 2.02	826 9.98	1.31 0.00199	0.111 0.00201	1.59 0.00199
Chloride by EPA 300 SUB: T104704400-18-14	Extracted:	Feb-12-18 15:00	Feb-12-18 15:00	Feb-12-18 17:00	Feb-12-18 17:00	Feb-12-18 17:00	Feb-12-18 17:00
	Analyzed:	Feb-12-18 17:50	Feb-12-18 17:57	Feb-13-18 00:03	Feb-13-18 00:31	Feb-13-18 00:10	Feb-12-18 22:32
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		25.5 4.99	8120 49.9	10300 99.4	10300 100	1340 4.99	743 4.98
TPH By SW8015 Mod SUB: T104704400-18-14	Extracted:	Feb-09-18 07:00	Feb-09-18 07:00	Feb-09-18 07:00	Feb-09-18 07:00	Feb-09-18 07:00	Feb-09-18 07:00
	Analyzed:	Feb-09-18 15:27	Feb-09-18 15:47	Feb-10-18 09:38	Feb-09-18 16:28	Feb-09-18 16:49	Feb-09-18 17:09
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		<15.0 15.0	3920 14.9	6910 74.9	79.8 15.0	21.4 15.0	178 15.0
Diesel Range Organics (DRO)		<15.0 15.0	4330 14.9	5980 74.9	144 15.0	99.0 15.0	416 15.0
Oil Range Hydrocarbons (ORO)		<15.0 15.0	374 14.9	485 74.9	<15.0 15.0	<15.0 15.0	30.6 15.0
Total TPH		<15.0 15.0	8620 14.9	13400 74.9	224 15.0	120 15.0	625 15.0

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Houston - Dallas - San Antonio - Atlanta - Tampa - Boca Raton - Latin America - Odessa - Corpus Christi

Kelsey Brooks
Project Manager



Certificate of Analysis Summary 575484

COG Operating LLC, Artesia, NM

Project Name: BOBWHITE 12 STATE CAM #4H



Project Id:

Contact: Dakota Neel

Project Location:

Date Received in Lab: Tue Feb-06-18 09:45 am

Report Date: 13-FEB-18

Project Manager: Kelsey Brooks

Analysis Requested	Lab Id:	575484-019					
	Field Id:	T4					
	Depth:	6- ft					
	Matrix:	SOIL					
	Sampled:	Jan-30-18 10:45					
BTEX by EPA 8021B SUB: T104704400-18-14	Extracted:	Feb-10-18 09:15					
	Analyzed:	Feb-10-18 23:29					
	Units/RL:	mg/kg RL					
	Benzene	<0.00198 0.00198					
	Toluene	<0.00198 0.00198					
	Ethylbenzene	<0.00198 0.00198					
	m,p-Xylenes	<0.00396 0.00396					
	o-Xylene	<0.00198 0.00198					
	Total Xylenes	<0.00198 0.00198					
	Total BTEX	<0.00198 0.00198					
Chloride by EPA 300 SUB: T104704400-18-14	Extracted:	Feb-12-18 17:00					
	Analyzed:	Feb-13-18 00:59					
	Units/RL:	mg/kg RL					
Chloride		32.6 4.99					
TPH By SW8015 Mod SUB: T104704400-18-14	Extracted:	Feb-09-18 07:00					
	Analyzed:	Feb-09-18 17:30					
	Units/RL:	mg/kg RL					
	Gasoline Range Hydrocarbons (GRO)	<15.0 15.0					
Diesel Range Organics (DRO)		31.5 15.0					
Oil Range Hydrocarbons (ORO)		<15.0 15.0					
Total TPH		31.5 15.0					

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Houston - Dallas - San Antonio - Atlanta - Tampa - Boca Raton - Latin America - Odessa - Corpus Christi

Kelsey Brooks
Project Manager

Analytical Report 575484

for COG Operating LLC

Project Manager: Dakota Neel
BOBWHITE 12 STATE CAM #4H

13-FEB-18

Collected By: Client



4147 Greenbriar Dr.
Stafford, TX 77477

Xenco-Houston (EPA Lab code: TX00122):
Texas (T104704215-17-23), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142)

Xenco-Dallas (EPA Lab code: TX01468):
Texas (T104704295-17-15), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab code: TX00127): Texas (T104704221-17-12)
Xenco-Lubbock (EPA Lab code: TX00139): Texas (T104704219-17-16)
Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-17-13)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-17-3)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)



13-FEB-18

Project Manager: **Dakota Neel**

COG Operating LLC

2407 Pecos Avenue

Artesia, NM 88210

Reference: XENCO Report No(s): **575484**

BOBWHITE 12 STATE CAM #4H

Project Address:

Dakota Neel:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 575484. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 575484 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Kelsey Brooks

Project Manager

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.

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COG Operating LLC, Artesia, NM

BOBWHITE 12 STATE CAM #4H

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
T1	S	01-30-18 10:30	0 ft	575484-001
T1	S	01-30-18 10:30	1 ft	575484-002
T1	S	01-30-18 10:30	2 ft	575484-003
T1	S	01-30-18 10:30	3 ft	575484-004
T1	S	01-30-18 10:30	4 ft	575484-005
T2	S	01-30-18 10:30	0 ft	575484-006
T2	S	01-30-18 10:30	1 ft	575484-007
T2	S	01-30-18 10:30	2 ft	575484-008
T2	S	01-30-18 10:30	3 ft	575484-009
T3	S	01-30-18 10:45	0 ft	575484-010
T3	S	01-30-18 10:45	1 ft	575484-011
T3	S	01-30-18 10:45	2 ft	575484-012
T3	S	01-30-18 10:45	3 ft	575484-013
T4	S	01-30-18 10:45	0 ft	575484-014
T4	S	01-30-18 10:45	1 ft	575484-015
T4	S	01-30-18 10:45	2 ft	575484-016
T4	S	01-30-18 10:45	3 ft	575484-017
T4	S	01-30-18 10:45	4 ft	575484-018
T4	S	01-30-18 10:45	6 ft	575484-019



CASE NARRATIVE

Client Name: COG Operating LLC

Project Name: BOBWHITE 12 STATE CAM #4H

Project ID:

Work Order Number(s): 575484

Report Date: 13-FEB-18

Date Received: 02/06/2018

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3040747 BTEX by EPA 8021B

Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Batch: LBA-3040835 Inorganic Anions by EPA 300

Lab Sample ID 575484-018 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride recovered below QC limits in the Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 575484-015, -016, -017, -018, -019.

The Laboratory Control Sample for Chloride is within laboratory Control Limits, therefore the data was accepted.

Batch: LBA-3040879 BTEX by EPA 8021B

Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Surrogate 4-Bromofluorobenzene recovered above QC limits. Matrix interferences is suspected; data confirmed by re-analysis.

Samples affected are: 575484-016, 575484-007.

Batch: LBA-3040899 BTEX by EPA 8021B

Soil samples were not received in Terracore kits and therefore were prepared by method 5030.



Certificate of Analytical Results 575484



COG Operating LLC, Artesia, NM

BOBWHITE 12 STATE CAM #4H

Sample Id: T1 Matrix: Soil Date Received: 02.06.18 09.45
Lab Sample Id: 575484-001 Date Collected: 01.30.18 10.30 Sample Depth: 0 ft
Analytical Method: Chloride by EPA 300 Prep Method: E300P
Tech: LRI % Moisture:
Analyst: LRI Date Prep: 02.12.18 17.30 Basis: Wet Weight
Seq Number: 3040821 SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	14.8	4.94	mg/kg	02.13.18 03.04		1

Analytical Method: TPH By SW8015 Mod Prep Method: TX1005P
Tech: ARM % Moisture:
Analyst: ARM Date Prep: 02.09.18 07.00 Basis: Wet Weight
Seq Number: 3040789 SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	02.09.18 10.02	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	02.09.18 10.02	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	02.09.18 10.02	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	02.09.18 10.02	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	94	%	70-135	02.09.18 10.02	
o-Terphenyl	84-15-1	98	%	70-135	02.09.18 10.02	



Certificate of Analytical Results 575484



COG Operating LLC, Artesia, NM

BOBWHITE 12 STATE CAM #4H

Sample Id: T1
Lab Sample Id: 575484-001

Matrix: Soil
Date Collected: 01.30.18 10.30

Date Received: 02.06.18 09.45
Sample Depth: 0 ft

Analytical Method: BTEX by EPA 8021B

Tech: ALJ

Analyst: ALJ

Seq Number: 3040879

Date Prep: 02.09.18 15.45

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	0.00473	0.00200	mg/kg	02.13.18 13.59		1
Toluene	108-88-3	0.0140	0.00200	mg/kg	02.13.18 13.59		1
Ethylbenzene	100-41-4	0.00229	0.00200	mg/kg	02.13.18 13.59		1
m,p-Xylenes	179601-23-1	0.00638	0.00401	mg/kg	02.13.18 13.59		1
o-Xylene	95-47-6	0.00201	0.00200	mg/kg	02.13.18 13.59		1
Total Xylenes	1330-20-7	0.00839	0.00200	mg/kg	02.13.18 13.59		1
Total BTEX		0.0294	0.00200	mg/kg	02.13.18 13.59		1
Surrogate	Cas Number	% Recovery		Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	83		%	80-120	02.13.18 13.59	
4-Bromofluorobenzene	460-00-4	98		%	80-120	02.13.18 13.59	



Certificate of Analytical Results 575484



COG Operating LLC, Artesia, NM

BOBWHITE 12 STATE CAM #4H

Sample Id: T1 Matrix: Soil Date Received: 02.06.18 09.45
Lab Sample Id: 575484-002 Date Collected: 01.30.18 10.30 Sample Depth: 1 ft
Analytical Method: Chloride by EPA 300 Prep Method: E300P
Tech: LRI % Moisture:
Analyst: LRI Date Prep: 02.12.18 17.30 Basis: Wet Weight
Seq Number: 3040821 SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	9.71	4.99	mg/kg	02.13.18 03.25		1

Analytical Method: TPH By SW8015 Mod Prep Method: TX1005P
Tech: ARM % Moisture:
Analyst: ARM Date Prep: 02.09.18 07.00 Basis: Wet Weight
Seq Number: 3040789 SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	02.09.18 11.03	U	1
Diesel Range Organics (DRO)	C10C28DRO	17.3	15.0	mg/kg	02.09.18 11.03		1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	02.09.18 11.03	U	1
Total TPH	PHC635	17.3	15.0	mg/kg	02.09.18 11.03		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	98	%	70-135	02.09.18 11.03	
o-Terphenyl	84-15-1	97	%	70-135	02.09.18 11.03	



Certificate of Analytical Results 575484



COG Operating LLC, Artesia, NM

BOBWHITE 12 STATE CAM #4H

Sample Id: T1
Lab Sample Id: 575484-002

Matrix: Soil
Date Collected: 01.30.18 10.30

Date Received: 02.06.18 09.45
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Tech: ALJ

Analyst: ALJ

Seq Number: 3040879

Date Prep: 02.09.18 15.45

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	0.00914	0.00199	mg/kg	02.13.18 13.59		1
Toluene	108-88-3	0.0305	0.00199	mg/kg	02.13.18 13.59		1
Ethylbenzene	100-41-4	0.00425	0.00199	mg/kg	02.13.18 13.59		1
m,p-Xylenes	179601-23-1	0.0112	0.00398	mg/kg	02.13.18 13.59		1
o-Xylene	95-47-6	0.00382	0.00199	mg/kg	02.13.18 13.59		1
Total Xylenes	1330-20-7	0.0150	0.00199	mg/kg	02.13.18 13.59		1
Total BTEX		0.0589	0.00199	mg/kg	02.13.18 13.59		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	82	%	80-120	02.13.18 13.59		
4-Bromofluorobenzene	460-00-4	109	%	80-120	02.13.18 13.59		



Certificate of Analytical Results 575484



COG Operating LLC, Artesia, NM

BOBWHITE 12 STATE CAM #4H

Sample Id: T1 Matrix: Soil Date Received: 02.06.18 09.45
Lab Sample Id: 575484-003 Date Collected: 01.30.18 10.30 Sample Depth: 2 ft
Analytical Method: Chloride by EPA 300 Prep Method: E300P
Tech: LRI % Moisture:
Analyst: LRI Date Prep: 02.12.18 17.30 Basis: Wet Weight
Seq Number: 3040821 SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.91	4.91	mg/kg	02.13.18 03.32	U	1

Analytical Method: TPH By SW8015 Mod Prep Method: TX1005P
Tech: ARM % Moisture:
Analyst: ARM Date Prep: 02.09.18 07.00 Basis: Wet Weight
Seq Number: 3040789 SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	02.09.18 11.23	U	1
Diesel Range Organics (DRO)	C10C28DRO	<14.9	14.9	mg/kg	02.09.18 11.23	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<14.9	14.9	mg/kg	02.09.18 11.23	U	1
Total TPH	PHC635	<14.9	14.9	mg/kg	02.09.18 11.23	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	99	%	70-135	02.09.18 11.23	
o-Terphenyl	84-15-1	98	%	70-135	02.09.18 11.23	



Certificate of Analytical Results 575484



COG Operating LLC, Artesia, NM

BOBWHITE 12 STATE CAM #4H

Sample Id: T1
Lab Sample Id: 575484-003

Matrix: Soil
Date Collected: 01.30.18 10.30

Date Received: 02.06.18 09.45
Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Tech: ALJ

Analyst: ALJ

Seq Number: 3040879

Date Prep: 02.09.18 15.45

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	02.13.18 13.59	U	1
Toluene	108-88-3	0.0116	0.00200	mg/kg	02.13.18 13.59		1
Ethylbenzene	100-41-4	0.00263	0.00200	mg/kg	02.13.18 13.59		1
m,p-Xylenes	179601-23-1	0.00803	0.00399	mg/kg	02.13.18 13.59		1
o-Xylene	95-47-6	0.00268	0.00200	mg/kg	02.13.18 13.59		1
Total Xylenes	1330-20-7	0.0107	0.00200	mg/kg	02.13.18 13.59		1
Total BTEX		0.0249	0.00200	mg/kg	02.13.18 13.59		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	103	%	80-120	02.13.18 13.59		
1,4-Difluorobenzene	540-36-3	84	%	80-120	02.13.18 13.59		



Certificate of Analytical Results 575484



COG Operating LLC, Artesia, NM

BOBWHITE 12 STATE CAM #4H

Sample Id: T1 Matrix: Soil Date Received: 02.06.18 09.45
Lab Sample Id: 575484-004 Date Collected: 01.30.18 10.30 Sample Depth: 3 ft
Analytical Method: Chloride by EPA 300 Prep Method: E300P
Tech: LRI % Moisture:
Analyst: LRI Date Prep: 02.12.18 17.30 Basis: Wet Weight
Seq Number: 3040821 SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	16.6	4.92	mg/kg	02.13.18 03.39		1

Analytical Method: TPH By SW8015 Mod Prep Method: TX1005P
Tech: ARM % Moisture:
Analyst: ARM Date Prep: 02.09.18 07.00 Basis: Wet Weight
Seq Number: 3040789 SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	02.09.18 11.44	U	1
Diesel Range Organics (DRO)	C10C28DRO	<14.9	14.9	mg/kg	02.09.18 11.44	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<14.9	14.9	mg/kg	02.09.18 11.44	U	1
Total TPH	PHC635	<14.9	14.9	mg/kg	02.09.18 11.44	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	93	%	70-135	02.09.18 11.44		
o-Terphenyl	84-15-1	92	%	70-135	02.09.18 11.44		



Certificate of Analytical Results 575484



COG Operating LLC, Artesia, NM

BOBWHITE 12 STATE CAM #4H

Sample Id: T1
Lab Sample Id: 575484-004

Matrix: Soil
Date Collected: 01.30.18 10.30

Date Received: 02.06.18 09.45
Sample Depth: 3 ft

Analytical Method: BTEX by EPA 8021B

Tech: ALJ

Analyst: ALJ

Seq Number: 3040879

Prep Method: SW5030B

% Moisture:

Date Prep: 02.09.18 15.45

Basis: Wet Weight

SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	0.00308	0.00201	mg/kg	02.13.18 13.59		1
Toluene	108-88-3	0.00686	0.00201	mg/kg	02.13.18 13.59		1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	02.13.18 13.59	U	1
m,p-Xylenes	179601-23-1	0.00548	0.00402	mg/kg	02.13.18 13.59		1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	02.13.18 13.59	U	1
Total Xylenes	1330-20-7	0.00548	0.00201	mg/kg	02.13.18 13.59		1
Total BTEX		0.0154	0.00201	mg/kg	02.13.18 13.59		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	90	%	80-120	02.13.18 13.59		
4-Bromofluorobenzene	460-00-4	100	%	80-120	02.13.18 13.59		



Certificate of Analytical Results 575484



COG Operating LLC, Artesia, NM

BOBWHITE 12 STATE CAM #4H

Sample Id: T1 Matrix: Soil Date Received: 02.06.18 09.45
Lab Sample Id: 575484-005 Date Collected: 01.30.18 10.30 Sample Depth: 4 ft
Analytical Method: Chloride by EPA 300 Prep Method: E300P
Tech: LRI % Moisture:
Analyst: LRI Date Prep: 02.12.18 17.30 Basis: Wet Weight
Seq Number: 3040821 SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	23.2	5.01	mg/kg	02.13.18 03.46		1

Analytical Method: TPH By SW8015 Mod Prep Method: TX1005P
Tech: ARM % Moisture:
Analyst: ARM Date Prep: 02.09.18 07.00 Basis: Wet Weight
Seq Number: 3040789 SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	02.09.18 12.04	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	02.09.18 12.04	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	02.09.18 12.04	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	02.09.18 12.04	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	98	%	70-135	02.09.18 12.04	
o-Terphenyl	84-15-1	95	%	70-135	02.09.18 12.04	



Certificate of Analytical Results 575484



COG Operating LLC, Artesia, NM BOBWHITE 12 STATE CAM #4H

Sample Id: T1 Matrix: Soil Date Received: 02.06.18 09.45
Lab Sample Id: 575484-005 Date Collected: 01.30.18 10.30 Sample Depth: 4 ft
Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B
Tech: ALJ % Moisture:
Analyst: ALJ Date Prep: 02.09.18 15.45 Basis: Wet Weight
Seq Number: 3040879 SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	02.13.18 13.59	U	1
Toluene	108-88-3	0.00644	0.00200	mg/kg	02.13.18 13.59		1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	02.13.18 13.59	U	1
m,p-Xylenes	179601-23-1	0.00486	0.00401	mg/kg	02.13.18 13.59		1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	02.13.18 13.59	U	1
Total Xylenes	1330-20-7	0.00486	0.00200	mg/kg	02.13.18 13.59		1
Total BTEX		0.0113	0.00200	mg/kg	02.13.18 13.59		1
Surrogate	Cas Number	% Recovery		Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	104		%	80-120	02.13.18 13.59	
1,4-Difluorobenzene	540-36-3	88		%	80-120	02.13.18 13.59	



Certificate of Analytical Results 575484



COG Operating LLC, Artesia, NM

BOBWHITE 12 STATE CAM #4H

Sample Id: T2 Matrix: Soil Date Received: 02.06.18 09.45
Lab Sample Id: 575484-006 Date Collected: 01.30.18 10.30 Sample Depth: 0 ft
Analytical Method: Chloride by EPA 300 Prep Method: E300P
Tech: LRI % Moisture:
Analyst: LRI Date Prep: 02.12.18 17.30 Basis: Wet Weight
Seq Number: 3040821 SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	317	4.92	mg/kg	02.13.18 03.53		1

Analytical Method: TPH By SW8015 Mod Prep Method: TX1005P
Tech: ARM % Moisture:
Analyst: ARM Date Prep: 02.09.18 07.00 Basis: Wet Weight
Seq Number: 3040789 SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	10700	74.9	mg/kg	02.09.18 12.24		5
Diesel Range Organics (DRO)	C10C28DRO	12400	74.9	mg/kg	02.09.18 12.24		5
Oil Range Hydrocarbons (ORO)	PHCG2835	931	74.9	mg/kg	02.09.18 12.24		5
Total TPH	PHC635	24000	74.9	mg/kg	02.09.18 12.24		5

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	98	%	70-135	02.09.18 12.24	
o-Terphenyl	84-15-1	81	%	70-135	02.09.18 12.24	



Certificate of Analytical Results 575484



COG Operating LLC, Artesia, NM BOBWHITE 12 STATE CAM #4H

Sample Id: T2 Matrix: Soil Date Received: 02.06.18 09.45
Lab Sample Id: 575484-006 Date Collected: 01.30.18 10.30 Sample Depth: 0 ft
Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B
Tech: ALJ % Moisture:
Analyst: ALJ Date Prep: 02.12.18 09.00 Basis: Wet Weight
Seq Number: 3040899 SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	29.3	9.94	mg/kg	02.12.18 12.10		5000
Toluene	108-88-3	303	9.94	mg/kg	02.12.18 12.10		5000
Ethylbenzene	100-41-4	92.3	9.94	mg/kg	02.12.18 12.10		5000
m,p-Xylenes	179601-23-1	300	19.9	mg/kg	02.12.18 12.10		5000
o-Xylene	95-47-6	135	9.94	mg/kg	02.12.18 12.10		5000
Total Xylenes	1330-20-7	435	9.94	mg/kg	02.12.18 12.10		5000
Total BTEX		860	9.94	mg/kg	02.12.18 12.10		5000
Surrogate	Cas Number	% Recovery		Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	111		%	80-120	02.12.18 12.10	
1,4-Difluorobenzene	540-36-3	81		%	80-120	02.12.18 12.10	



Certificate of Analytical Results 575484



COG Operating LLC, Artesia, NM

BOBWHITE 12 STATE CAM #4H

Sample Id: T2 Matrix: Soil Date Received: 02.06.18 09.45
Lab Sample Id: 575484-007 Date Collected: 01.30.18 10.30 Sample Depth: 1 ft
Analytical Method: Chloride by EPA 300 Prep Method: E300P
Tech: LRI % Moisture:
Analyst: LRI Date Prep: 02.12.18 17.30 Basis: Wet Weight
Seq Number: 3040821 SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	70.8	5.03	mg/kg	02.13.18 04.00		1

Analytical Method: TPH By SW8015 Mod Prep Method: TX1005P
Tech: ARM % Moisture:
Analyst: ARM Date Prep: 02.09.18 07.00 Basis: Wet Weight
Seq Number: 3040789 SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	323	15.0	mg/kg	02.09.18 12.44		1
Diesel Range Organics (DRO)	C10C28DRO	779	15.0	mg/kg	02.09.18 12.44		1
Oil Range Hydrocarbons (ORO)	PHCG2835	46.6	15.0	mg/kg	02.09.18 12.44		1
Total TPH	PHC635	1150	15.0	mg/kg	02.09.18 12.44		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	102	%	70-135	02.09.18 12.44		
o-Terphenyl	84-15-1	91	%	70-135	02.09.18 12.44		



Certificate of Analytical Results 575484



COG Operating LLC, Artesia, NM

BOBWHITE 12 STATE CAM #4H

Sample Id: T2
Lab Sample Id: 575484-007

Matrix: Soil
Date Collected: 01.30.18 10.30

Date Received: 02.06.18 09.45
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Tech: ALJ

Analyst: ALJ

Seq Number: 3040879

Prep Method: SW5030B

% Moisture:

Date Prep: 02.10.18 08.45

Basis: Wet Weight

SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	0.0121	0.00200	mg/kg	02.13.18 14.46		1
Toluene	108-88-3	0.228	0.00200	mg/kg	02.13.18 14.46		1
Ethylbenzene	100-41-4	0.212	0.00200	mg/kg	02.13.18 14.46		1
m,p-Xylenes	179601-23-1	0.695	0.00399	mg/kg	02.13.18 14.46		1
o-Xylene	95-47-6	0.319	0.00200	mg/kg	02.13.18 14.46		1
Total Xylenes	1330-20-7	1.01	0.00200	mg/kg	02.13.18 14.46		1
Total BTEX		1.47	0.00200	mg/kg	02.13.18 14.46		1
Surrogate	Cas Number	% Recovery		Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	84		%	80-120	02.13.18 14.46	
4-Bromofluorobenzene	460-00-4	159		%	80-120	02.13.18 14.46	**



Certificate of Analytical Results 575484



COG Operating LLC, Artesia, NM

BOBWHITE 12 STATE CAM #4H

Sample Id: T2 Matrix: Soil Date Received: 02.06.18 09.45
Lab Sample Id: 575484-008 Date Collected: 01.30.18 10.30 Sample Depth: 2 ft
Analytical Method: Chloride by EPA 300 Prep Method: E300P
Tech: LRI % Moisture:
Analyst: LRI Date Prep: 02.12.18 17.30 Basis: Wet Weight
Seq Number: 3040821 SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	57.5	5.02	mg/kg	02.13.18 04.21		1

Analytical Method: TPH By SW8015 Mod Prep Method: TX1005P
Tech: ARM % Moisture:
Analyst: ARM Date Prep: 02.09.18 07.00 Basis: Wet Weight
Seq Number: 3040789 SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	96.2	15.0	mg/kg	02.09.18 13.04		1
Diesel Range Organics (DRO)	C10C28DRO	329	15.0	mg/kg	02.09.18 13.04		1
Oil Range Hydrocarbons (ORO)	PHCG2835	17.9	15.0	mg/kg	02.09.18 13.04		1
Total TPH	PHC635	443	15.0	mg/kg	02.09.18 13.04		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	100	%	70-135	02.09.18 13.04	
o-Terphenyl	84-15-1	107	%	70-135	02.09.18 13.04	



Certificate of Analytical Results 575484



COG Operating LLC, Artesia, NM

BOBWHITE 12 STATE CAM #4H

Sample Id: T2
Lab Sample Id: 575484-008

Matrix: Soil
Date Collected: 01.30.18 10.30

Date Received: 02.06.18 09.45
Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Tech: ALJ

Analyst: ALJ

Seq Number: 3040879

Date Prep: 02.09.18 15.45

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	0.00206	0.00200	mg/kg	02.13.18 13.59		1
Toluene	108-88-3	0.0168	0.00200	mg/kg	02.13.18 13.59		1
Ethylbenzene	100-41-4	0.0106	0.00200	mg/kg	02.13.18 13.59		1
m,p-Xylenes	179601-23-1	0.0503	0.00401	mg/kg	02.13.18 13.59		1
o-Xylene	95-47-6	0.0328	0.00200	mg/kg	02.13.18 13.59		1
Total Xylenes	1330-20-7	0.0831	0.00200	mg/kg	02.13.18 13.59		1
Total BTEX		0.113	0.00200	mg/kg	02.13.18 13.59		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	81	%	80-120	02.13.18 13.59		
4-Bromofluorobenzene	460-00-4	115	%	80-120	02.13.18 13.59		



Certificate of Analytical Results 575484



COG Operating LLC, Artesia, NM

BOBWHITE 12 STATE CAM #4H

Sample Id: T2 Matrix: Soil Date Received: 02.06.18 09.45
Lab Sample Id: 575484-009 Date Collected: 01.30.18 10.30 Sample Depth: 3 ft
Analytical Method: Chloride by EPA 300 Prep Method: E300P
Tech: LRI % Moisture:
Analyst: LRI Date Prep: 02.12.18 15.00 Basis: Wet Weight
Seq Number: 3040823 SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	36.5	4.99	mg/kg	02.12.18 17.22		1

Analytical Method: TPH By SW8015 Mod Prep Method: TX1005P
Tech: ARM % Moisture:
Analyst: ARM Date Prep: 02.09.18 07.00 Basis: Wet Weight
Seq Number: 3040789 SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	02.09.18 13.26	U	1
Diesel Range Organics (DRO)	C10C28DRO	109	15.0	mg/kg	02.09.18 13.26		1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	02.09.18 13.26	U	1
Total TPH	PHC635	109	15.0	mg/kg	02.09.18 13.26		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	100	%	70-135	02.09.18 13.26	
o-Terphenyl	84-15-1	97	%	70-135	02.09.18 13.26	



Certificate of Analytical Results 575484



COG Operating LLC, Artesia, NM

BOBWHITE 12 STATE CAM #4H

Sample Id: T2
Lab Sample Id: 575484-009

Matrix: Soil
Date Collected: 01.30.18 10.30

Date Received: 02.06.18 09.45
Sample Depth: 3 ft

Analytical Method: BTEX by EPA 8021B

Tech: ALJ

Analyst: ALJ

Seq Number: 3040879

Prep Method: SW5030B

% Moisture:

Date Prep: 02.09.18 15.45

Basis: Wet Weight

SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	02.13.18 13.59	U	1
Toluene	108-88-3	0.00486	0.00202	mg/kg	02.13.18 13.59		1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	02.13.18 13.59	U	1
m,p-Xylenes	179601-23-1	0.00745	0.00403	mg/kg	02.13.18 13.59		1
o-Xylene	95-47-6	0.00420	0.00202	mg/kg	02.13.18 13.59		1
Total Xylenes	1330-20-7	0.0117	0.00202	mg/kg	02.13.18 13.59		1
Total BTEX		0.0165	0.00202	mg/kg	02.13.18 13.59		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	93	%	80-120	02.13.18 13.59		
1,4-Difluorobenzene	540-36-3	83	%	80-120	02.13.18 13.59		



Certificate of Analytical Results 575484



COG Operating LLC, Artesia, NM

BOBWHITE 12 STATE CAM #4H

Sample Id: T3 Matrix: Soil Date Received: 02.06.18 09.45
Lab Sample Id: 575484-010 Date Collected: 01.30.18 10.45 Sample Depth: 0 ft
Analytical Method: Chloride by EPA 300 Prep Method: E300P
Tech: LRI % Moisture:
Analyst: LRI Date Prep: 02.12.18 15.00 Basis: Wet Weight
Seq Number: 3040823 SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	9.40	4.97	mg/kg	02.12.18 17.29		1

Analytical Method: TPH By SW8015 Mod Prep Method: TX1005P
Tech: ARM % Moisture:
Analyst: ARM Date Prep: 02.09.18 07.00 Basis: Wet Weight
Seq Number: 3040789 SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	02.09.18 13.46	U	1
Diesel Range Organics (DRO)	C10C28DRO	18.9	15.0	mg/kg	02.09.18 13.46		1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	02.09.18 13.46	U	1
Total TPH	PHC635	18.9	15.0	mg/kg	02.09.18 13.46		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	100	%	70-135	02.09.18 13.46	
o-Terphenyl	84-15-1	98	%	70-135	02.09.18 13.46	



Certificate of Analytical Results 575484



COG Operating LLC, Artesia, NM

BOBWHITE 12 STATE CAM #4H

Sample Id: T3
Lab Sample Id: 575484-010

Matrix: Soil
Date Collected: 01.30.18 10.45

Date Received: 02.06.18 09.45
Sample Depth: 0 ft

Analytical Method: BTEX by EPA 8021B

Tech: ALJ

Analyst: ALJ

Seq Number: 3040879

Prep Method: SW5030B

% Moisture:

Date Prep: 02.09.18 15.45

Basis: Wet Weight

SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	0.00773	0.00201	mg/kg	02.13.18 13.59		1
Toluene	108-88-3	0.0324	0.00201	mg/kg	02.13.18 13.59		1
Ethylbenzene	100-41-4	0.00484	0.00201	mg/kg	02.13.18 13.59		1
m,p-Xylenes	179601-23-1	0.0135	0.00402	mg/kg	02.13.18 13.59		1
o-Xylene	95-47-6	0.00464	0.00201	mg/kg	02.13.18 13.59		1
Total Xylenes	1330-20-7	0.0181	0.00201	mg/kg	02.13.18 13.59		1
Total BTEX		0.0631	0.00201	mg/kg	02.13.18 13.59		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	108	%	80-120	02.13.18 13.59		
1,4-Difluorobenzene	540-36-3	89	%	80-120	02.13.18 13.59		



Certificate of Analytical Results 575484



COG Operating LLC, Artesia, NM

BOBWHITE 12 STATE CAM #4H

Sample Id: T3 Matrix: Soil Date Received: 02.06.18 09.45
Lab Sample Id: 575484-011 Date Collected: 01.30.18 10.45 Sample Depth: 1 ft
Analytical Method: Chloride by EPA 300 Prep Method: E300P
Tech: LRI % Moisture:
Analyst: LRI Date Prep: 02.12.18 15.00 Basis: Wet Weight
Seq Number: 3040823 SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	30.5	4.96	mg/kg	02.12.18 17.36		1

Analytical Method: TPH By SW8015 Mod Prep Method: TX1005P
Tech: ARM % Moisture:
Analyst: ARM Date Prep: 02.09.18 07.00 Basis: Wet Weight
Seq Number: 3040789 SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	02.09.18 14.47	U	1
Diesel Range Organics (DRO)	C10C28DRO	23.7	15.0	mg/kg	02.09.18 14.47		1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	02.09.18 14.47	U	1
Total TPH	PHC635	23.7	15.0	mg/kg	02.09.18 14.47		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	104	%	70-135	02.09.18 14.47	
o-Terphenyl	84-15-1	102	%	70-135	02.09.18 14.47	



Certificate of Analytical Results 575484



COG Operating LLC, Artesia, NM

BOBWHITE 12 STATE CAM #4H

Sample Id: T3
Lab Sample Id: 575484-011

Matrix: Soil
Date Collected: 01.30.18 10.45

Date Received: 02.06.18 09.45
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Tech: ALJ

Analyst: ALJ

Seq Number: 3040879

Prep Method: SW5030B

% Moisture:

Date Prep: 02.09.18 15.45

Basis: Wet Weight

SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	0.00691	0.00199	mg/kg	02.13.18 13.59		1
Toluene	108-88-3	0.0309	0.00199	mg/kg	02.13.18 13.59		1
Ethylbenzene	100-41-4	0.00617	0.00199	mg/kg	02.13.18 13.59		1
m,p-Xylenes	179601-23-1	0.0178	0.00398	mg/kg	02.13.18 13.59		1
o-Xylene	95-47-6	0.00621	0.00199	mg/kg	02.13.18 13.59		1
Total Xylenes	1330-20-7	0.0240	0.00199	mg/kg	02.13.18 13.59		1
Total BTEX		0.0680	0.00199	mg/kg	02.13.18 13.59		1
Surrogate	Cas Number	% Recovery		Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	98		%	80-120	02.13.18 13.59	
1,4-Difluorobenzene	540-36-3	86		%	80-120	02.13.18 13.59	



Certificate of Analytical Results 575484



COG Operating LLC, Artesia, NM

BOBWHITE 12 STATE CAM #4H

Sample Id: T3 Matrix: Soil Date Received: 02.06.18 09.45
Lab Sample Id: 575484-012 Date Collected: 01.30.18 10.45 Sample Depth: 2 ft
Analytical Method: Chloride by EPA 300 Prep Method: E300P
Tech: LRI % Moisture:
Analyst: LRI Date Prep: 02.12.18 15.00 Basis: Wet Weight
Seq Number: 3040823 SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	9.10	4.99	mg/kg	02.12.18 17.43		1

Analytical Method: TPH By SW8015 Mod Prep Method: TX1005P
Tech: ARM % Moisture:
Analyst: ARM Date Prep: 02.09.18 07.00 Basis: Wet Weight
Seq Number: 3040789 SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	02.09.18 15.07	U	1
Diesel Range Organics (DRO)	C10C28DRO	28.7	15.0	mg/kg	02.09.18 15.07		1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	02.09.18 15.07	U	1
Total TPH	PHC635	28.7	15.0	mg/kg	02.09.18 15.07		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	97	%	70-135	02.09.18 15.07	
o-Terphenyl	84-15-1	97	%	70-135	02.09.18 15.07	



Certificate of Analytical Results 575484



COG Operating LLC, Artesia, NM

BOBWHITE 12 STATE CAM #4H

Sample Id: T3
Lab Sample Id: 575484-012

Matrix: Soil
Date Collected: 01.30.18 10.45

Date Received: 02.06.18 09.45
Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Tech: ALJ

Analyst: ALJ

Seq Number: 3040879

Date Prep: 02.09.18 15.45

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	02.13.18 13.59	U	1
Toluene	108-88-3	0.00652	0.00200	mg/kg	02.13.18 13.59		1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	02.13.18 13.59	U	1
m,p-Xylenes	179601-23-1	0.00414	0.00399	mg/kg	02.13.18 13.59		1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	02.13.18 13.59	U	1
Total Xylenes	1330-20-7	0.00414	0.00200	mg/kg	02.13.18 13.59		1
Total BTEX		0.0107	0.00200	mg/kg	02.13.18 13.59		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	90	%	80-120	02.13.18 13.59		
4-Bromofluorobenzene	460-00-4	101	%	80-120	02.13.18 13.59		



Certificate of Analytical Results 575484



COG Operating LLC, Artesia, NM

BOBWHITE 12 STATE CAM #4H

Sample Id: T3 Matrix: Soil Date Received: 02.06.18 09.45
Lab Sample Id: 575484-013 Date Collected: 01.30.18 10.45 Sample Depth: 3 ft
Analytical Method: Chloride by EPA 300 Prep Method: E300P
Tech: LRI % Moisture:
Analyst: LRI Date Prep: 02.12.18 15.00 Basis: Wet Weight
Seq Number: 3040823 SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	25.5	4.99	mg/kg	02.12.18 17.50		1

Analytical Method: TPH By SW8015 Mod Prep Method: TX1005P
Tech: ARM % Moisture:
Analyst: ARM Date Prep: 02.09.18 07.00 Basis: Wet Weight
Seq Number: 3040789 SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	02.09.18 15.27	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	02.09.18 15.27	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	02.09.18 15.27	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	02.09.18 15.27	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	102	%	70-135	02.09.18 15.27		
o-Terphenyl	84-15-1	100	%	70-135	02.09.18 15.27		



Certificate of Analytical Results 575484



COG Operating LLC, Artesia, NM BOBWHITE 12 STATE CAM #4H

Sample Id: T3 Matrix: Soil Date Received: 02.06.18 09.45
Lab Sample Id: 575484-013 Date Collected: 01.30.18 10.45 Sample Depth: 3 ft
Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B
Tech: ALJ % Moisture:
Analyst: ALJ Date Prep: 02.09.18 15.45 Basis: Wet Weight
Seq Number: 3040879 SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	02.13.18 13.59	U	1
Toluene	108-88-3	0.00315	0.00200	mg/kg	02.13.18 13.59		1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	02.13.18 13.59	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	02.13.18 13.59	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	02.13.18 13.59	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	02.13.18 13.59	U	1
Total BTEX		0.00315	0.00200	mg/kg	02.13.18 13.59		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	85	%	80-120	02.13.18 13.59		
4-Bromofluorobenzene	460-00-4	101	%	80-120	02.13.18 13.59		



Certificate of Analytical Results 575484



COG Operating LLC, Artesia, NM

BOBWHITE 12 STATE CAM #4H

Sample Id: T4
Lab Sample Id: 575484-014

Matrix: Soil
Date Collected: 01.30.18 10.45

Date Received: 02.06.18 09.45
Sample Depth: 0 ft

Analytical Method: Chloride by EPA 300

Tech: LRI

Analyst: LRI

Seq Number: 3040823

Date Prep: 02.12.18 15.00

Prep Method: E300P

% Moisture:

Basis: Wet Weight

SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	8120	49.9	mg/kg	02.12.18 17.57		10

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3040789

Date Prep: 02.09.18 07.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	3920	14.9	mg/kg	02.09.18 15.47		1
Diesel Range Organics (DRO)	C10C28DRO	4330	14.9	mg/kg	02.09.18 15.47		1
Oil Range Hydrocarbons (ORO)	PHCG2835	374	14.9	mg/kg	02.09.18 15.47		1
Total TPH	PHC635	8620	14.9	mg/kg	02.09.18 15.47		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	119	%	70-135	02.09.18 15.47	
o-Terphenyl	84-15-1	96	%	70-135	02.09.18 15.47	



Certificate of Analytical Results 575484



COG Operating LLC, Artesia, NM BOBWHITE 12 STATE CAM #4H

Sample Id: **T4** Matrix: **Soil** Date Received: 02.06.18 09.45
Lab Sample Id: 575484-014 Date Collected: 01.30.18 10.45 Sample Depth: 0 ft
Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B
Tech: **ALJ** % Moisture:
Analyst: **ALJ** Date Prep: 02.09.18 15.45 Basis: **Wet Weight**
Seq Number: 3040879 SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	4.51	2.02	mg/kg	02.13.18 13.59		1000
Toluene	108-88-3	100	2.02	mg/kg	02.13.18 13.59		1000
Ethylbenzene	100-41-4	30.8	2.02	mg/kg	02.13.18 13.59		1000
m,p-Xylenes	179601-23-1	95.1	4.03	mg/kg	02.13.18 13.59		1000
o-Xylene	95-47-6	39.5	2.02	mg/kg	02.13.18 13.59		1000
Total Xylenes	1330-20-7	135	2.02	mg/kg	02.13.18 13.59		1000
Total BTEX		270	2.02	mg/kg	02.13.18 13.59		1000
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	115	%	80-120	02.13.18 13.59		
1,4-Difluorobenzene	540-36-3	83	%	80-120	02.13.18 13.59		



Certificate of Analytical Results 575484



COG Operating LLC, Artesia, NM

BOBWHITE 12 STATE CAM #4H

Sample Id: **T4** Matrix: Soil Date Received: 02.06.18 09.45
Lab Sample Id: 575484-015 Date Collected: 01.30.18 10.45 Sample Depth: 1 ft
Analytical Method: Chloride by EPA 300 Prep Method: E300P
Tech: LRI % Moisture:
Analyst: LRI Date Prep: 02.12.18 17.00 Basis: Wet Weight
Seq Number: 3040835 SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	10300	99.4	mg/kg	02.13.18 00.03		20

Analytical Method: TPH By SW8015 Mod Prep Method: TX1005P
Tech: ARM % Moisture:
Analyst: ARM Date Prep: 02.09.18 07.00 Basis: Wet Weight
Seq Number: 3040789 SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	6910	74.9	mg/kg	02.10.18 09.38		5
Diesel Range Organics (DRO)	C10C28DRO	5980	74.9	mg/kg	02.10.18 09.38		5
Oil Range Hydrocarbons (ORO)	PHCG2835	485	74.9	mg/kg	02.10.18 09.38		5
Total TPH	PHC635	13400	74.9	mg/kg	02.10.18 09.38		5

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	100	%	70-135	02.10.18 09.38	
o-Terphenyl	84-15-1	90	%	70-135	02.10.18 09.38	



Certificate of Analytical Results 575484



COG Operating LLC, Artesia, NM BOBWHITE 12 STATE CAM #4H

Sample Id: **T4** Matrix: **Soil** Date Received: 02.06.18 09.45
Lab Sample Id: 575484-015 Date Collected: 01.30.18 10.45 Sample Depth: 1 ft
Analytical Method: BTEX by EPA 8021B Prep Method: SW5030B
Tech: **ALJ** % Moisture:
Analyst: **ALJ** Date Prep: 02.12.18 09.00 Basis: **Wet Weight**
Seq Number: 3040899 SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	41.1	9.98	mg/kg	02.12.18 12.29		5000
Toluene	108-88-3	323	9.98	mg/kg	02.12.18 12.29		5000
Ethylbenzene	100-41-4	84.9	9.98	mg/kg	02.12.18 12.29		5000
m,p-Xylenes	179601-23-1	264	20.0	mg/kg	02.12.18 12.29		5000
o-Xylene	95-47-6	113	9.98	mg/kg	02.12.18 12.29		5000
Total Xylenes	1330-20-7	377	9.98	mg/kg	02.12.18 12.29		5000
Total BTEX		826	9.98	mg/kg	02.12.18 12.29		5000
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	117	%	80-120	02.12.18 12.29		
1,4-Difluorobenzene	540-36-3	86	%	80-120	02.12.18 12.29		



Certificate of Analytical Results 575484



COG Operating LLC, Artesia, NM

BOBWHITE 12 STATE CAM #4H

Sample Id: T4 Matrix: Soil Date Received: 02.06.18 09.45
Lab Sample Id: 575484-016 Date Collected: 01.30.18 10.45 Sample Depth: 2 ft
Analytical Method: Chloride by EPA 300 Prep Method: E300P
Tech: LRI % Moisture:
Analyst: LRI Date Prep: 02.12.18 17.00 Basis: Wet Weight
Seq Number: 3040835 SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	10300	100	mg/kg	02.13.18 00.31		20

Analytical Method: TPH By SW8015 Mod Prep Method: TX1005P
Tech: ARM % Moisture:
Analyst: ARM Date Prep: 02.09.18 07.00 Basis: Wet Weight
Seq Number: 3040789 SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	79.8	15.0	mg/kg	02.09.18 16.28		1
Diesel Range Organics (DRO)	C10C28DRO	144	15.0	mg/kg	02.09.18 16.28		1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	02.09.18 16.28	U	1
Total TPH	PHC635	224	15.0	mg/kg	02.09.18 16.28		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	100	%	70-135	02.09.18 16.28		
o-Terphenyl	84-15-1	102	%	70-135	02.09.18 16.28		



Certificate of Analytical Results 575484



COG Operating LLC, Artesia, NM

BOBWHITE 12 STATE CAM #4H

Sample Id: **T4**
Lab Sample Id: 575484-016

Matrix: Soil
Date Collected: 01.30.18 10.45

Date Received: 02.06.18 09.45
Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Tech: ALJ

Analyst: ALJ

Seq Number: 3040879

Prep Method: SW5030B

% Moisture:

Date Prep: 02.10.18 08.45

Basis: Wet Weight

SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	0.00620	0.00199	mg/kg	02.13.18 14.46		1
Toluene	108-88-3	0.168	0.00199	mg/kg	02.13.18 14.46		1
Ethylbenzene	100-41-4	0.189	0.00199	mg/kg	02.13.18 14.46		1
m,p-Xylenes	179601-23-1	0.645	0.00398	mg/kg	02.13.18 14.46		1
o-Xylene	95-47-6	0.303	0.00199	mg/kg	02.13.18 14.46		1
Total Xylenes	1330-20-7	0.948	0.00199	mg/kg	02.13.18 14.46		1
Total BTEX		1.31	0.00199	mg/kg	02.13.18 14.46		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	168	%	80-120	02.13.18 14.46	**	
1,4-Difluorobenzene	540-36-3	82	%	80-120	02.13.18 14.46		



Certificate of Analytical Results 575484



COG Operating LLC, Artesia, NM

BOBWHITE 12 STATE CAM #4H

Sample Id: T4 Matrix: Soil Date Received: 02.06.18 09.45
Lab Sample Id: 575484-017 Date Collected: 01.30.18 10.45 Sample Depth: 3 ft
Analytical Method: Chloride by EPA 300 Prep Method: E300P
Tech: LRI % Moisture:
Analyst: LRI Date Prep: 02.12.18 17.00 Basis: Wet Weight
Seq Number: 3040835 SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1340	4.99	mg/kg	02.13.18 00.10		1

Analytical Method: TPH By SW8015 Mod Prep Method: TX1005P
Tech: ARM % Moisture:
Analyst: ARM Date Prep: 02.09.18 07.00 Basis: Wet Weight
Seq Number: 3040789 SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	21.4	15.0	mg/kg	02.09.18 16.49		1
Diesel Range Organics (DRO)	C10C28DRO	99.0	15.0	mg/kg	02.09.18 16.49		1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	02.09.18 16.49	U	1
Total TPH	PHC635	120	15.0	mg/kg	02.09.18 16.49		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	99	%	70-135	02.09.18 16.49	
o-Terphenyl	84-15-1	102	%	70-135	02.09.18 16.49	



Certificate of Analytical Results 575484



COG Operating LLC, Artesia, NM

BOBWHITE 12 STATE CAM #4H

Sample Id: **T4**
Lab Sample Id: 575484-017

Matrix: Soil
Date Collected: 01.30.18 10.45

Date Received: 02.06.18 09.45
Sample Depth: 3 ft

Analytical Method: BTEX by EPA 8021B

Tech: ALJ

Analyst: ALJ

Seq Number: 3040747

Prep Method: SW5030B

% Moisture:

Date Prep: 02.10.18 09.15

Basis: Wet Weight

SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	02.11.18 02.19	U	1
Toluene	108-88-3	0.00733	0.00201	mg/kg	02.11.18 02.19		1
Ethylbenzene	100-41-4	0.0136	0.00201	mg/kg	02.11.18 02.19		1
m,p-Xylenes	179601-23-1	0.0583	0.00402	mg/kg	02.11.18 02.19		1
o-Xylene	95-47-6	0.0314	0.00201	mg/kg	02.11.18 02.19		1
Total Xylenes	1330-20-7	0.0897	0.00201	mg/kg	02.11.18 02.19		1
Total BTEX		0.111	0.00201	mg/kg	02.11.18 02.19		1
Surrogate	Cas Number	% Recovery		Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	115		%	80-120	02.11.18 02.19	
1,4-Difluorobenzene	540-36-3	80		%	80-120	02.11.18 02.19	



Certificate of Analytical Results 575484



COG Operating LLC, Artesia, NM

BOBWHITE 12 STATE CAM #4H

Sample Id: **T4** Matrix: Soil Date Received: 02.06.18 09.45
Lab Sample Id: 575484-018 Date Collected: 01.30.18 10.45 Sample Depth: 4 ft
Analytical Method: Chloride by EPA 300 Prep Method: E300P
Tech: LRI % Moisture:
Analyst: LRI Date Prep: 02.12.18 17.00 Basis: Wet Weight
Seq Number: 3040835 SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	743	4.98	mg/kg	02.12.18 22.32		1

Analytical Method: TPH By SW8015 Mod Prep Method: TX1005P
Tech: ARM % Moisture:
Analyst: ARM Date Prep: 02.09.18 07.00 Basis: Wet Weight
Seq Number: 3040789 SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	178	15.0	mg/kg	02.09.18 17.09		1
Diesel Range Organics (DRO)	C10C28DRO	416	15.0	mg/kg	02.09.18 17.09		1
Oil Range Hydrocarbons (ORO)	PHCG2835	30.6	15.0	mg/kg	02.09.18 17.09		1
Total TPH	PHC635	625	15.0	mg/kg	02.09.18 17.09		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	95	%	70-135	02.09.18 17.09	
o-Terphenyl	84-15-1	84	%	70-135	02.09.18 17.09	



Certificate of Analytical Results 575484



COG Operating LLC, Artesia, NM

BOBWHITE 12 STATE CAM #4H

Sample Id: T4
Lab Sample Id: 575484-018

Matrix: Soil
Date Collected: 01.30.18 10.45

Date Received: 02.06.18 09.45
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Tech: ALJ

Analyst: ALJ

Seq Number: 3040747

Prep Method: SW5030B

% Moisture:

Date Prep: 02.10.18 09.15

Basis: Wet Weight

SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	0.00417	0.00199	mg/kg	02.11.18 02.00		1
Toluene	108-88-3	0.212	0.00199	mg/kg	02.11.18 02.00		1
Ethylbenzene	100-41-4	0.262	0.00199	mg/kg	02.11.18 02.00		1
m,p-Xylenes	179601-23-1	0.786	0.00398	mg/kg	02.11.18 02.00		1
o-Xylene	95-47-6	0.326	0.00199	mg/kg	02.11.18 02.00		1
Total Xylenes	1330-20-7	1.11	0.00199	mg/kg	02.11.18 02.00		1
Total BTEX		1.59	0.00199	mg/kg	02.11.18 02.00		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	83	%	80-120	02.11.18 02.00		
4-Bromofluorobenzene	460-00-4	105	%	80-120	02.11.18 02.00		



Certificate of Analytical Results 575484



COG Operating LLC, Artesia, NM

BOBWHITE 12 STATE CAM #4H

Sample Id: T4 Matrix: Soil Date Received: 02.06.18 09.45
Lab Sample Id: 575484-019 Date Collected: 01.30.18 10.45 Sample Depth: 6 ft
Analytical Method: Chloride by EPA 300 Prep Method: E300P
Tech: LRI % Moisture:
Analyst: LRI Date Prep: 02.12.18 17.00 Basis: Wet Weight
Seq Number: 3040835 SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	32.6	4.99	mg/kg	02.13.18 00.59		1

Analytical Method: TPH By SW8015 Mod Prep Method: TX1005P
Tech: ARM % Moisture:
Analyst: ARM Date Prep: 02.09.18 07.00 Basis: Wet Weight
Seq Number: 3040789 SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	02.09.18 17.30	U	1
Diesel Range Organics (DRO)	C10C28DRO	31.5	15.0	mg/kg	02.09.18 17.30		1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	02.09.18 17.30	U	1
Total TPH	PHC635	31.5	15.0	mg/kg	02.09.18 17.30		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	98	%	70-135	02.09.18 17.30	
o-Terphenyl	84-15-1	99	%	70-135	02.09.18 17.30	



Certificate of Analytical Results 575484



COG Operating LLC, Artesia, NM BOBWHITE 12 STATE CAM #4H

Sample Id: T4
Lab Sample Id: 575484-019

Matrix: Soil
Date Collected: 01.30.18 10.45

Date Received: 02.06.18 09.45
Sample Depth: 6 ft

Analytical Method: BTEX by EPA 8021B

Tech: ALJ

Analyst: ALJ

Seq Number: 3040747

Prep Method: SW5030B

% Moisture:

Date Prep: 02.10.18 09.15

Basis: Wet Weight

SUB: T104704400-18-14

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	02.10.18 23.29	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	02.10.18 23.29	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	02.10.18 23.29	U	1
m,p-Xylenes	179601-23-1	<0.00396	0.00396	mg/kg	02.10.18 23.29	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	02.10.18 23.29	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	02.10.18 23.29	U	1
Total BTEX		<0.00198	0.00198	mg/kg	02.10.18 23.29	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	81	%	80-120	02.10.18 23.29		
4-Bromofluorobenzene	460-00-4	104	%	80-120	02.10.18 23.29		

- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the quantitation limit and above the detection limit.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

+ NELAC certification not offered for this compound.

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

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(602) 437-0330	

COG Operating LLC
BOBWHITE 12 STATE CAM #4H**Analytical Method: Chloride by EPA 300**

Seq Number: 3040823

MB Sample Id: 7638977-1-BLK

Matrix: Solid

LCS Sample Id: 7638977-1-BKS

Prep Method: E300P

Date Prep: 02.12.18

LCSD Sample Id: 7638977-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	274	110	273	109	90-110	0	20	mg/kg	02.12.18 14:35	

Analytical Method: Chloride by EPA 300

Seq Number: 3040823

MB Sample Id: 7638978-1-BLK

Matrix: Solid

LCS Sample Id: 7638978-1-BKS

Prep Method: E300P

Date Prep: 02.12.18

LCSD Sample Id: 7638978-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	272	109	265	106	90-110	3	20	mg/kg	02.12.18 22:18	

Analytical Method: Chloride by EPA 300

Seq Number: 3040821

MB Sample Id: 7638980-1-BLK

Matrix: Solid

LCS Sample Id: 7638980-1-BKS

Prep Method: E300P

Date Prep: 02.12.18

LCSD Sample Id: 7638980-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	271	108	262	105	90-110	3	20	mg/kg	02.12.18 02:08	

Analytical Method: Chloride by EPA 300

Seq Number: 3040823

Parent Sample Id: 576138-001

Matrix: Soil

MS Sample Id: 576138-001 S

Prep Method: E300P

Date Prep: 02.12.18

MSD Sample Id: 576138-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	251	248	506	103	496	99	90-110	2	20	mg/kg	02.12.18 14:56	

Analytical Method: Chloride by EPA 300

Seq Number: 3040823

Parent Sample Id: 576139-003

Matrix: Soil

MS Sample Id: 576139-003 S

Prep Method: E300P

Date Prep: 02.12.18

MSD Sample Id: 576139-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	389	247	646	104	665	112	90-110	3	20	mg/kg	02.12.18 16:34	X

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery $[D] = 100 * (C - A) / B$
 $RPD = 200 * | (C - E) / (C + E) |$
 $[D] = 100 * (C) / [B]$ LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD ResultMS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec



QC Summary 575484

COG Operating LLC BOBWHITE 12 STATE CAM #4H

Analytical Method: Chloride by EPA 300

Seq Number: 3040835

Parent Sample Id: 575484-017

Matrix: Soil

MS Sample Id: 575484-017 S

Prep Method: E300P

Date Prep: 02.12.18

MSD Sample Id: 575484-017 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	1340	250	1590	100	1590	100	90-110	0	20	mg/kg	02.13.18 00:17	

Analytical Method: Chloride by EPA 300

Seq Number: 3040835

Parent Sample Id: 575484-018

Matrix: Soil

MS Sample Id: 575484-018 S

Prep Method: E300P

Date Prep: 02.12.18

MSD Sample Id: 575484-018 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	743	249	970	91	965	89	90-110	1	20	mg/kg	02.12.18 22:39	X

Analytical Method: Chloride by EPA 300

Seq Number: 3040821

Parent Sample Id: 575479-001

Matrix: Soil

MS Sample Id: 575479-001 S

Prep Method: E300P

Date Prep: 02.12.18

MSD Sample Id: 575479-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	28.9	250	300	108	302	109	90-110	1	20	mg/kg	02.13.18 02:29	

Analytical Method: Chloride by EPA 300

Seq Number: 3040821

Parent Sample Id: 575484-007

Matrix: Soil

MS Sample Id: 575484-007 S

Prep Method: E300P

Date Prep: 02.12.18

MSD Sample Id: 575484-007 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	70.8	247	335	107	325	103	90-110	3	20	mg/kg	02.13.18 04:07	

Analytical Method: TPH By SW8015 Mod

Seq Number: 3040789

MB Sample Id: 7638959-1-BLK

Matrix: Solid

LCS Sample Id: 7638959-1-BKS

Prep Method: TX1005P

Date Prep: 02.09.18

LCSD Sample Id: 7638959-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<15.0	1000	895	90	839	84	70-135	6	35	mg/kg	02.09.18 09:20	
Diesel Range Organics (DRO)	<15.0	1000	993	99	954	95	70-135	4	35	mg/kg	02.09.18 09:20	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	100		101		95		70-135	%	02.09.18 09:20
o-Terphenyl	102		103		95		70-135	%	02.09.18 09:20

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery

$[D] = 100 * (C-A) / B$
 $RPD = 200 * | (C-E) / (C+E) |$
 $[D] = 100 * (C) / [B]$

LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD Result

MS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec

COG Operating LLC
BOBWHITE 12 STATE CAM #4H

Analytical Method: TPH By SW8015 Mod

Seq Number: 3040789

Parent Sample Id: 575484-001

Matrix: Soil

MS Sample Id: 575484-001 S

Prep Method: TX1005P

Date Prep: 02.09.18

MSD Sample Id: 575484-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<15.0	997	934	94	915	92	70-135	2	35	mg/kg	02.09.18 10:23	
Diesel Range Organics (DRO)	<15.0	997	1020	102	1020	102	70-135	0	35	mg/kg	02.09.18 10:23	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	109		106		70-135	%	02.09.18 10:23
o-Terphenyl	106		102		70-135	%	02.09.18 10:23

Analytical Method: BTEX by EPA 8021B

Seq Number: 3040879

MB Sample Id: 7638895-1-BLK

Matrix: Solid

LCS Sample Id: 7638895-1-BKS

Prep Method: SW5030B

Date Prep: 02.09.18

LCSD Sample Id: 7638895-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00199	0.0996	0.0871	87	0.0850	85	70-130	2	35	mg/kg	02.13.18 13:59	
Toluene	<0.00199	0.0996	0.0863	87	0.0851	85	70-130	1	35	mg/kg	02.13.18 13:59	
Ethylbenzene	<0.00199	0.0996	0.0921	92	0.0911	91	71-129	1	35	mg/kg	02.13.18 13:59	
m,p-Xylenes	<0.00398	0.199	0.179	90	0.176	88	70-135	2	35	mg/kg	02.13.18 13:59	
o-Xylene	<0.00199	0.0996	0.0915	92	0.0904	90	71-133	1	35	mg/kg	02.13.18 13:59	

Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	88		80		83		80-120	%	02.13.18 13:59
4-Bromofluorobenzene	104		108		106		80-120	%	02.13.18 13:59

Analytical Method: BTEX by EPA 8021B

Seq Number: 3040747

MB Sample Id: 7638894-1-BLK

Matrix: Solid

LCS Sample Id: 7638894-1-BKS

Prep Method: SW5030B

Date Prep: 02.10.18

LCSD Sample Id: 7638894-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00202	0.101	0.0852	84	0.0814	81	70-130	5	35	mg/kg	02.10.18 21:15	
Toluene	<0.00202	0.101	0.0895	89	0.0858	86	70-130	4	35	mg/kg	02.10.18 21:15	
Ethylbenzene	<0.00202	0.101	0.0978	97	0.0942	94	71-129	4	35	mg/kg	02.10.18 21:15	
m,p-Xylenes	<0.00403	0.202	0.193	96	0.187	94	70-135	3	35	mg/kg	02.10.18 21:15	
o-Xylene	<0.00202	0.101	0.0963	95	0.0927	93	71-133	4	35	mg/kg	02.10.18 21:15	

Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	82		86		86		80-120	%	02.10.18 21:15
4-Bromofluorobenzene	97		119		114		80-120	%	02.10.18 21:15

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery $[D] = 100 * (C-A) / B$
 $RPD = 200 * |(C-E) / (C+E)|$
 $[D] = 100 * (C) / [B]$ LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD ResultMS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec

COG Operating LLC
BOBWHITE 12 STATE CAM #4H

Analytical Method: BTEX by EPA 8021B

Seq Number: 3040899

MB Sample Id: 7639034-1-BLK

Matrix: Solid

LCS Sample Id: 7639034-1-BKS

Prep Method: SW5030B

Date Prep: 02.12.18

LCSD Sample Id: 7639034-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00199	0.0994	0.101	102	0.105	105	70-130	4	35	mg/kg	02.12.18 08:26	
Toluene	<0.00199	0.0994	0.0964	97	0.100	100	70-130	4	35	mg/kg	02.12.18 08:26	
Ethylbenzene	<0.00199	0.0994	0.101	102	0.105	105	71-129	4	35	mg/kg	02.12.18 08:26	
m,p-Xylenes	<0.00398	0.199	0.196	98	0.204	102	70-135	4	35	mg/kg	02.12.18 08:26	
o-Xylene	<0.00199	0.0994	0.0987	99	0.103	103	71-133	4	35	mg/kg	02.12.18 08:26	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	86		80		83		80-120	%	02.12.18 08:26
4-Bromofluorobenzene	92		104		109		80-120	%	02.12.18 08:26

Analytical Method: BTEX by EPA 8021B

Seq Number: 3040879

Parent Sample Id: 575479-004

Matrix: Soil

MS Sample Id: 575479-004 S

Prep Method: SW5030B

Date Prep: 02.09.18

MSD Sample Id: 575479-004 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.0998	0.0851	85	0.0731	73	70-130	15	35	mg/kg	02.13.18 13:59	
Toluene	<0.00200	0.0998	0.0788	79	0.0730	73	70-130	8	35	mg/kg	02.13.18 13:59	
Ethylbenzene	<0.00200	0.0998	0.0841	84	0.0770	77	71-129	9	35	mg/kg	02.13.18 13:59	
m,p-Xylenes	<0.00399	0.200	0.163	82	0.149	75	70-135	9	35	mg/kg	02.13.18 13:59	
o-Xylene	<0.00200	0.0998	0.0831	83	0.0761	76	71-133	9	35	mg/kg	02.13.18 13:59	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	91		88		80-120	%	02.13.18 13:59
4-Bromofluorobenzene	99		97		80-120	%	02.13.18 13:59

Analytical Method: BTEX by EPA 8021B

Seq Number: 3040747

Parent Sample Id: 575485-010

Matrix: Soil

MS Sample Id: 575485-010 S

Prep Method: SW5030B

Date Prep: 02.10.18

MSD Sample Id: 575485-010 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00201	0.100	0.0548	55	0.0464	47	70-130	17	35	mg/kg	02.10.18 21:53	X
Toluene	<0.00201	0.100	0.0582	58	0.0509	51	70-130	13	35	mg/kg	02.10.18 21:53	X
Ethylbenzene	<0.00201	0.100	0.0673	67	0.0577	58	71-129	15	35	mg/kg	02.10.18 21:53	X
m,p-Xylenes	<0.00402	0.201	0.133	66	0.120	60	70-135	10	35	mg/kg	02.10.18 21:53	X
o-Xylene	<0.00201	0.100	0.0680	68	0.0609	61	71-133	11	35	mg/kg	02.10.18 21:53	X

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	82		89		80-120	%	02.10.18 21:53
4-Bromofluorobenzene	115		114		80-120	%	02.10.18 21:53

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery $[D] = 100 * (C - A) / B$
 $RPD = 200 * | (C - E) / (C + E) |$
 $[D] = 100 * (C) / [B]$ LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD ResultMS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec

COG Operating LLC
BOBWHITE 12 STATE CAM #4H

Analytical Method: BTEX by EPA 8021B

Seq Number: 3040899

Parent Sample Id: 575589-001

Matrix: Soil

MS Sample Id: 575589-001 S

Prep Method: SW5030B

Date Prep: 02.12.18

MSD Sample Id: 575589-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00201	0.100	0.0751	75	0.0796	79	70-130	6	35	mg/kg	02.12.18 09:08	
Toluene	<0.00201	0.100	0.0745	75	0.0779	77	70-130	4	35	mg/kg	02.12.18 09:08	
Ethylbenzene	<0.00201	0.100	0.0772	77	0.0802	79	71-129	4	35	mg/kg	02.12.18 09:08	
m,p-Xylenes	<0.00402	0.201	0.151	75	0.157	78	70-135	4	35	mg/kg	02.12.18 09:08	
o-Xylene	<0.00201	0.100	0.0756	76	0.0786	78	71-133	4	35	mg/kg	02.12.18 09:08	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	89		82		80-120	%	02.12.18 09:08
4-Bromofluorobenzene	96		112		80-120	%	02.12.18 09:08

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery $[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$ LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD ResultMS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec



Setting the Standard since 1990
Stafford, Texas (281-240-4200)
Dallas Texas (214-902-0300)

CHAIN OF CUSTODY

Page 1 of 2

Phoenix, Arizona (480-355-0900)
San Antonio, Texas (210-509-3334)
Midland, Texas (432-704-5251)

WWW.XENCO.COM

Client / Reporting Information				Project Information				Xenco Quote #		Xenco Job #		Matrix Codes				
Company Name / Branch: COG Operating LLC				Project Name/Number: BOB WHITE 12 STATE COM #44H												
Company Address: 2407 Pecos Ave. Artesia NM 88210				Project Location:												
Email: dnee2@concho.com siltcock@concho.com lgray@concho.com; rhaskell@concho.com				Invoice To: COG Operating LLC Attn: Robert McNeill 600 W. Illinois Ave. Midland TX, 79701												
Project Contact: Dakota Neel				PO Number:												
Sampler's Name: RG																
No.	Field ID / Point of Collection	Collection		Number of preserved bottles							TPH Extended	BTEX	CHLORIDES	Field Comments		
		Sample Depth	Date	Time	Matrix	# of bottles	HCl	Acetate	HNO3	H2SO4					NaOH	NaHSO4
1	T1	10'	1/30/18	10:30	5									X		
2	T1	1'												X		
3	T1	2'												X		
4	T1	3'												X		
5	T1	4'												X		
6	T2	0'												X		
7	T2	1'												X		
8	T2	2'												X		
9	T2	3'												X		
10														X		

☐ Same Day TAT ☐ 5 Day TAT ☐ Level II Std QC ☐ Level IV (Full Data Pkg (raw data))
☐ Next Day EMERGENCY ☐ 7 Day TAT ☐ Level III Std QC+ Forms ☐ TRRP Level IV
☐ 2 Day EMERGENCY ☐ Contract TAT ☐ Level 3 (CLP Forms) ☐ UST / RG-411
☐ 3 Day EMERGENCY ☐ TRRP Checklist

TAT Starts Day received by Lab, if received by 5:00 pm

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY			
Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:
1		1	2
3	2-5-18 1:30 PM	3	4
5	2/6/18 9:45	5	

Relinquished by: *Dane*

Relinquished by: *FEDEX*

Relinquished by: *FEDEX*

Date Time: 2-5-18 1:30 PM

Date Time: 2-5-18 1:30 PM

Date Time: 2/6/18 9:45

Received By: *FEDEX*

Received By: *FEDEX*

Received By: *FEDEX*

Relinquished By: *FEDEX*

Relinquished By: *FEDEX*

Relinquished By: *FEDEX*

On Ice ☐

Cooler Temp 4.8c

IR ID: HOU-068

Temp: 4.2

Corrected: 4.5

CF: 0.3

Setting the Standard since 1990

Stafford, Texas (281-240-4200)

Dallas Texas (214-902-0300)

San Antonio, Texas (210-509-3334)

Midland, Texas (432-704-5251)

Phoenix, Arizona (480-355-0900)

Client / Reporting Information Company Name / Branch: COG Operating LLC Company Address: 2407 Pecos Ave. Artesia NM 88210 Email: dhee2@concho.com Phone No: 575-746-2010 slithcock@concho.com ggray@concho.com; thaskell@concho.com Project Contact: Dakota Neel Samplers Name:		Project Information Project Name/Number: Bob WH155747E con #4H Project Location: Invoice To: COG Operating LLC Attn: Robert McNeill 600 W. Illinois Ave. Midland TX, 79701 PO Number:		Analytical Information Matrix Codes W = Water S = Soil/Sed/Solid GW = Ground Water DW = Drinking Water P = Product SW = Surface water SL = Sludge OW = Ocean/Sea Water WI = Wipe O = Oil WW = Waste Water A = Air										
Field ID / Point of Collection		Collection		Number of preserved bottles		Data Deliverable Information		Notes:						
No.	Sample Depth	Date	Time	Matrix	# of bottles	HCl	NaOH/Zn	Acetate	HNO3	H2SO4	NaOH	MeOH	NONE	Field Comments
1	0'	1/30/18	10:45	S	5									
2	1'													
3	2'													
4	3'													
5	0'													
6	1'													
7	2'													
8	3'													
9	4'													
10	6'													
Turnaround Time (Business days)		☐ Same Day TAT		☐ 5 Day TAT		☐ Level II Std QC		☐ Level IV (Full Data Pkg /raw data)						
☐ Next Day EMERGENCY		☐ 7 Day TAT		☐ Level III Std QC+ Forms		☐ TRRP Level IV		☐ TRRP Level IV						
☐ 2 Day EMERGENCY		☐ Contract TAT		☐ Level 3 (CLP Forms)		☐ UST / RG-411		☐ TRRP Checklist						
☐ 3 Day EMERGENCY		TAT Starts Day received by Lab, if received by 5:00 pm		SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY		FED-EX / UPS: Tracking #		Relinquished by Sampler:						
Relinquished by: <i>DAN</i>		Date Time: 2-5-18 1:30 PM		Relinquished By: <i>Jeff Butler</i>		Date Time: 2-5-18 2:5-18		Relinquished By: <i>Jeff Butler</i>						
Relinquished by: <i>FED-EX</i>		Date Time: 2/6/18 9:48		Relinquished By: <i>unlabeled</i>		Date Time: 2-5-18 10:00		Relinquished By: <i>FED-EX</i>						
Relinquished by: <i>FED-EX</i>		Date Time: 2/6/18 9:48		Relinquished By: <i>unlabeled</i>		Date Time: 2-5-18 10:00		Relinquished By: <i>FED-EX</i>						
Relinquished by: <i>FED-EX</i>		Date Time: 2/6/18 9:48		Relinquished By: <i>unlabeled</i>		Date Time: 2-5-18 10:00		Relinquished By: <i>FED-EX</i>						

Notice: Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the Client if such losses are due to circumstances beyond the control of Xenco. A minimum charge of \$75 will be applied to each project. Xenco's liability will be limited to the cost of samples. Any samples received by Xenco but not analyzed will be invoiced at \$5 per sample. These terms will be enforced unless previously negotiated under a fully executed client contract.

ORIGIN ID: H0BA (575) 392

**
MAIL SERVICES ETC, LLC
4008 N GRIMES

HOBBS, NM 88240
UNITED STATES US

DATE: 05FEB18
: 53.00 LB MAN
0909328/CAFE3108
: 26x15x14 IN

L RECIPIENT

TO XENCO LABORATORIES
XENCO LABORATORIES
4143 GREENBRIAR DR

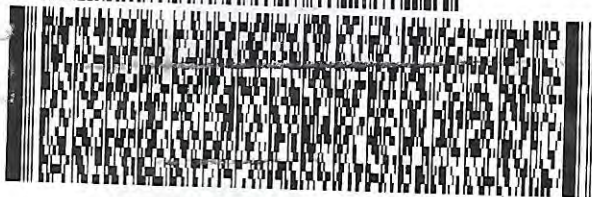
STAFFORD TX 77477

(281) 240-4200

INV:
PO:

REF:

DEPT:



FedEx
Express



1 of 2

TRKH#

0201

6606 3916 1069

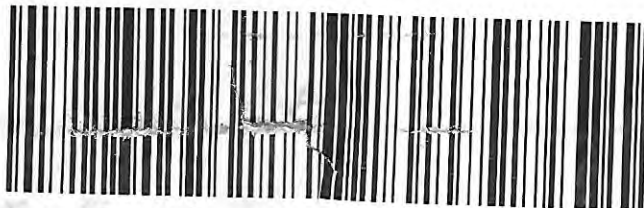
MASTER

TUE - 06 FEB 10:30A
PRIORITY OVERNIGHT

AB SGRA

77477

TX-US IAH



54168-434 RFD 09/16



Inter-Office Shipment

Page 1 of 3

IOS Number **1055591**

Date/Time: 02/06/18 11:11

Created by: Maria Paula Guerra

Please send report to: Kelsey Brooks

Lab# From: **Houston**

Delivery Priority:

Address: 4147 Greenbriar Dr.

Lab# To: **Midland**

Air Bill No.:

Phone: Stafford, TX 77477

E-Mail: kelsey.brooks@xenco.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
575484-001	S	T1	01/30/18 10:30	SW8015MOD_NM	TPH By SW8015 Mod	02/12/18	02/13/18	KEB	PHCC10C28 PHCC28C35 1	
575484-001	S	T1	01/30/18 10:30	SW8021B	BTEX by EPA 8021B	02/12/18	02/13/18	KEB	BR4FBZ BZ BZME EBZ X	
575484-001	S	T1	01/30/18 10:30	E300_CL	Chloride by EPA 300	02/12/18	02/27/18	KEB	CL	
575484-002	S	T1	01/30/18 10:30	E300_CL	Chloride by EPA 300	02/12/18	02/27/18	KEB	CL	
575484-002	S	T1	01/30/18 10:30	SW8015MOD_NM	TPH By SW8015 Mod	02/12/18	02/13/18	KEB	PHCC10C28 PHCC28C35 1	
575484-002	S	T1	01/30/18 10:30	SW8021B	BTEX by EPA 8021B	02/12/18	02/13/18	KEB	BR4FBZ BZ BZME EBZ X	
575484-003	S	T1	01/30/18 10:30	E300_CL	Chloride by EPA 300	02/12/18	02/27/18	KEB	CL	
575484-003	S	T1	01/30/18 10:30	SW8015MOD_NM	TPH By SW8015 Mod	02/12/18	02/13/18	KEB	PHCC10C28 PHCC28C35 1	
575484-003	S	T1	01/30/18 10:30	SW8021B	BTEX by EPA 8021B	02/12/18	02/13/18	KEB	BR4FBZ BZ BZME EBZ X	
575484-004	S	T1	01/30/18 10:30	E300_CL	Chloride by EPA 300	02/12/18	02/27/18	KEB	CL	
575484-004	S	T1	01/30/18 10:30	SW8021B	BTEX by EPA 8021B	02/12/18	02/13/18	KEB	BR4FBZ BZ BZME EBZ X	
575484-004	S	T1	01/30/18 10:30	SW8015MOD_NM	TPH By SW8015 Mod	02/12/18	02/13/18	KEB	PHCC10C28 PHCC28C35 1	
575484-005	S	T1	01/30/18 10:30	SW8015MOD_NM	TPH By SW8015 Mod	02/12/18	02/13/18	KEB	PHCC10C28 PHCC28C35 1	
575484-005	S	T1	01/30/18 10:30	E300_CL	Chloride by EPA 300	02/12/18	02/27/18	KEB	CL	
575484-005	S	T1	01/30/18 10:30	SW8021B	BTEX by EPA 8021B	02/12/18	02/13/18	KEB	BR4FBZ BZ BZME EBZ X	
575484-006	S	T2	01/30/18 10:30	SW8021B	BTEX by EPA 8021B	02/12/18	02/13/18	KEB	BR4FBZ BZ BZME EBZ X	
575484-006	S	T2	01/30/18 10:30	E300_CL	Chloride by EPA 300	02/12/18	02/27/18	KEB	CL	
575484-006	S	T2	01/30/18 10:30	SW8015MOD_NM	TPH By SW8015 Mod	02/12/18	02/13/18	KEB	PHCC10C28 PHCC28C35 1	
575484-007	S	T2	01/30/18 10:30	SW8021B	BTEX by EPA 8021B	02/12/18	02/13/18	KEB	BR4FBZ BZ BZME EBZ X	
575484-007	S	T2	01/30/18 10:30	E300_CL	Chloride by EPA 300	02/12/18	02/27/18	KEB	CL	
575484-007	S	T2	01/30/18 10:30	SW8015MOD_NM	TPH By SW8015 Mod	02/12/18	02/13/18	KEB	PHCC10C28 PHCC28C35 1	
575484-008	S	T2	01/30/18 10:30	E300_CL	Chloride by EPA 300	02/12/18	02/27/18	KEB	CL	
575484-008	S	T2	01/30/18 10:30	SW8015MOD_NM	TPH By SW8015 Mod	02/12/18	02/13/18	KEB	PHCC10C28 PHCC28C35 1	
575484-008	S	T2	01/30/18 10:30	SW8021B	BTEX by EPA 8021B	02/12/18	02/13/18	KEB	BR4FBZ BZ BZME EBZ X	
575484-009	S	T2	01/30/18 10:30	SW8015MOD_NM	TPH By SW8015 Mod	02/12/18	02/13/18	KEB	PHCC10C28 PHCC28C35 1	



Inter-Office Shipment

Page 2 of 3

IOS Number **1055591**

Date/Time: 02/06/18 11:11

Created by: Maria Paula Guerra

Please send report to: Kelsey Brooks

Lab# From: **Houston**

Delivery Priority:

Address: 4147 Greenbriar Dr.

Lab# To: **Midland**

Air Bill No.:

Phone: Stafford, TX 77477

E-Mail: kelsey.brooks@xenco.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
575484-009	S	T2	01/30/18 10:30	E300_CL	Chloride by EPA 300	02/12/18	02/27/18	KEB	CL	
575484-009	S	T2	01/30/18 10:30	SW8021B	BTEX by EPA 8021B	02/12/18	02/13/18	KEB	BR4FBZ BZ BZME EBZ X	
575484-010	S	T3	01/30/18 10:45	E300_CL	Chloride by EPA 300	02/12/18	02/27/18	KEB	CL	
575484-010	S	T3	01/30/18 10:45	SW8015MOD_NM	TPH By SW8015 Mod	02/12/18	02/13/18	KEB	PHCC10C28 PHCC28C35 I	
575484-010	S	T3	01/30/18 10:45	SW8021B	BTEX by EPA 8021B	02/12/18	02/13/18	KEB	BR4FBZ BZ BZME EBZ X	
575484-011	S	T3	01/30/18 10:45	SW8021B	BTEX by EPA 8021B	02/12/18	02/13/18	KEB	BR4FBZ BZ BZME EBZ X	
575484-011	S	T3	01/30/18 10:45	SW8015MOD_NM	TPH By SW8015 Mod	02/12/18	02/13/18	KEB	PHCC10C28 PHCC28C35 I	
575484-011	S	T3	01/30/18 10:45	E300_CL	Chloride by EPA 300	02/12/18	02/27/18	KEB	CL	
575484-012	S	T3	01/30/18 10:45	SW8021B	BTEX by EPA 8021B	02/12/18	02/13/18	KEB	BR4FBZ BZ BZME EBZ X	
575484-012	S	T3	01/30/18 10:45	SW8015MOD_NM	TPH By SW8015 Mod	02/12/18	02/13/18	KEB	PHCC10C28 PHCC28C35 I	
575484-012	S	T3	01/30/18 10:45	E300_CL	Chloride by EPA 300	02/12/18	02/27/18	KEB	CL	
575484-013	S	T3	01/30/18 10:45	SW8015MOD_NM	TPH By SW8015 Mod	02/12/18	02/13/18	KEB	PHCC10C28 PHCC28C35 I	
575484-013	S	T3	01/30/18 10:45	SW8021B	BTEX by EPA 8021B	02/12/18	02/13/18	KEB	BR4FBZ BZ BZME EBZ X	
575484-013	S	T3	01/30/18 10:45	E300_CL	Chloride by EPA 300	02/12/18	02/27/18	KEB	CL	
575484-014	S	T4	01/30/18 10:45	SW8015MOD_NM	TPH By SW8015 Mod	02/12/18	02/13/18	KEB	PHCC10C28 PHCC28C35 I	
575484-014	S	T4	01/30/18 10:45	E300_CL	Chloride by EPA 300	02/12/18	02/27/18	KEB	CL	
575484-014	S	T4	01/30/18 10:45	SW8021B	BTEX by EPA 8021B	02/12/18	02/13/18	KEB	BR4FBZ BZ BZME EBZ X	
575484-015	S	T4	01/30/18 10:45	E300_CL	Chloride by EPA 300	02/12/18	02/27/18	KEB	CL	
575484-015	S	T4	01/30/18 10:45	SW8021B	BTEX by EPA 8021B	02/12/18	02/13/18	KEB	BR4FBZ BZ BZME EBZ X	
575484-015	S	T4	01/30/18 10:45	SW8015MOD_NM	TPH By SW8015 Mod	02/12/18	02/13/18	KEB	PHCC10C28 PHCC28C35 I	
575484-016	S	T4	01/30/18 10:45	SW8021B	BTEX by EPA 8021B	02/12/18	02/13/18	KEB	BR4FBZ BZ BZME EBZ X	
575484-016	S	T4	01/30/18 10:45	SW8015MOD_NM	TPH By SW8015 Mod	02/12/18	02/13/18	KEB	PHCC10C28 PHCC28C35 I	
575484-016	S	T4	01/30/18 10:45	E300_CL	Chloride by EPA 300	02/12/18	02/27/18	KEB	CL	
575484-017	S	T4	01/30/18 10:45	SW8015MOD_NM	TPH By SW8015 Mod	02/12/18	02/13/18	KEB	PHCC10C28 PHCC28C35 I	
575484-017	S	T4	01/30/18 10:45	E300_CL	Chloride by EPA 300	02/12/18	02/27/18	KEB	CL	



Inter-Office Shipment

Page 3 of 3

IOS Number **1055591**

Date/Time: 02/06/18 11:11

Created by: Maria Paula Guerra

Please send report to: Kelsey Brooks

Lab# From: **Houston**

Delivery Priority:

Address: 4147 Greenbriar Dr.

Lab# To: **Midland**

Air Bill No.:

Phone: Stafford, TX 77477

E-Mail: kelsey.brooks@xenco.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
575484-017	S	T4	01/30/18 10:45	SW8021B	BTEX by EPA 8021B	02/12/18	02/13/18	KEB	BR4FBZ BZ BZME EBZ X	
575484-018	S	T4	01/30/18 10:45	SW8015MOD_NM	TPH By SW8015 Mod	02/12/18	02/13/18	KEB	PHCC10C28 PHCC28C35 I	
575484-018	S	T4	01/30/18 10:45	E300_CL	Chloride by EPA 300	02/12/18	02/27/18	KEB	CL	
575484-018	S	T4	01/30/18 10:45	SW8021B	BTEX by EPA 8021B	02/12/18	02/13/18	KEB	BR4FBZ BZ BZME EBZ X	
575484-019	S	T4	01/30/18 10:45	E300_CL	Chloride by EPA 300	02/12/18	02/27/18	KEB	CL	
575484-019	S	T4	01/30/18 10:45	SW8015MOD_NM	TPH By SW8015 Mod	02/12/18	02/13/18	KEB	PHCC10C28 PHCC28C35 I	
575484-019	S	T4	01/30/18 10:45	SW8021B	BTEX by EPA 8021B	02/12/18	02/13/18	KEB	BR4FBZ BZ BZME EBZ X	

Inter Office Shipment or Sample Comments:

Relinquished By

Maria Paula Guerra

Received By:

Connie Hernandez

Date Relinquished: 02/06/2018

Date Received: 02/08/2018 11:30

Cooler Temperature: 1.8



XENCO Laboratories



Inter Office Report- Sample Receipt Checklist

Sent To: Midland

IOS #: 1055591

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R8

Sent By: Maria Paula Guerra

Date Sent: 02/06/2018 11:11 AM

Received By: Connie Hernandez

Date Received: 02/08/2018 11:30 AM

Sample Receipt Checklist

Comments

#1 *Temperature of cooler(s)?	1.8
#2 *Shipping container in good condition?	Yes
#3 *Samples received with appropriate temperature?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	N/A
#5 *Custody Seals Signed and dated for Containers/coolers	N/A
#6 *IOS present?	Yes
#7 Any missing/extra samples?	No
#8 IOS agrees with sample label(s)/matrix?	Yes
#9 Sample matrix/ properties agree with IOS?	Yes
#10 Samples in proper container/ bottle?	Yes
#11 Samples properly preserved?	Yes
#12 Sample container(s) intact?	Yes
#13 Sufficient sample amount for indicated test(s)?	Yes
#14 All samples received within hold time?	Yes

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

NonConformance:

Corrective Action Taken:

Nonconformance Documentation

Contact: _____ Contacted by : _____ Date: _____

Checklist reviewed by:

Connie Hernandez

Date: 02/08/2018



XENCO Laboratories
Prelogin/Nonconformance Report- Sample Log-In



Client: COG Operating LLC

Date/ Time Received: 02/06/2018 09:45:00 AM

Work Order #: 575484

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : IR:HOU068

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	4.5
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	No
#5 Custody Seals intact on sample bottles?	N/A
#6 *Custody Seals Signed and dated?	N/A
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	Yes Xenco Midland
#18 Water VOC samples have zero headspace?	N/A

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

Analyst:

PH Device/Lot#:

Checklist completed by: 
Maria Paula Guerra

Date: 02/06/2018

Checklist reviewed by: 
Kelsey Brooks

Date: 02/06/2018

Analytical Report 586207

for
TRC Solutions, Inc

Project Manager: Joel Lowry

Bobwhite 12 Row

22-MAY-18

Collected By: Client



6701 Aberdeen, Suite 9 Lubbock, TX 79424

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-18-25), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-17-16), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-17-12)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-17-16)
Xenco-Odessa (EPA Lab Code: TX00158): Texas (T104704400-18-14)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-17-3)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Phoenix Mobile (EPA Lab Code: AZ00901): Arizona (AZM757)
Xenco-Atlanta (LELAP Lab ID #04176)
Xenco-Tampa: Florida (E87429)
Xenco-Lakeland: Florida (E84098)



22-MAY-18

Project Manager: **Joel Lowry**
TRC Solutions, Inc
2057 Commerce
Midland, TX 79703

Reference: XENCO Report No(s): **586207**
Bobwhite 12 Row
Project Address: Lea Co. NM

Joel Lowry:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 586207. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 586207 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

A handwritten signature in black ink, appearing to read 'Kelsey Brooks', is written over a horizontal line.

Kelsey Brooks

Project Manager

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.

Certified and approved by numerous States and Agencies.

A Small Business and Minority Status Company that delivers SERVICE and QUALITY

Houston - Dallas - Midland - San Antonio - Phoenix - Oklahoma - Latin America



Sample Cross Reference 586207

TRC Solutions, Inc, Midland, TX

Bobwhite 12 Row

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
T-2 NSW	S	05-09-18 09:00	6 In	586207-001
T-2 ESW	S	05-09-18 09:05	6 In	586207-002
T-2 SSW	S	05-09-18 09:10	6 In	586207-003
T-2 WSN	S	05-09-18 09:15	6 In	586207-004
T-4 FL @ 5'	S	05-09-18 09:20	5 In	586207-005
T-4 NSW	S	05-09-18 09:25	2.5 In	586207-006
T-4 ESW	S	05-09-18 09:30	2.5 In	586207-007
T-4 SSW	S	05-09-18 09:35	2.5 In	586207-008
T-4 WSW	S	05-09-18 09:40	2.5 In	586207-009



CASE NARRATIVE

Client Name: TRC Solutions, Inc

Project Name: Bobwhite 12 Row

Project ID:

Work Order Number(s): 586207

Report Date: 22-MAY-18

Date Received: 05/16/2018

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None



Certificate of Analysis Summary 586207

TRC Solutions, Inc, Midland, TX

Project Name: Bobwhite 12 Row

Project Id:

Contact: Joel Lowry

Project Location: Lea Co. NM

Date Received in Lab: Wed May-16-18 08:55 am

Report Date: 22-MAY-18

Project Manager: Kelsey Brooks

<i>Analysis Requested</i>	<i>Lab Id:</i>	586207-001	586207-002	586207-003	586207-004	586207-005	586207-006
	<i>Field Id:</i>	T-2 NSW	T-2 ESW	T-2 SSW	T-2 WSN	T-4 FL @ 5'	T-4 NSW
	<i>Depth:</i>	6- In	6- In	6- In	6- In	5- In	2.5- In
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	May-09-18 09:00	May-09-18 09:05	May-09-18 09:10	May-09-18 09:15	May-09-18 09:20	May-09-18 09:25
Chloride by EPA 300	<i>Extracted:</i>	May-21-18 10:30	May-21-18 10:30	May-21-18 10:30	May-21-18 10:30	May-21-18 10:30	May-21-18 10:30
	<i>Analyzed:</i>	May-21-18 18:56	May-21-18 19:08	May-21-18 20:23	May-21-18 19:45	May-21-18 20:35	May-21-18 20:47
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		119 25.0	136 25.0	95.9 25.0	48.8 25.0	32.0 25.0	<25.0 25.0

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use.
The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories.
XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented.
Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

Houston - Dallas - San Antonio - Atlanta - Tampa - Boca Raton - Latin America - Odessa - Corpus Christi

Kelsey Brooks
Project Manager



Certificate of Analysis Summary 586207

TRC Solutions, Inc, Midland, TX

Project Name: Bobwhite 12 Row

Project Id:

Contact: Joel Lowry

Project Location: Lea Co. NM

Date Received in Lab: Wed May-16-18 08:55 am

Report Date: 22-MAY-18

Project Manager: Kelsey Brooks

Analysis Requested	Lab Id:	586207-007	586207-008	586207-009			
	Field Id:	T-4 ESW	T-4 SSW	T-4 WSW			
	Depth:	2.5- In	2.5- In	2.5- In			
	Matrix:	SOIL	SOIL	SOIL			
	Sampled:	May-09-18 09:30	May-09-18 09:35	May-09-18 09:40			
Chloride by EPA 300	Extracted:	May-21-18 10:30	May-21-18 10:30	May-21-18 10:30			
	Analyzed:	May-21-18 21:00	May-21-18 21:12	May-21-18 21:25			
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL			
Chloride		69.6 25.0	<25.0 25.0	<25.0 25.0			

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use.
The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories.
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Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

Houston - Dallas - San Antonio - Atlanta - Tampa - Boca Raton - Latin America - Odessa - Corpus Christi

Kelsey Brooks
Project Manager

Flagging Criteria

- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the quantitation limit and above the detection limit.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

MDL Method Detection Limit

SDL Sample Detection Limit

LOD Limit of Detection

PQL Practical Quantitation Limit

MQL Method Quantitation Limit

LOQ Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample

BLK

Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample

BKSD/LCSD

Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate

MS

Matrix Spike

MSD: Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation



BS / BSD Recoveries

Project Name: Bobwhite 12 Row

Work Order #: 586207

Analyst: RNL

Date Prepared: 05/21/2018

Project ID:

Date Analyzed: 05/21/2018

Lab Batch ID: 3050891

Sample: 7645195-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Chloride	<25.0	250	260	104	250	249	100	4	90-110	20	

Relative Percent Difference RPD = $200 * |(C-F)/(C+F)|$

Blank Spike Recovery [D] = $100 * (C)/[B]$

Blank Spike Duplicate Recovery [G] = $100 * (F)/[E]$

All results are based on MDL and Validated for QC Purposes



Form 3 - MS / MSD Recoveries

Project Name: Bobwhite 12 Row

Work Order # : 586207

Project ID:

Lab Batch ID: 3050891

QC- Sample ID: 586204-017 S

Batch #: 1 Matrix: Soil

Date Analyzed: 05/21/2018

Date Prepared: 05/21/2018

Analyst: RNL

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	<125	250	315	126	250	318	127	1	80-120	20	X

Lab Batch ID: 3050891

QC- Sample ID: 586207-004 S

Batch #: 1 Matrix: Soil

Date Analyzed: 05/21/2018

Date Prepared: 05/21/2018

Analyst: RNL

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	48.8	250	290	96	250	295	98	2	80-120	20	

Matrix Spike Percent Recovery [D] = $100 \times (C-A)/B$
Relative Percent Difference RPD = $200 \times |(C-F)/(C+F)|$

Matrix Spike Duplicate Percent Recovery [G] = $100 \times (F-A)/E$

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable

N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.



Page 1 Of 1

San Antonio, Texas (210-509-3334)

Phoenix, Arizona (480-355-0900)

Dallas Texas (214-902-0300)

Midland, Texas (432-704-5251)

1

586207

www.xenco.com

Client / Reporting Information				Project Information				Analytical Information				Matrix Codes						
Company Name / Branch: TRC Environmental Corporation				Project Name/Number: Bobbwhite 12 ROW				Project Location: Lea CO, ALA				W = Water S = Soil/Sed/Solid GW = Ground Water DW = Drinking Water P = Product SL = Sludge OW = Ocean/Sea Water WI = Wipe O = Oil WW = Waste Water A = Air						
Company Address: 10 Desta Drive, Suite 150E, Midland, TX, 79705				Invoice To: COG Operating C/O Becky Haskell				Invoice To: COG Operating C/O Becky Haskell										
Email: jlowry@trcsolutions.com				Phone No: 432-466-4450				Invoice To: COG Operating C/O Becky Haskell										
Project Contact: Joel Lowry				Invoice To: COG Operating C/O Becky Haskell				Invoice To: COG Operating C/O Becky Haskell										
Sampler's Name Joel Lowry				Invoice To: COG Operating C/O Becky Haskell				Invoice To: COG Operating C/O Becky Haskell										
No.	Field ID / Point of Collection	Sample Depth	Collection	Date	Time	Matrix	# of bottles	HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	NONE	Hold	Field Comments	
1	T-2 NSW	6"	5-9-18	9:00	S	1											1	
2	T-2 ESW	6"	9:05														2	
3	T-2 SSW	6"	9:10														3	
4	T-2 INSW	6"	9:15														4	
5	T-4 FL @ 5'	5'	9:20														5	
6	T-4 NSW	2.5'	9:25														6	
7	T-4 ESW	2.5'	9:30														7	
8	T-4 SSW	2.5'	9:35														8	
9	T-4 WSW	2.5'	9:40														9	
10																		
Turnaround Time (Business days)																	Notes:	
☒ Same Day TAT ☐ 5 Day TAT ☐ 7 Day TAT ☐ 2 Day EMERGENCY ☐ 3 Day EMERGENCY																	lowry@trcsolutions.com	
☐ Next Day EMERGENCY ☐ 2 Day EMERGENCY ☐ 3 Day EMERGENCY																	zconder@trcsolutions.com	
☐ Contract TAT																	kblackburn@trcsolutions.com	
TAT Starts Day received by Lab, if received by 5:00 pm																	r.haskell@concho.com	
SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY																	FED-EX / UPS: Tracking #	
Relinquished by Sampler:																	Received By:	
1. 5-18-18 8:55																	2	
Relinquished by:																	Received By:	
3																	4	
Relinquished by:																	Received By:	
5																	6	
On Ice																	Cooler Temp.	
Thermo. Corr. Factor																		

Notices or expenses incurred by the Client if such losses are due to circumstances beyond the control of Xenco. A minimum charge of \$75 will be applied to each project. Xenco's liability will be limited to the cost of samples. Any samples received by Xenco but not analyzed will be invoiced at \$5 per sample. These terms will be enforced unless previously negotiated under a fully executed client contract.



XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In



Client: TRC Solutions, Inc

Date/ Time Received: 05/16/2018 08:55:00 AM

Work Order #: 586207

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : IR-3

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	1.8
#2 *Shipping container in good condition?	Yes 0
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	N/A
#5 Custody Seals intact on sample bottles?	N/A
#6 *Custody Seals Signed and dated?	N/A
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	N/A
#18 Water VOC samples have zero headspace?	N/A

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

Analyst:

PH Device/Lot#:

Checklist completed by:

Brenda Ward
Brenda Ward

Date: 05/16/2018

Checklist reviewed by:

Kelsey Brooks
Kelsey Brooks

Date: 05/18/2018



Certificate of Analysis Summary 587536

TRC Solutions, Inc, Midland, TX

Project Name: Bobwhite 12 Row

Project Id:

Contact: Joel Lowry

Project Location: Lea Co. NM

Date Received in Lab: Tue May-29-18 04:40 pm

Report Date: 11-JUN-18

Project Manager: Kelsey Brooks

Analysis Requested	Lab Id:	587536-001	587536-002	587536-003	587536-004	587536-005	587536-006
	Field Id:	T-2 NSW	T-2 ESW	T-2 SSW	T-2 WSW	T-4 NSW	T-4 ESW
	Depth:	6- In	6- In	6- In	6- In	2.5- In	2.5- In
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	May-24-18 10:00	May-24-18 10:05	May-24-18 10:10	May-24-18 10:15	May-24-18 10:20	May-24-18 10:25
DRO-ORO By SW8015B	Extracted:	May-31-18 11:00	May-31-18 11:00	May-31-18 11:00	May-31-18 11:00	May-31-18 11:00	May-31-18 11:00
	Analyzed:	Jun-01-18 00:26	Jun-01-18 02:07	Jun-01-18 02:40	Jun-01-18 03:14	Jun-01-18 03:48	Jun-01-18 04:22
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Diesel Range Organics (DRO)		<25.0 25.0	29.6 25.2	37.6 25.3	<25.0 25.0	55.7 25.2	78.5 25.0
Oil Range Hydrocarbons (ORO)		<25.0 25.0	<25.2 25.2	<25.3 25.3	<25.0 25.0	<25.2 25.2	<25.0 25.0
TPH GRO by EPA 8015 Mod.	Extracted:	May-30-18 12:00	May-30-18 12:00	May-30-18 12:00	May-30-18 12:00	May-30-18 12:00	May-30-18 12:00
	Analyzed:	May-30-18 20:10	May-30-18 21:58	May-30-18 22:25	May-30-18 22:52	May-30-18 23:19	May-30-18 23:46
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
TPH-GRO		<3.94 3.94	<3.98 3.98	<3.69 3.69	<3.98 3.98	<3.98 3.98	<3.87 3.87

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

Houston - Dallas - San Antonio - Atlanta - Tampa - Boca Raton - Latin America - Odessa - Corpus Christi

Version: 1.9%

Kelsey Brooks
Project Manager



Certificate of Analysis Summary 587536

TRC Solutions, Inc, Midland, TX

Project Name: Bobwhite 12 Row

Project Id:

Contact: Joel Lowry

Project Location: Lea Co. NM

Date Received in Lab: Tue May-29-18 04:40 pm

Report Date: 11-JUN-18

Project Manager: Kelsey Brooks

Analysis Requested	Lab Id:	587536-007	587536-008				
	Field Id:	T-4 SSW	T-4 WSW				
	Depth:	2.5- In	2.5- In				
	Matrix:	SOIL	SOIL				
	Sampled:	May-24-18 10:30	May-24-18 10:35				
DRO-ORO By SW8015B	Extracted:	May-31-18 11:00	May-31-18 11:00				
	Analyzed:	Jun-01-18 04:55	Jun-01-18 05:29				
	Units/RL:	mg/kg RL	mg/kg RL				
Diesel Range Organics (DRO)		<25.1	25.1	<24.9	24.9		
Oil Range Hydrocarbons (ORO)		<25.1	25.1	<24.9	24.9		
TPH GRO by EPA 8015 Mod.	Extracted:	May-30-18 12:00	May-30-18 12:00				
	Analyzed:	May-31-18 00:13	May-31-18 00:40				
	Units/RL:	mg/kg RL	mg/kg RL				
TPH-GRO		<3.81	3.81	<3.88	3.88		

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

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Version: 1.0%

Kelsey Brooks
Project Manager

Analytical Report 587536

for
TRC Solutions, Inc

Project Manager: Joel Lowry

Bobwhite 12 Row

11-JUN-18

Collected By: Client



6701 Aberdeen, Suite 9 Lubbock, TX 79424

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-18-26), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-17-16), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-17-12)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-17-16)
Xenco-Odessa (EPA Lab Code: TX00158): Texas (T104704400-18-14)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-17-3)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Phoenix Mobile (EPA Lab Code: AZ00901): Arizona (AZM757)
Xenco-Atlanta (LELAP Lab ID #04176)
Xenco-Tampa: Florida (E87429)
Xenco-Lakeland: Florida (E84098)



11-JUN-18

Project Manager: **Joel Lowry**
TRC Solutions, Inc
2057 Commerce
Midland, TX 79703

Reference: XENCO Report No(s): **587536**
Bobwhite 12 Row
Project Address: Lea Co. NM

Joel Lowry:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 587536. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 587536 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

A handwritten signature in black ink, appearing to read 'Kelsey Brooks', is written over a horizontal line.

Kelsey Brooks

Project Manager

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.

Certified and approved by numerous States and Agencies.

A Small Business and Minority Status Company that delivers SERVICE and QUALITY

Houston - Dallas - Midland - San Antonio - Phoenix - Oklahoma - Latin America



Sample Cross Reference 587536

TRC Solutions, Inc, Midland, TX

Bobwhite 12 Row

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
T-2 NSW	S	05-24-18 10:00	6 In	587536-001
T-2 ESW	S	05-24-18 10:05	6 In	587536-002
T-2 SSW	S	05-24-18 10:10	6 In	587536-003
T-2 WSW	S	05-24-18 10:15	6 In	587536-004
T-4 NSW	S	05-24-18 10:20	2.5 In	587536-005
T-4 ESW	S	05-24-18 10:25	2.5 In	587536-006
T-4 SSW	S	05-24-18 10:30	2.5 In	587536-007
T-4 WSW	S	05-24-18 10:35	2.5 In	587536-008



CASE NARRATIVE

Client Name: TRC Solutions, Inc

Project Name: Bobwhite 12 Row

Project ID:

Work Order Number(s): 587536

Report Date: 11-JUN-18

Date Received: 05/29/2018

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None



Certificate of Analytical Results 587536

TRC Solutions, Inc, Midland, TX

Bobwhite 12 Row

Sample Id: T-2 NSW
Lab Sample Id: 587536-001

Matrix: Soil
Date Collected: 05.24.18 10.00

Date Received: 05.29.18 16.40
Sample Depth: 6 In

Analytical Method: DRO-ORO By SW8015B

Tech: PGM

Analyst: PGM

Seq Number: 3051988

Date Prep: 05.31.18 11.00

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Diesel Range Organics (DRO)	C10C28DRO	<25.0	25.0	mg/kg	06.01.18 00.26	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<25.0	25.0	mg/kg	06.01.18 00.26	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
Tricosane	638-67-5	96	%	65-144	06.01.18 00.26	
n-Triacontane	638-68-6	57	%	46-152	06.01.18 00.26	

Analytical Method: TPH GRO by EPA 8015 Mod.

Tech: MIT

Analyst: MIT

Seq Number: 3051854

Date Prep: 05.30.18 12.00

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
TPH-GRO	8006-61-9	<3.94	3.94	mg/kg	05.30.18 20.10	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	98	%	76-123	05.30.18 20.10	
a,a,a-Trifluorotoluene	98-08-8	85	%	69-120	05.30.18 20.10	



Certificate of Analytical Results 587536

TRC Solutions, Inc, Midland, TX

Bobwhite 12 Row

Sample Id: T-2 ESW
Lab Sample Id: 587536-002

Matrix: Soil
Date Collected: 05.24.18 10.05

Date Received: 05.29.18 16.40
Sample Depth: 6 In

Analytical Method: DRO-ORO By SW8015B

Tech: PGM

Analyst: PGM

Seq Number: 3051988

Date Prep: 05.31.18 11.00

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Diesel Range Organics (DRO)	C10C28DRO	29.6	25.2	mg/kg	06.01.18 02.07		1
Oil Range Hydrocarbons (ORO)	PHCG2835	<25.2	25.2	mg/kg	06.01.18 02.07	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
Tricosane	638-67-5	116	%	65-144	06.01.18 02.07	
n-Triacontane	638-68-6	71	%	46-152	06.01.18 02.07	

Analytical Method: TPH GRO by EPA 8015 Mod.

Tech: MIT

Analyst: MIT

Seq Number: 3051854

Date Prep: 05.30.18 12.00

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
TPH-GRO	8006-61-9	<3.98	3.98	mg/kg	05.30.18 21.58	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	96	%	76-123	05.30.18 21.58	
a,a,a-Trifluorotoluene	98-08-8	79	%	69-120	05.30.18 21.58	



Certificate of Analytical Results 587536

TRC Solutions, Inc, Midland, TX

Bobwhite 12 Row

Sample Id: T-2 SSW
Lab Sample Id: 587536-003

Matrix: Soil
Date Collected: 05.24.18 10.10

Date Received: 05.29.18 16.40
Sample Depth: 6 In

Analytical Method: DRO-ORO By SW8015B

Tech: PGM

Analyst: PGM

Seq Number: 3051988

Date Prep: 05.31.18 11.00

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Diesel Range Organics (DRO)	C10C28DRO	37.6	25.3	mg/kg	06.01.18 02.40		1
Oil Range Hydrocarbons (ORO)	PHCG2835	<25.3	25.3	mg/kg	06.01.18 02.40	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
Tricosane	638-67-5	112	%	65-144	06.01.18 02.40		
n-Triacontane	638-68-6	77	%	46-152	06.01.18 02.40		

Analytical Method: TPH GRO by EPA 8015 Mod.

Tech: MIT

Analyst: MIT

Seq Number: 3051854

Date Prep: 05.30.18 12.00

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
TPH-GRO	8006-61-9	<3.69	3.69	mg/kg	05.30.18 22.25	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	98	%	76-123	05.30.18 22.25		
a,a,a-Trifluorotoluene	98-08-8	81	%	69-120	05.30.18 22.25		



Certificate of Analytical Results 587536

TRC Solutions, Inc, Midland, TX

Bobwhite 12 Row

Sample Id: T-2 WSW

Matrix: Soil

Date Received: 05.29.18 16.40

Lab Sample Id: 587536-004

Date Collected: 05.24.18 10.15

Sample Depth: 6 In

Analytical Method: DRO-ORO By SW8015B

Prep Method: SW8015P

Tech: PGM

% Moisture:

Analyst: PGM

Date Prep: 05.31.18 11.00

Basis: Wet Weight

Seq Number: 3051988

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Diesel Range Organics (DRO)	C10C28DRO	<25.0	25.0	mg/kg	06.01.18 03.14	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<25.0	25.0	mg/kg	06.01.18 03.14	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
Tricosane	638-67-5	107	%	65-144	06.01.18 03.14		
n-Triacontane	638-68-6	58	%	46-152	06.01.18 03.14		

Analytical Method: TPH GRO by EPA 8015 Mod.

Prep Method: SW5030B

Tech: MIT

% Moisture:

Analyst: MIT

Date Prep: 05.30.18 12.00

Basis: Wet Weight

Seq Number: 3051854

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
TPH-GRO	8006-61-9	<3.98	3.98	mg/kg	05.30.18 22.52	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	96	%	76-123	05.30.18 22.52		
a,a,a-Trifluorotoluene	98-08-8	88	%	69-120	05.30.18 22.52		



Certificate of Analytical Results 587536

TRC Solutions, Inc, Midland, TX

Bobwhite 12 Row

Sample Id: T-4 NSW
Lab Sample Id: 587536-005

Matrix: Soil
Date Collected: 05.24.18 10.20

Date Received: 05.29.18 16.40
Sample Depth: 2.5 In

Analytical Method: DRO-ORO By SW8015B

Tech: PGM

Analyst: PGM

Seq Number: 3051988

Date Prep: 05.31.18 11.00

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Diesel Range Organics (DRO)	C10C28DRO	55.7	25.2	mg/kg	06.01.18 03.48		1
Oil Range Hydrocarbons (ORO)	PHCG2835	<25.2	25.2	mg/kg	06.01.18 03.48	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
Tricosane	638-67-5	126	%	65-144	06.01.18 03.48		
n-Triacontane	638-68-6	79	%	46-152	06.01.18 03.48		

Analytical Method: TPH GRO by EPA 8015 Mod.

Tech: MIT

Analyst: MIT

Seq Number: 3051854

Date Prep: 05.30.18 12.00

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
TPH-GRO	8006-61-9	<3.98	3.98	mg/kg	05.30.18 23.19	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	96	%	76-123	05.30.18 23.19		
a,a,a-Trifluorotoluene	98-08-8	85	%	69-120	05.30.18 23.19		



Certificate of Analytical Results 587536

TRC Solutions, Inc, Midland, TX

Bobwhite 12 Row

Sample Id: T-4 ESW
Lab Sample Id: 587536-006

Matrix: Soil
Date Collected: 05.24.18 10.25

Date Received: 05.29.18 16.40
Sample Depth: 2.5 In

Analytical Method: DRO-ORO By SW8015B

Tech: PGM

Analyst: PGM

Seq Number: 3051988

Date Prep: 05.31.18 11.00

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Diesel Range Organics (DRO)	C10C28DRO	78.5	25.0	mg/kg	06.01.18 04.22		1
Oil Range Hydrocarbons (ORO)	PHCG2835	<25.0	25.0	mg/kg	06.01.18 04.22	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
Tricosane	638-67-5	124	%	65-144	06.01.18 04.22		
n-Triacontane	638-68-6	78	%	46-152	06.01.18 04.22		

Analytical Method: TPH GRO by EPA 8015 Mod.

Tech: MIT

Analyst: MIT

Seq Number: 3051854

Date Prep: 05.30.18 12.00

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
TPH-GRO	8006-61-9	<3.87	3.87	mg/kg	05.30.18 23.46	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	100	%	76-123	05.30.18 23.46		
a,a,a-Trifluorotoluene	98-08-8	93	%	69-120	05.30.18 23.46		



Certificate of Analytical Results 587536

TRC Solutions, Inc, Midland, TX

Bobwhite 12 Row

Sample Id: T-4 SSW
Lab Sample Id: 587536-007

Matrix: Soil
Date Collected: 05.24.18 10.30

Date Received: 05.29.18 16.40
Sample Depth: 2.5 In

Analytical Method: DRO-ORO By SW8015B

Tech: PGM

Analyst: PGM

Seq Number: 3051988

Date Prep: 05.31.18 11.00

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Diesel Range Organics (DRO)	C10C28DRO	<25.1	25.1	mg/kg	06.01.18 04.55	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<25.1	25.1	mg/kg	06.01.18 04.55	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
Tricosane	638-67-5	82	%	65-144	06.01.18 04.55	
n-Triacontane	638-68-6	57	%	46-152	06.01.18 04.55	

Analytical Method: TPH GRO by EPA 8015 Mod.

Tech: MIT

Analyst: MIT

Seq Number: 3051854

Date Prep: 05.30.18 12.00

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
TPH-GRO	8006-61-9	<3.81	3.81	mg/kg	05.31.18 00.13	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	103	%	76-123	05.31.18 00.13	
a,a,a-Trifluorotoluene	98-08-8	93	%	69-120	05.31.18 00.13	



Certificate of Analytical Results 587536

TRC Solutions, Inc, Midland, TX

Bobwhite 12 Row

Sample Id: T-4 WSW

Matrix: Soil

Date Received: 05.29.18 16.40

Lab Sample Id: 587536-008

Date Collected: 05.24.18 10.35

Sample Depth: 2.5 In

Analytical Method: DRO-ORO By SW8015B

Prep Method: SW8015P

Tech: PGM

% Moisture:

Analyst: PGM

Date Prep: 05.31.18 11.00

Basis: Wet Weight

Seq Number: 3051988

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Diesel Range Organics (DRO)	C10C28DRO	<24.9	24.9	mg/kg	06.01.18 05.29	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<24.9	24.9	mg/kg	06.01.18 05.29	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
Tricosane	638-67-5	92	%	65-144	06.01.18 05.29		
n-Triacontane	638-68-6	55	%	46-152	06.01.18 05.29		

Analytical Method: TPH GRO by EPA 8015 Mod.

Prep Method: SW5030B

Tech: MIT

% Moisture:

Analyst: MIT

Date Prep: 05.30.18 12.00

Basis: Wet Weight

Seq Number: 3051854

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
TPH-GRO	8006-61-9	<3.88	3.88	mg/kg	05.31.18 00.40	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	93	%	76-123	05.31.18 00.40		
a,a,a-Trifluorotoluene	98-08-8	83	%	69-120	05.31.18 00.40		

Flagging Criteria

- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the quantitation limit and above the detection limit.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample **BKSD/LCSD** Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate **MS** Matrix Spike **MSD:** Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation



QC Summary 587536

TRC Solutions, Inc

Bobwhite 12 Row

Analytical Method: DRO-ORO By SW8015B

Seq Number: 3051988

MB Sample Id: 7655752-1-BLK

Matrix: Solid

LCS Sample Id: 7655752-1-BKS

Prep Method: SW8015P

Date Prep: 05.31.18

LCSD Sample Id: 7655752-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Diesel Range Organics (DRO)	<25.0	100	93.7	94	89.9	90	63-139	4	20	mg/kg	05.31.18 15:54	
Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date			
Tricosane	102		90		86		65-144	%	05.31.18 15:54			
n-Triacontane	81		58		54		46-152	%	05.31.18 15:54			

Analytical Method: DRO-ORO By SW8015B

Seq Number: 3051988

Parent Sample Id: 587536-001

Matrix: Soil

MS Sample Id: 587536-001 S

Prep Method: SW8015P

Date Prep: 05.31.18

MSD Sample Id: 587536-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Diesel Range Organics (DRO)	<25.1	100	93.5	94	89.2	89	63-139	5	20	mg/kg	06.01.18 01:00	
Surrogate			MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date			
Tricosane			104		103		65-144	%	06.01.18 01:00			
n-Triacontane			59		59		46-152	%	06.01.18 01:00			

Analytical Method: TPH GRO by EPA 8015 Mod.

Seq Number: 3051854

MB Sample Id: 7655678-1-BLK

Matrix: Solid

LCS Sample Id: 7655678-1-BKS

Prep Method: SW5030B

Date Prep: 05.30.18

LCSD Sample Id: 7655678-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
TPH-GRO	<4.00	20.0	22.3	112	22.7	114	35-129	2	20	mg/kg	05.30.18 17:53	
Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date			
4-Bromofluorobenzene	90		101		99		76-123	%	05.30.18 17:53			
a,a,a-Trifluorotoluene	108		84		82		69-120	%	05.30.18 17:53			

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

$[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD Result

MS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec



TRC Solutions, Inc

Bobwhite 12 Row

Analytical Method: TPH GRO by EPA 8015 Mod.

Seq Number: 3051854

Parent Sample Id: 587536-001

Matrix: Soil

MS Sample Id: 587536-001 S

Prep Method: SW5030B

Date Prep: 05.30.18

MSD Sample Id: 587536-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
TPH-GRO	<3.98	19.9	18.2	91	16.1	87	35-129	12	20	mg/kg	05.30.18 20:37	
Surrogate			MS %Rec	MS Flag		MSD %Rec	MSD Flag	Limits		Units	Analysis Date	
4-Bromofluorobenzene			111			104		76-123		%	05.30.18 20:37	
a,a,a-Trifluorotoluene			76			76		69-120		%	05.30.18 20:37	

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

$[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD Result

MS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec



Setting the Standard since 1990

Stafford, Texas (281-240-4200)

Dallas Texas (214-902-0300)

CHAIN OF CUSTODY

Page 1 of 1

San Antonio, Texas (210-509-3334)

Midland, Texas (432-704-5251)

Phoenix, Arizona (480-355-0900)

587536

www.xencolab.com

Client / Reporting Information				Project Information				Analytical Information				Matrix Codes			
Company Name / Branch: TRC Environmental Corporation				Project Name/Number: Bobwhite 12 ROW											
Company Address: 2057 Commerce Drive Midland, TX 79703				Project Location: Lea Co, NM											
Email: jlowry@trcsolutions.com				Phone No: 432-466-4450				Invoice To: COG Operating C/O Becky Haskell							
Project Contact: Joel Lowry				Invoice:											
Sampler's Name Joel Lowry															
No.	Field ID / Point of Collection	Sample Depth	Date	Time	Matrix	# of bottles	Number of preserved bottles				Field Comments				
							HCl	NaOH/Zn	Acetate	HNO3	H2SO4	NaOH	MeOH	NONE	
1	T-2 NSW	6"	5/24/2018	10:00	S	1									
2	T-2 ESW	6"	5/24/2018	10:05	S	1									
3	T-2 SSW	6"	5/24/2018	10:10	S	1									
4	T-2 WSW	6"	5/24/2018	10:15	S	1									
5	T-4 NSW	2.5'	5/24/2018	10:20	S	1									
6	T-4 ESW	2.5'	5/24/2018	10:25	S	1									
7	T-4 SSW	2.5'	5/24/2018	10:30	S	1									
8	T-4 WSW	2.5'	5/24/2018	10:35	S	1									
9															
10															

Data Deliverable Information				Notes:	
☐ Same Day TAT	☐ 5 Day TAT	☐ Level II Std QC	☐ Level IV (Full Data Pkg raw data)	ilowry@trcsolutions.com	
☐ Next Day EMERGENCY	☐ 7 Day TAT	☐ Level III Std QC+ Forms	☐ TRRP Level IV	rhaskell@concho.com	
☐ 2 Day EMERGENCY	☒ Contract TAT	☐ Level 3 (CLP Forms)	☐ UST / RG -411	zconder@trcsolutions.com	
☐ 3 Day EMERGENCY		☐ TRRP Checklist		dheel2@concho.com	

TAT Starts Day received by Lab, if received by 5:00 pm			
Relinquished by Sampler:	Date Time:	Received By:	Date Time:
Relinquished by:	Date Time:	Relinquished By:	Date Time:
Relinquished by:	Date Time:	Relinquished By:	Date Time:

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY			
1	Relinquished by:	Date Time:	Received By:
2	Relinquished by:	Date Time:	Received By:
3	Relinquished by:	Date Time:	Received By:
4	Relinquished by:	Date Time:	Received By:
5	Relinquished by:	Date Time:	Received By:

On Ice Cooler Temp. Thermo. Corr. Factor			
1	3.4	13.4	18.3

Notice: Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco. It assigns standard terms and conditions of service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the Client if such losses are due to circumstances beyond the control of Xenco. A minimum charge of \$75 will be applied to each project. Xenco's liability will be limited to the cost of samples. Any samples received by Xenco but not analyzed will be invoiced at \$5 per sample. These terms will be enforced unless previously negotiated under a fully executed client contract.



XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: TRC Solutions, Inc

Date/ Time Received: 05/29/2018 04:40:00 PM

Work Order #: 587536

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : IR-3

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	3.4
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	N/A
#5 Custody Seals intact on sample bottles?	N/A
#6 *Custody Seals Signed and dated?	N/A
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	No
#18 Water VOC samples have zero headspace?	N/A

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

Analyst:

PH Device/Lot#:

Checklist completed by:


Brenda Ward

Date: 05/30/2018

Checklist reviewed by:


Kelsey Brooks

Date: 06/01/2018



Figure 1 - View of affected area and partial excavation, facing Northeast.



Figure 2 - View of affected area after partial excavation, facing Northeast.



Figure 3 - View of affected area after partial excavation, facing Northeast.



Figure 4 - View of affected area after excavation activities, facing Southwest.



Figure 5 - View of affected area after remediation activities, facing Southwest.



Figure 6 - View of affected area after remediation activities, facing East.



Figure 7 - View of affected area after remediation activities, facing Northeast.

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: Bobwhite 12 State Com #004H	Facility Type: Well	
Surface Owner: State	Mineral Owner: State	API No.: 30-025-41092

LOCATION OF RELEASE

Unit Letter O	Section 1	Township 21S	Range 33E	Feet from the	North/South Line	Feet from the	East/West Line	County Lea
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Latitude: 32.501671 Longitude: -103.525217 NAD83

NATURE OF RELEASE

Type of Release: Oil and Produced Water	Volume of Release: 20bbls Oil & 40bbls PW	Volume Recovered: 5bbls Oil & 10bbls PW
Source of Release: Flowline	Date and Hour of Occurrence: 1/4/2018	Date and Hour of Discovery: 1/4/2018 9:00am
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Olivia Yu-NMOCD Amber Groves-NMSLO	
By Whom? Rebecca Haskell	Date and Hour: 1/4/2018 1:13pm	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	
If a Watercourse was Impacted, Describe Fully.*		

RECEIVED
By Olivia Yu at 3:43 pm, Jan 08, 2018

Describe Cause of Problem and Remedial Action Taken.*

A nipple near a hammer union failed resulting in the release of approximately 20bbls of oil and 40bbls of produced water. The nipple was replaced.

Describe Area Affected and Cleanup Action Taken.*

The release impacted the pasture adjacent to a lease road. A vacuum truck was dispatched to recover freestanding fluids. Concho will have the spill area evaluated for 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: <i>Sheldon Hitchcock</i>		OIL CONSERVATION DIVISION	
Printed Name: Sheldon L. Hitchcock		Approved by Environmental Specialist: <i>oy</i>	
Title: HSE Coordinator	Approval Date: 1/8/2018	Expiration Date:	
E-mail Address: slhitchcock@concho.com	Conditions of Approval: see attached directive	Attached ☒	
Date: 1/8/2018	Phone: 575-746-2010		

* Attach Additional Sheets If Necessary

1RP-4921

nOY1800857073

pOY1800857365