

August 23, 2018

Olivia Yu Oil Conservation Division, District 1 1625 N. French Dr. Hobbs, NM 88240

Ryan Mann New Mexico State Land Office 2827 N. Dal Paso Suite 117 Hobbs, NM 88240 APPROVED By Olivia Yu at 7:22 am, Sep 05, 2018

> NMOCD approves 1RP-4812 for closure.

Re: Closure Letter Gunner 16 State SWD #001 API #: 30-025-40890 RP#: 1RP-4812 Unit Letter D Section 16, Township 26S, Range 34E Lea County, NM

Ms. Yu/Mr. Mann,

COG Operating, LLC (COG) is pleased to submit for your consideration the following closure report for the Gunner 16 State SWD #001. This release occurred on September 15, 2017. Following the release an assessment of impacted soils was conducted. A remediation work plan was submitted to and subsequently approved by the New Mexico Oil Conservation Division (NMOCD) and New Mexico State Land Office (NMSLO). A copy of the approved work plan is attached in Appendix V.

### BACKGROUND

The Gunner 16 State SWD #001 release is located in Unit Letter D, Section 16, Township 26 South and Range 34 East in Lea County, New Mexico. More specifically the latitude and longitude for this release are 32.049732 North and -103.4822998 West.

On September 15, 2017, a lightning strike caused a fire which resulted in the total loss of the facility. Approximately one-thousand 1000 barrels (bbls) of produced water and twenty 20 bbls of oil were released. Vacuum trucks were dispatched to recover freestanding fluids. Approximately two-hundred (200) bbls of produced water and five (5) bbls of oil were recovered.

Remediation activities were conducted in accordance with the approved work plan and NMOCD/NMSLO stipulations. The analytical results from the NMOCD and NMSLO stipulated confirmation soil sampling activities are summarized in the tables below. A site diagram of the excavated area is presented in Appendix I.

### **GROUNDWATER AND SITE RANKING**

According to the New Mexico Office of the State Engineer (NMOSE) groundwater in the project vicinity is approximately one-hundred and forty (140) feet below ground surface (BGS) (Appendix II). No water well or surface water was observed within one-thousand (1,000) feet of the release site. Therefore the site ranking for this release is zero (0) based on the following:

Depth to groundwater	>100-feet
Distance to surface water body	>1000-feet
Wellhead Protection Area	>1000-feet

### CONFIRMATION SOIL SAMPLING RESULTS

May 17, 2018

Sample ID	Depth (feet)	Benzene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)	Total TPH (mg/kg)	SOIL STATUS
L-N.SW	SIDEWALL			<4.95		IN-SITU
L-SW-1	SIDEWALL			213		IN-SITU
L-SW-2	SIDEWALL			155		IN-SITU
L-SW-3	SIDEWALL			149		IN-SITU
L-SW-4	SIDEWALL			21.6		IN-SITU
L-SW-5	SIDEWALL			136		IN-SITU
L-SW-6	SIDEWALL			<4.97		IN-SITU
L-S.SW	SIDEWALL			217		IN-SITU
L-BTTM-1	8			< 5.00		IN-SITU
L-BTTM-2	8			7.32		IN-SITU
L-BTTM-3	8			< 5.00		IN-SITU

May 18, 2018-May 22, 2018

Sample ID	Depth (feet)	Benzene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)	Total TPH (mg/kg)	SOIL STATUS
BH6/ROW	N/A	< 0.002	< 0.002	27.3	<15.0	IN-SITU
P-BTTM-1	4			51.0		IN-SITU
P-BTTM-2	4			254		IN-SITU
P-BTTM-3	4			65.3		IN-SITU
P-BTTM-4	4			594		IN-SITU
P-BTTM-5	4			230		IN-SITU
P-SW-1	SIDEWALL			1090		EX-SITU
P-SW-2	SIDEWALL			< 5.00		IN-SITU

### CONFIRMATION SOIL SAMPLING RESULTS CONTINUED

Sample ID	Depth (feet)	Benzene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)	Total TPH (mg/kg)	SOIL STATUS
P-SW-3	SIDEWALL			130		IN-SITU
P-SW-4	SIDEWALL			138		IN-SITU
P-SW-5	SIDEWALL			< 5.00		IN-SITU
P-SW-6	SIDEWALL			<4.95		IN-SITU
P-SW-7	SIDEWALL			82.8		IN-SITU
P-SW-8	SIDEWALL			18.2		IN-SITU
P-SW-9	SIDEWALL			<4.98		IN-SITU
P-SW-10	SIDEWALL			358		IN-SITU
P-SW-11	SIDEWALL			507		IN-SITU
P-SW-12	SIDEWALL			38.7		IN-SITU

May 18, 2018-May 22, 2018

May 22, 2018

Sample ID	Depth (feet)	Benzene (mg/kg)	Total BTEX	Chloride (mg/kg)	Total TPH	SOIL STATUS
		\ <del>8</del> 8/	(mg/kg)		(mg/kg)	
<b>ROW BTTM-1</b>	0.5	< 0.002	< 0.002	206	<15.0	IN-SITU
<b>ROW BTTM-2</b>	0.5	< 0.0019	< 0.0019	278	<15.0	IN-SITU
<b>ROW BTTM-3</b>	0.5	< 0.0019	< 0.0019	199	<15.0	IN-SITU
ROW W. SW	SIDEWALL	< 0.002	< 0.002	509	<15.0	IN-SITU
ROW SW-1	SIDEWALL	< 0.002	0.0786	656	<15.0	EX-SITU
ROW SW-2	SIDEWALL	< 0.0019	< 0.0019	205	<15.0	IN-SITU
ROW SW-3	SIDEWALL	< 0.002	< 0.002	519	<15.0	IN-SITU
ROW SW-4	SIDEWALL	< 0.002	< 0.002	489	<15.0	IN-SITU
ROW SW-5	SIDEWALL	< 0.002	0.00291	317	<15.0	IN-SITU
ROW SW-6	SIDEWALL	< 0.002	< 0.002	110	<15.0	IN-SITU

May 25, 2018

Sample ID	Depth (feet)	Benzene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)	Total TPH (mg/kg)	SOIL STATUS
ROW SW-1	SIDEWALL			47.8		IN-SITU
P-SW-1	SIDEWALL			20.6		IN-SITU

### CONFIRMATION SOIL SAMPLING RESULTS CONTINUED

### May 17, 2018

Sample ID	Depth (feet)	Benzene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)	Total TPH (mg/kg)	SOIL STATUS	
ROW AH-1	0	< 0.002	< 0.002	12400	<15.0	EX-SITU	
ROW AH-1	1 (refusal)	< 0.002	< 0.002	93.6	<15.0	IN-SITU	

### May 25, 2018

Sample ID	Depth (feet)	Benzene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)	Total TPH (mg/kg)	SOIL STATUS
BH-1 / BH-2/3	3.5			163		IN-SITU
BH-2/3 / BH-5/6	3.5			439		IN-SITU

### May 31, 2018

Sample ID	Depth (feet)	Benzene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)	Total TPH (mg/kg)	SOIL STATUS
P-BTTM-6	2			203		IN-SITU
P-SW-13	SIDEWALL			494		IN-SITU
P-SW-14	SIDEWALL			574		IN-SITU
P-SW-15	SIDEWALL			457		IN-SITU

### June 12, 2018

Sample ID	Depth (feet)	Benzene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)	Total TPH (mg/kg)	SOIL STATUS
L-BTTM-4	3			47.6		IN-SITU
L-BTTM-5	3			73.0		IN-SITU
L-SW-7	SIDEWALL			152		IN-SITU
L-SW-8	SIDEWALL			464		IN-SITU
L-SW-9	SIDEWALL			75.3		IN-SITU
L-SW-10	SIDEWALL			53.1		IN-SITU

### CONFIRMATION SOIL SAMPLING RESULTS CONTINUED

June 12, 2018

Sample ID	Depth (feet)	Benzene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)	Total TPH (mg/kg)	SOIL STATUS
L-BTTM-6	3			7.35		IN-SITU
L-BTTM-7	3			81.9		IN-SITU
L-SW-11	SIDEWALL			162		IN-SITU
L-SW-12	SIDEWALL			165		IN-SITU
L-SW-13	SIDEWALL			174		IN-SITU
L-SW-14	SIDEWALL			<4.94		IN-SITU
L-SW-15	SIDEWALL			65.5		IN-SITU

(--) Analyses not requested

### **REMEDIAL ACTIONS**

- The impacted area in the vicinity of BH-1 was excavated to a depth of eight (8) feet BGS.
- The impacted area in the vicinity of sample locations BH-2 and BH-3 was excavated to a depth of three (3) feet BGS.
- The impacted area in the vicinity of sample locations BH-5 and BH-6 was excavated to a depth of four (4) feet BGS.
- In order to safeguard underground utilities a hand auger was utilized to conduct vertical delineation of the right-of-way area at sample location ROW AH-1 per NMOCD stipulations.
- The impacted area in the right-of-way was excavated to a depth of one-half (0.5) foot BGS.
- Field chloride titrations were used to guide the horizontal extent of the excavation. Confirmation soil samples were taken from the bottom and sidewalls of the excavated areas per NMOCD stipulations. Site diagrams detailing the excavation and confirmation soil sample locations of each area are attached in Appendix I.
- Upon receipt of laboratory results confirming that all of the impacted soil above NMOCD RRAL's was successfully removed the excavation was backfilled with clean "like" material and contoured to match the surrounding terrain.

### **REVEGETATION PLAN**

The affected area in the pasture was backfilled with clean "like" material. The surface was left in a rough condition to approximate natural surface deviations. The site was seeded with SLO (L) seed mixture utilizing a seed drill. The site will be periodically monitored for revegetation and the development of noxious weeds. Should the site fail to re-vegetate or noxious weeds develop COG will contact NMSLO for a mitigation strategy.

### **CLOSURE REQUEST**

COG Operating, LLC respectfully requests that the New Mexico Oil Conservation Division and the New Mexico State Land Office grant closure approval for the Gunner 16 State SWD #001 incident that occurred on September 15, 2017.

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

Sincerely,

Sheldon gittom

Sheldon L. Hitchcock HSE Coordinator slhitchcock@concho.com

Enclosed:

Appendix I: Site Diagram Appendix II: Groundwater Data Appendix III: Initial C-141 (Copy) Appendix IV: Final C-141 Appendix V: Work Plan (Copy) Appendix VI: Analytical Reports and Chain-of-Custody Forms Appendix VII: Photographic Documentation

# APPENDIX I

September 15, 2018

### Gunner 16 State SWD #001



### Gunner 16 State SWD #001



September 15, 2018

### Gunner 16 State SWD #001



### Gunner 16 State #001 SWD (ROW)



# APPENDIX II



### New Mexico Office of the State Engineer Water Column/Average Depth to Water

(A CLW##### in the POD suffix indicates the POD has been replaced	(R=POD has been replaced O=orphaned,	1,												
& no longer serves a water right file.)	C=the file is closed)		•••					2=NE 3 st to lar	3=SW 4=SE rgest) (N	i) AD83 UTM in me	eters)	(	In feet)	
	POD Sub-			Q	-	0	<b>T</b>	Dura	Y	Y		-	Depth	
POD Number C 02295	Code basin ( CUB	LE					1 <b>ws</b> 26S	<b>Rng</b> 33E	<b>X</b> 639850	<b>Y</b> 3547710* 😜	Distance 3640	250	200	Column 50
C 03442 POD1	С	LE	4	1	2	06	26S	34E	641056	3550028 🌍	3938	251		
C 02292 POD1	CUB	LE	4	1	2	06	26S	34E	640992	3549987 🌍	3944	200	140	60
C 03441 POD1	С	LE	4	1	2	06	26S	34E	640971	3550039 🌍	3998	250		
<u>C 02291</u>	CUB	LE	1	1	2	06	26S	34E	640825	3550140* 🌍	4167	220	160	60
										Avera	ge Depth to	Water:	166	feet
											Minimum	Depth:	140	feet
											Maximum	Depth:	200	feet
Record Count: 5														
Basin/County Searc	<u>h:</u>													
County: Lea														
LITMNAD92 Padius	Saarah (in mata	rc).												

UTMNAD83 Radius Search (in meters):

Easting (X): 643389

Northing (Y): 3546855

Radius: 5000

\*UTM location was derived from PLSS - see Help

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.

# APPENDIX III

Form C-141 Revised August 8, 2011

Oil Conservation Division 1220 South St. Francis Dr. Santa Fe, NM 87505 Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

1220 S. St. Fran	cis Dr <sub></sub> Sant	a Fe, NM 87505	5	Sa	nta Fe	e, NM 875	05					
			Rele	ase Notific	atio	and Co	orrective A	ction				
						<b>OPERA</b>	FOR	🔀 Init	ial Report	Final Repo		
				OGRID] 22913	7	Contact: Ro	bert McNeill					
		inois Avenu		d TX 79701			lo. 432-230-00	77				
Facility Nar	ne: Gunne	r 16 State S	WD #1			Facility Typ	e: SWD					
Surface Owner: State/Federal Mineral Owner: S								API N	o. 30-025-4	10890		
				LOCA		N OF REI	EASE					
Unit Letter	Letter Section Township Range Feet from the North						Feet from the	East/West Line				
D	16	265	34E	330'	1	North	330'	West	<u> </u>	Lea		
				Latitude 32.0	497322	2 Longitude	-103.4822998					
				NAT	URE	OF RELI						
Type of Relea Oil & Produc						Volume of			Recovered:	• 1		
Source of Re							pw; 20 bbls oil our of Occurrent		200 bbls pw; 5 bbls oil			
Lightning Str						9-15-2017			Date and Hour of Discovery: 9-15-2017 05:00 am			
Was Immedia						If YES, To	Whom?	·				
			Yes 🔲	No 🗌 Not Re	quired	Olivia Yu -	- NMOCD, Amb	er Groves-NMSLO	)			
By Whom?	Rebecca I					Date and Hour: 9-15-2017 12:57 pm						
Was a Watero	course Read		Yes 🛛	No		If YES, Vo	lume Impacting (	the Watercourse.				
If a Watercou	irse was Im	pacted, Descr	ibe Fully.*									
						REC	EIVED					
						By O	livia Yu at	11:15 am,	Sep 18,	, 2017		
		em and Reme		ı Taken.*								
This release	was caused	by a lightning	g strike.									
Describe Are	a Affected	and Cleanup A	Action Tak	en.*								
The facility o	nd aquinma	unt uvere a tota	Lloca The	flow lines comin	a into th	o facility wa	a izalatad immad	liately to reduce fu	التنائية محاف	Ones the fee		
								location as well as				
pipeline ROV							noo mapaotos mo		, the adjacen	r pustare una		
L bereby certi	fy that the i	nformation ai	van abova	is true and compl	ata to th	a bast of mu		nderstand that pur	ment to NIM	OCD miles and		
								tive actions for rel				
public health	or the envir	ronment. The	acceptanc	e of a C-141 repo	rt by the	NMOCD ma	urked as "Final R	eport" does not rel	ieve the ope	rator of liability		
should their o	perations h	ave failed to a	dequately	investigate and re	mediate	e contaminatio	on that pose a thr	eat to ground wate	r, surface wa	ater, human health		
federal, state,	or local lay	vs and/or regu	lations.	ance of a C-141 r	eport ac	bes not reneve	e the operator of t	responsibility for c	ompliance v	with any other		
						OIL CONSERVATION DIVISION						
Sim I)TAN						~~~						
Signature:												
Printed Name: Dakota Neel						Approved by Environmental Specialist:						
Title: Enviror	umental Co	ordinator				Approval Date	9/18/201	7 Expiration	Date:	1		
E-mail Addre	ss: dneel2@	<u>iconcho.com</u>				Conditions of	Approval:					
							ched direct	ive	Attached	L		
	ember 18, 2 ional Shee	017 Pho ets If Necess	one: 575-7- ary	46-2010								
					F	1RP-481			1			
					L			26140783		726141166		

# APPENDIX IV

Form C-141 Revised April 3, 2017

Oil Conservation Division 1220 South St. Francis Dr. Santa Fe, NM 87505 Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

1220 S. St. Francis Dr., Santa Fe, NM 87505 Santa	Fe, NM 87505							
	on and Corrective Action							
Kereuse i tourieur								
Name of Company: COG Operating, LLC (OGRID# 229137)	OPERATOR   Initial Report   Final Report     Contact: Robert McNeill							
Address: 600 West Illinois Avenue, Midland TX 79701	Telephone No.: 432-683-7443							
Facility Name: Gunner 16 State SWD #001	Facility Type: SWD							
Surface Owner: State Mineral Owne	r: State API No.: 30-025-40890							
ΙΟCΑΤΙ	ON OF RELEASE							
	th/South Line Feet from the East/West Line County							
D 16 26S 34E 330	North 330 West Lea							
Latitude: 32.0497322	Longitude: -103.4822998 NAD83							
NATUR	E OF RELEASE							
Type of Release: Oil and Produced Water	Volume of Release: Volume Recovered:							
Source of Release: Lightning Strike	1000bbls PW & 20bbls Oil 200bbls PW & 5bbls Oil   Date and Hour of Occurrence: Date and Hour of Discovery:							
	9/15/2017 5:00am 9/15/18 5:00 am							
Was Immediate Notice Given?	If YES, To Whom? d Oliva Yu-NMOCD							
Yes 🗌 No 🗌 Not Require	Amber Groves-NMSLO							
By Whom? Rebecca Haskell	Date and Hour: 9/15/2017 12:57pm							
Was a Watercourse Reached?	If YES, Volume Impacting the Watercourse.							
If a Watercourse was Impacted, Describe Fully.*								
	APPROVED							
Describe Cause of Problem and Remedial Action Taken.*	By Olivia Yu at 7:24 am, Sep 05, 2018							
A lightning strike caused a fire which resulted in the loss of the facility.								
Describe Area Affected and Cleanup Action Taken.*								
The facility and equipment were a total loss. The flow lines coming into	the facility were isolated immediately to reduce further fluid loss. Once the fire							
was extinguished, vacuum trucks were dispatched to recover all standir	g fluid. The release impacted the location as well as the adjacent pasture and							
pipeline ROW. COG had the affected area evaluated and drafted a reme remediation was carried out in accordance with the approved work plar	ediation work plan that was subsequently approved by NMOCD and NMSLO. The							
	the best of my knowledge and understand that pursuant to NMOCD rules and							
	e notifications and perform corrective actions for releases which may endanger the NMOCD marked as "Final Report" does not relieve the operator of liability							
should their operations have failed to adequately investigate and remed	iate contamination that pose a threat to ground water, surface water, human health							
or the environment. In addition, NMOCD acceptance of a C-141 report federal, state, or local laws and/or regulations.	t does not relieve the operator of responsibility for compliance with any other							
	OIL CONSERVATION DIVISION							
01 11 2 2 1								
Signature: Sheldon Hitan	Approved by Environmental Specialist:							
Printed Name: Sheldon L. Hitchcock	Approved by Environmental Specialist.							
	Approval Date: 9/5/2018 Expiration Date: XX/XX/XXXX							
Title: HSE Coordinator	Approval Date: 9/3/2018 Expiration Date: XX/XX/XXXX							
E-mail Address: slhitchcock@concho.com	Conditions of Approval:							
D-4 0/02/10 DI 575 745 0010	Like approval from NMSLO. Attached							
Date: 8/23/18 Phone: 575-746-2010								

\* Attach Additional Sheets If Necessary



# APPENDIX V

		SI7							
			e: Work Pla		₽-4812				
General Site Info		<u>sport : 7</u>							
Site:		Gunner 16 St	tate SWD #1						
Company:		COG Operating LLC							
Section, Townsh	nin and Range			T 26S	R 34E				
County:		Lea County	0000.00						
GPS:			32.0497322º N		103.4822998º W				
Surface Owner:		State/Federal							
Mineral Owner:									
Directions:		From the intersection of Hwy 285 and Whites City Rd, go west on Whites City Rd for 3 miles. Turn south onto unmarked lease road and drive 2 miles. Turn east onto unmarked lease road and drive 0.10 miles to location.							
Release Data:									
		0/4//2017							
Date Released: Type Release:									
Source of Contam	nination:								
Fluid Released:	inauon.			1					
Fluids Recovered									
Official Commun		200 0010 11410							
Name:	Robert McNeil								
		ter     4000 N. Big Spring       /e.     Ste 401       9701     Midland, Texas       (432) 687-8110     10							
Company:	COG Operating, LLC								
Address:	One Concho Center								
	600 W. Illinois Ave.								
City:	Midland Texas, 7970	01							
Phone number:	<mark>(432) 686-3023</mark>				(432) 687-8110				
Fax:	<mark>(432) 684-7137</mark>								
Email:	rmcneil@conchore	esources.com			Ike.Tavarez@tetratech.com				
Ranking Criteria									
Depth to Groundw	ater:		Ranking Score		Site Data				
<50 ft			20	<u> </u>					
50-99 ft			10		125'				
>100 ft.			0		120				
WellHead Protection	on:		Ranking Score	Site Data					
	000 ft., Private <200 ft.		20						
	000 ft., Private >200 ft.		0	0					
Surface Body of W	Vater:		Ranking Score		Site Data				
<200 ft.			20						
200 ft - 1,000 ft.			10						
>1,000 ft.			0		0				
T_(									
100	al Ranking Score:		0	l					
		Acconta	La Cail DRAL (n		1				
		-	ble Soil RRAL (m Total BTEX	ig/кg) TPH					
		Benzene 10	50	<b>5,000</b>					
8	,	10	50	5,000					



April 5, 2018

Ms. Olivia Yu Environmental Engineer Specialist Oil Conservation Division, District 1 1625 North French Drive Hobbs, New Mexico 88240

## Re: Revised Work Plan for the COG Operating LLC., Gunner 16 State SWD #1, Unit D, Section 16, Township 26 South, Range 34 East, Lea County, New Mexico. 1RP-4812.

Ms. Yu:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating LLC., (COG) to assess and evaluate a release that occurred at Gunner 16 State SWD #1, Unit D, Section 16, Township 26 South, Range 34 East, Lea County, New Mexico (Site). The spill site coordinates are N 32.0497322°, W 103.4822998°. The site location is shown on Figures 1 and 2.

#### Background

According to the State of New Mexico C-141 Initial Report, the release was discovered on September 15, 2017, and released approximately 1,000 barrels of produced water and 20 barrels of oil, due to a lightning strike. The facility and equipment at the site were a total loss. Once the fire was extinguished, vacuum trucks were dispatched to remove all of the freestanding fluids, recovering approximately 200 barrels of produced water and 5 barrels of oil. The release impacted an area on the pad area measuring approximately 140' x 280' and migrated into the pasture impacting areas measuring approximately 65' x 150', 10'x10', and 15' x 20'. Additionally, the release migrated along an existing pipeline right-of-way and migrated into Section 17, measuring approximately 40' x 125'. Prior to the soil assessment, COG obtained a Right-of-Entry Permit (Permit No. RE-3481) from the New Mexico State Land Office. A copy of the Right-of-Entry permit is included in Appendix C. The Initial C-141 Form is included in Appendix A.

#### Groundwater

No wells are listed within Sections 16 or 17 in the New Mexico Office of the State Engineers database, the USGS National Water Information System, or the Geology and Groundwater Conditions in Southern Lea County, NM (Report 6). However, the State Engineers database reported a well in Section 06, approximately 2.5 miles northwest of the site, with a reported depth to water of 160' below surface, respectively. According to the Chevron Texaco Groundwater Trend map, the average depth to groundwater in the area is



approximately 125' below surface. The groundwater data is shown in Appendix B. **Regulatory** 

A risk-based evaluation was performed for the Site in accordance with the New Mexico Oil Conservation Division (NMOCD) Guidelines for Remediation of Leaks, Spills and Releases, dated August 13, 1993. The guidelines require a risk-based evaluation of the site to determine recommended remedial action levels (RRAL) for benzene, toluene, ethylbenzene and xylene (collectively referred to as BTEX) and total petroleum hydrocarbons (TPH) in soil. The proposed RRAL for benzene was determined to be 10 parts per million (ppm) or milligrams per kilogram (mg/kg) and 50 ppm for total BTEX (sum of benzene, toluene, ethylbenzene, and xylene). Based upon the depth to groundwater, the proposed RRAL for TPH is 5,000 mg/kg.

#### **Soil Assessment and Analytical Results**

On December 18-19, 2017, Tetra Tech personnel were onsite to evaluate and sample the release area. A total of six (6) boreholes were installed in the impacted areas. Three (3) boreholes (BH-1, BH-2 and BH-3) were installed on the pad area and three (3) boreholes (BH-4, BH-5 and BH-6) were installed in the pasture area using an air rotary rig in order to define the extents. Due to safety concerns, a portion along the pipeline right-of-way was not sampled. Additionally, surface flowlines restricted access to the area southwest of the pad corner as well as the area southwest of the pipeline right-of-way. Selected samples were analyzed for TPH analysis by EPA method 8015 modified, BTEX by EPA Method 8021B, and chloride by EPA method 300.0. Copies of the laboratory analysis and chain-of-custody documentation are included in Appendix E. The sampling results are summarized in Table 1. The borehole locations are shown in Figure 3.

#### Pad Area

Referring to Table 1, the areas of boreholes (BH-2 and BH-3) did not show any benzene, total BTEX, or TPH concentrations above the laboratory reporting limits. However, the area of borehole (BH-1) showed total BTEX concentrations below the RRALs, with concentrations of 0.179 mg/kg (0-1') and 0.740 mg/kg (2-3'). Additionally, elevated TPH concentrations were detected at borehole (BH-1) with a TPH high of 11,400 mg/kg at 2-3', which declined with depth to below the laboratory reporting limits at 4-5' below surface.

The areas of boreholes (BH-1, BH-2, and BH-3) showed chloride concentrations above the 600 mg/kg threshold in the shallow soils. The area of borehole (BH-1) showed chlorides that increased with depth to 7,120 mg/kg at 4-5', before declining with depth to 1,610 mg/kg at 6-7.0' and 29.0 mg/kg at 9-10' below surface. The areas of boreholes (BH-2 and BH-3) showed chloride highs of 891 mg/kg and 5,060 mg/kg at 2-3', before declining with depth to 466 mg/kg and 113 mg/kg at 4-5.0' below surface, respectively.



#### Pasture Area

Referring to Table 1, none of the samples analyzed from boreholes (BH-4, BH-5, and BH-6) showed benzene, total BTEX, or TPH concentrations above the RRALs or the laboratory reporting limits. However, the areas of boreholes (BH-5 and BH-6) showed elevated chloride concentrations in the shallow soils. The chloride concentrations increased with depth to 6,380 mg/kg at 2-3' (BH-5) and 3,890 mg/kg at 4-5' (BH-6). The chloride concentrations then declined to <4.99 mg/kg (BH-5) and 5.52 mg/kg (BH-6) at 6-7' below surface. The area of borehole (BH-4) showed insignificant chloride concentrations at 0-1' and 2-3', however a chloride spike of 813 mg/kg at 4-5' below surface was detected. The deeper samples in the area of borehole (BH-4) showed chloride concentrations of 5.60 mg/kg at 6-7', 43.4 mg/kg at 9.0-10' and 69.3 mg/kg at 14-15' below surface.

#### Work Plan

Based on the laboratory results, COG proposes to remove the impacted soils as shown on Figure 4 and highlighted (green) on Table 1. The area of borehole (BH-1) will be excavated to 6-7', the areas of boreholes (BH-5 and BH-6) will be excavated to 4-5', and the areas of boreholes (BH-2 and BH-3) will be excavated to 2-3' below surface. For the impacted area west of BH-6 along the pipeline ROW, EOG will be contacted to determine if any of the impacted soils can either be assessed or removed from the ROW. The excavated areas will then be backfilled with clean material to surface grade. All of the excavated material will be transported offsite for proper disposal.

The proposed excavation depths may not be reached due to wall cave ins and safety concerns for onsite personnel. In addition, impacted soil around oil and gas equipment, structures or lines may not be feasible or practicable to be removed due to safely concerns for onsite personnel. As such, COG will excavate the impacted soils to the maximum extent practicable.

#### Revegetation Plan

The backfilled areas will be seeded in June 2018 in order to coincide with the rainy season in Southeastern New Mexico to aid in revegetation. Based on the soils at the site, the NMSLO Loamy (L) Sites Seed Mixture will be used for seeding and will be planted in the amount specified in the pounds pure live seed (PLS) per acre. The seed mixture will be spread by a drill equipped with a depth regulator or a hand-held broadcaster and raked. If a hand-held broadcaster is used for dispersal, the pounds pure live seed per acre will be doubled.

Site inspections will be performed to assess the revegetation progress and evaluate the site for the presence of primary or secondary noxious weeds. If noxious weeds are identified, the NMSLO will be contacted to determine an effective method for eradication. If the site does not show revegetation after one growing season, the area will be reseeded as appropriate. The NMSLO seed mixture details and corresponding pounds pure live seed per acre are included in Appendix D.



### Conclusion

Upon completion, a final report detailing the remediation activities will be submitted to the NMOCD. If you have any questions or comments concerning the assessment or the proposed remediation activities for this site, please call at (432) 682-4559.

Respectfully submitted, TETRA TECH

mealos

Clair Gonzales, Project Manager



Ike Tavarez, Senior Project Manager, P.G.

## Figures



Mapped By: Isabel Marmolejo



Mapped By: Isabel Marmolejo



Mapped By: Isabel Marmolejo



### Tables

# Table 1COG Operating LLC.Gunner 16 State SWD #1Lea County, New Mexico

Sample ID	Sample Date		Soil Status		TPH (mg/kg)				_					Oblight to
		Sample Depth (ft)	In-Situ	Removed	C6-C10	C10-C28		Total	Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
Pad Area	4										<u>L</u>			
BH-1	12/18/2017	0-1	Х		608	6,970	1,900	9,480	<0.00199	0.0101	0.0183	0.150	0.179	1,270
		2-3	Х		553	8,340	2,460	11,400	<0.00201	0.00937	0.0214	0.143	0.740	3,500
		4-5	Х		<15.0	<15.0	<15.0	<15.0	-	-	-	-	-	7,120
		6-7	Х		-	-	-	-	-	-	-	-	-	1,610
	"	9-10	Х		-	-	-	-	-	-	-	-	-	29.0
	"	14-15	Х		-	-	-	-	-	-	-	-	-	168
	"	19-20	Х		-	-	-	-	-	-	-	-	-	102
	"	24-25	Х		-	-	-	-	-	-	-	-	-	116
BH-2	12/18/2017	0-1	Х		<15.0	<15.0	<15.0	<15.0	< 0.00199	< 0.00199	<0.00199	< 0.00199	< 0.00199	866
	"	2-3	Х		<15.0	<15.0	<15.0	<15.0	<0.00200	< 0.00200	<0.00200	<0.00200	<0.00200	891
	"	4-5	Х		-	-	-	-	-	-	-	-	-	466
	"	6-7	Х		-	-	-	-	-	-	-	-	-	335
	"	9-10	Х		-	-	-	-	-	-	-	-	-	8.96
	"	14-15	Х		-	-	-	-	-	-	-	-	-	45.1
BH-3	12/18/2017	0-1	Х		<15.0	<15.0	<15.0	<15.0	< 0.00202	< 0.00202	<0.00202	< 0.00202	< 0.00202	4,500
	"	2-3	Х		-	-	-	-	-	-	-	-	-	5,060
	"	4-5	Х		-	-	-	-	-	-	-	-	-	113
	"	6-7	Х		-	-	-	-	-	-	-	-	-	22.5
	"	9-10	Х		-	-	-	-	-	-	-	-	-	16.6
	"	14-15	Х		-	-	-	-	-	-	-	-	-	186
Pasture Area		-												
BH-4	12/19/2017	0-1	Х		<15.0	<15.0	<15.0	<15.0	<0.00202	< 0.00202	<0.00202	<0.00202	<0.00202	10.0
	"	2-3	Х		<14.9	<14.9	<14.9	<14.9	<0.00200	< 0.00200	<0.00200	<0.00200	<0.00200	40.2
	"	4-5	Х		-	-	-	-	-	-	-	-	-	813
	"	6-7	Х		-	-	-	-	-	-	-	-	-	5.60
	"	9-10	Х		-	-	-	-	-	-	-	-	-	43.4
	"	14-15	Х		-	-	-	-	-	-	-	-	-	69.3
BH-5	12/19/2017	0-1	Х		<15.0	<15.0	<15.0	<15.0	<0.00200	< 0.00200	<0.00200	<0.00200	<0.00200	2,850
	"	2-3	Х		<15.0	<15.0	<15.0	<15.0	<0.00200	< 0.00200	<0.00200	<0.00200	<0.00200	6,380
		4-5	Х		-	-	-	-	-	-	-	-	-	864
	"	6-7	Х		-	-	-	-	-	-	-	-	-	<4.99
	"	9-10	Х		-	-	-	-	-	-	-	-	-	8.35
	"	14-15	Х		-	-	-	-	-	-	-	-	-	67.1
BH-6	12/19/2017	0-1	Х		<15.0	<15.0	<15.0	<15.0	<0.00201	< 0.00201	<0.00201	<0.00201	<0.00201	39.2
	"	2-3	Х		<15.0	<15.0	<15.0	<15.0	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	3,390
	"	4-5	Х		-	-	-	-	-	-	-	-	-	3,890
	"	6-7	Х		-	-	-	-	-	-	-	-	-	5.52
	"	9-10	Х		-	-	-	-	-	-	-	-	-	85.6
		14-15	Х		-	-	-	-	-	-	-	-	-	209

(-)

Not Analyzed

Proposed Excavation Depths

### Photos

COG Operating LLC Gunner 16 State SWD #1 Lea County, New Mexico



View South – Area of BH-1



View East – Area of BH-2

COG Operating LLC Gunner 16 State SWD #1 Lea County, New Mexico



View East – Area of BH-3



View North – Area of BH-4

COG Operating LLC Gunner 16 State SWD #1 Lea County, New Mexico



View West – Area of BH-5



View North – Area of BH-6

## Appendix A
-

Form C-141 Revised August 8, 2011

Oil Conservation Division 1220 South St. Francis Dr. Santa Fe, NM 87505 Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

			Rele	ase Notific	ation	and Co	rrective A	ction			
						<b>OPERA</b>	OR	🔀 Initia	I Report		Final Report
Name of Co	mpany: C	COG Operati	ng LLC [	OGRID] 22913	7 (	Contact: Rol	pert McNeill				
		inois Avenue		TX 79701		Telephone No. 432-230-0077					
Facility Name: Gunner 16 State SWD #1						Facility Type: SWD					
Surface Owner: State/Federal Mineral Owner:					State		API No	. 30-025-4	0890		
				LOCA		OF REL	EASE	-			
Unit Letter	Section	Township	Range	Feet from the		South Line	Feet from the	East/West Line		Coun	tv
D	16	265	34Ĕ	330'		North	330'	West		Lea	-
Latitude 32.0497322 Longitude -103.4822998 NATURE OF RELEASE											
Type of Relea	156'			INAL	URE	Volume of		Volume R	anovarad:		
Oil & Produc							pw; 20 bbls oil		pw; 5 bbls	oil	
Source of Rel	ease:	- ar 10 - 500				Date and H	our of Occurrence		lour of Dis		
Lightning Str						9-15-2017 (		9-15-2017	05:00 am		
Was Immedia	ite Notice C		Yes 🔲	No 🗌 Not Ro	quired	If YES, To   Olivia Yu –		er Groves-NMSLO			
By Whom?	Rebecca I-	laskell				Date and H	our: 9-15-2017 1:	2:57 pm			
Was a Waterc	ourse Reac						ume Impacting t				
			Yes 🛛	No							
	was caused	by a lightning	; strike.								
was extinguis pipeline ROW	nd equipme hed, vacuur 7.	nt were a tota m trucks were	l loss. The dispatche	flow lines comin I to recover all st	anding f	luid. The relea	ase impacted the	iately to reduce fur location as well as	the adjacent	t pastur	e and
regulations al public health should their o	l operators or the envir perations h ment. In a	are required to conment. The ave failed to a ddition, NMO	report an acceptance dequately CD accept	d/or file certain re of a C-141 repo investigate and re	elease no ort by the emediate	tifications an NMOCD ma	d perform correct rked as "Final Re n that pose a thre	nderstand that pursu tive actions for rele eport" does not relic at to ground water, esponsibility for co	ases which we the oper surface wa	may en ator of ter, hur	danger liability nan health
	$\overline{}$	_/ .					OIL CONS	SERVATION I	DIVISIO	N	
Signature:	D.	M/									
Printed Name	: Dakota N	leel				Approved by E	Environmental Sp	ecialist:			
Title: Environ	imental Coo	ordinator				Approval Date	:	Expiration E	ate:		
E-mail Addre	ss: dneel2@	concho.com				Conditions of	Approval:		Attached		
Date: Septe Attach Addit	mber 18. 2 ional Shee		one: 575-74 ary	16-2010							

Appendix B

#### Water Well Data Average Depth to Groundwater (ft) COG - Gunner 16 SWD #1 Lea County, New Mexico 25 South 34 East

	25 S	South	33	East	
6	5	4	3 172	2	1
7	8	9	10	11 140	12 200
18	17	16	15	14	13
19	20 <b>200</b>	21 <mark>120</mark>	22	23	24
30	29	28	27 125	26	25
31 <b>257</b>	32	33	34	35	36

			÷ -	=401	
6	5	4	3	2	1
					260
7	8	9	10	11	12
18	17	16	15	14	13
			135		
19	20	21	22	23	24
					300
30	29	28	27	26	25
	50				
31	32	33	34	35	36

	25 Sc	outh	35 East				
6	5	4	3 <b>108</b>	2	1		
	165						
7	8	9	10	11	12		
18	17	16	15	14	13		
230							
19	20	21	22	23	24		
		218					
30	29	28	27	26	25		
80							
31	32	33	34	35	36		

	26 Sc	outh	33	East	
6	5	4	3	2	1
			175		
7	8	9	10	11	12
				145	200
18	17	16	15	14	13
				135	
19	20	21	22	23	24
		120			
30	29	28	27	26	25
			125		
31	32	33	34	35	36

	26 Sc	outh	34	East	
6 <b>160</b> 175	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

	26 Sc	outh	35	East	
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13 <b>230</b>
19	20	21	22	23	24 <b>250</b>
30	29	28	27	26	25
31	32	33	34	35	36

- 88 New Mexico State Engineers Well Reports
- **105** USGS Well Reports
- **90** Geology and Groundwater Conditions in Southern Lea, County, NM (Report 6) Geology and Groundwater Resources of Eddy County, NM (Report 3)
- 34 NMOCD Groundwater Data
- 123 Tetra Tech installed temporary wells and field water level
- 143 NMOCD Groundwater map well location

erstate Service Commission				-			/			-9-		th to W		
(A CLW##### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)	(R=POD replaced, O=orpha C=the fil closed)	ned,	(qı						E 3=SW argest)	,	33 UTM in meter	rs) (Iı	n feet)	
		POD												
POD Number	Code	Sub-	Country	•	•	Q	<b>S</b> a -	Two	Dug	v	V	Donth WallD 44		ater
<u>C 02291</u>	Code	CUB	County LE			2			34E	X 640825	Y 3550140* 🧧	DepthWellDepth 220	160	1 <b>umn</b> 6
<u>C 02292 POD1</u>		С	LE	4	1	2	06	26S	34E	640992	3549987	200	140	6
<u>C 03441 POD1</u>		С	LE	4	1	2	06	26S	34E	640971	3550039 🧲	250		
<u>C 03442 POD1</u>		С	LE	4	1	2	06	26S	34E	641056	3550028 🧧	251		
											Average Depth	to Water:	150 feet	t
											Minim	um Depth:	140 feet	t
											Maximu	ım Depth:	160 fee	t
Record Count: 4														
PLSS Search:														
Township: 26S	Range:	34E												

2/20/18 9:39 AM

WATER COLUMN/ AVERAGE DEPTH TO WATER

Appendix C



Aubrey Dunn COMMISSIONER State of New Mexico Commissioner of Public Lands 310 OLD SANTA FE TRAIL P.O. BOX 1148

SANTA FE, NEW MEXICO 87504-1148

COMMISSIONER'S OFFICE Phone (505) 827-5760

Fax (505) 827-5766 www.nmstatelands.org

November 29, 2017

COG Operating LLC 600 West Illinois Ave. Midland, Texas 79701

Attn: Sheldon Hitchock

### Re: Right-of-Entry Permit No.: RE-3481 (Gunner 16 SWD #1)

Dear Mr. Hitchock:

Enclosed is the completed captioned Right-of-Entry permit. If any corrections are necessary, please let us know and we will retype or amend this permit as necessary.

If you have any questions, or if we may be of further assistance, please do not hesitate to contact Anthony Vigil at 505-827-5710.

Sincerely

Aubrey Dunn Commissioner of Public Lands

AD/av

Enclosures



## NEW MEXICO STATE LAND OFFICE Commissioner of Public Lands Aubrey Dunn New Mexico State Land Office Building P.O. Box 1148, Santa Fe, NM 87504-1148

## RIGHT OF ENTRY PERMIT CONTRACT NO. RE - 3481

## **1. RIGHT OF ENTRY PERMIT**

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This permit is issued under the authority of NMSA 1978, Section 19-1-2. Therefore, and in consideration of and subject to the terms, covenants, conditions, agreements, obligations and reservations contained in the permit and all other existing rights, the Commissioner of Public Lands, New Mexico State Land Office, State Of New Mexico, hereinafter called "COMMISSIONER," grants to <u>COG OPERATING LLC</u>. State of Incorporation (if applicable), whose address is <u>ONE CONCHO CENTER, 600 W. ILLINOIS AVE,</u> <u>MIDLAND, TX, 79701</u> called "PERMITTEE," authorized use of a specific tract(s) of State Trust Land only for the permitted use, described in this permit.

### 2. TERM AND LAND DESCRIPTION

Right of entry is granted for a term of **180 days**, commencing on the execution date of this document by the Commissioner of Public Lands, to the following State Trust Lands.

Section	Township	Range	Subdivision	County
16	26S	34E	NW4NW4	Lea

## 3. APPLICATION and PROCESSING FEE

\$ 50.00 Application Fee
\$ 500.00 Permit Fee
\$ 550.00 Total Fee

**RE - 3481** 

## 4. PERMITTED USE, PERSONNEL, EQUIPMENT AND MATERIALS

Permitted use is for the purpose of: conduct soil sampling, delineation and remediation of an oil produced water release (Please note that this permit does not allow for any off road traffic)

Personnel present on State Trust Land: COG and contract personnel

Equipment & Materials present on State Trust Land: excavator, backhoe, loader and air rotary drill rig

## Prior to execution of project company must contact the Surface Lessees.

## The granting of this permit does not allow access across private lands.

#### 5. IMPROVEMENTS

No improvements shall be placed on the premises without the prior written consent of the Commissioner.

#### 6. RESERVATIONS

Commissioner reserves the right to execute leases, rights of way, easements, permits, exchange agreements, sale agreements, permits and other lawful rights on or across the land covered by this permit, including but not limited to any such rights for mining purposes and for the extraction of oil, gas, salt, geothermal resources, and other mineral deposits there from and the right to go upon, explore for, mine, remove and sell same.

#### 7. COMPLIANCE WITH LAWS

Permittee shall at its own expense comply fully with and be subject to all applicable regulations, rules, ordinances, and requirements of law or of the Commissioner, including but not limited to the regulations of the State Land Office; Chapter 19 NMSA governing State Trust Lands; federal and state environmental laws and regulations; and the New Mexico Cultural Properties Act, NMSA 1978 Sections 18-6-1 through 18-6-23. It is illegal for any person or his agent to appropriate, excavate, injure, or destroy any historic, or prehistoric ruin or monument, or any object of historical, archaeological, architectural, or scientific value situated on lands owned or controlled by the State Land Office without a valid permit issued by the Cultural Properties Review Committee and approved by the Commissioner of Public Lands.



### 8. HOLD HARMLESS AND IMDEMNIFICATION

Permittee shall save, hold harmless, indemnify and defend Commissioner, the State Land Office, the State of New Mexico, and any of their officers, employees or agents, in their official and individual capacities, of and from any and all liability, claims, losses, damages, costs, and fees arising out of or alleged to arise out of, or directly or indirectly connected with, the operations of Permittee under this permit on or off State Trust Lands or arising out of the presence on State Trust Lands of any equipment, material, agent, invitee, contractor or subcontractor of Permittee. This Hold Harmless and Indemnification clause covers any claim, including any brought in any court or before any administrative agency, of any loss or alleged loss, and any damages or alleged damages asserted with respect to any violation or alleged violation of any state, federal or local law or regulation, including but not limited to any environmental law or regulation, any cultural properties law (including the New Mexico Cultural Properties Act, cited above) or regulation, and any alleged damage to the property, rights or interests of any State Land Office lessee, right-of-way holder, or other permittee.

#### 9. AMENDMENT

This permit shall not be altered, changed, or amended except by an instrument in writing executed by Commissioner and Permittee.

#### **10. WITHDRAWAL**

Commissioner reserves the right to withdraw any or all of the land authorized for use under this permit. If applicable, Permittee shall vacate the acreage specified within 30 days after receipt of written notification of withdrawal from the Commissioner.

#### **11. CANCELLATION**

The violation by Permittee of any of the terms, conditions, or covenants of this permit or the nonpayment by Permittee of the fees due under this permit shall at the option of the Commissioner be considered a default and shall cause the cancellation of this permit 30 days after Permittee has been sent written notice of such.

#### **12. PRESERVE AND PROTECT**

The Permittee agrees to preserve and protect the natural environmental conditions of the land encompassed in this permit, and to take those reclamation or corrective actions that are accepted soil and water conservation practices and that are deemed necessary by the Commissioner to protect the land from pollution, erosion, or other environmental degradation. The Permittee further agrees not to injure the property of, or interfere with the operations or rights of, any State Land Office lessee, right-of-way holder, easement holder or other permittee who has rights to use the State Trust Land subject to this permit.

### **13. PIPELINE IDENTIFICATION AND SPACING REQUIREMENTS**

The Permittee shall label each aboveground pipeline crossing State Trust Lands with the Permittee's name, and contact information. Such information shall be placed at both the inlet and outlet of the pipeline, and every 2,500 feet between the two points. Pipelines must be spaced a minimum of 12" apart from existing surface pipelines to allow for livestock to cross. If the minimum line spacing cannot be met to allow livestock to cross, berms 3 feet in width must be placed in areas where established cattle trails exist, but no less than every tenth of a mile.

## 14. RECLAMATION, REMOVAL OF EQUIPMENT, MATERIALS, AND WASTE

The Permittee agrees to reclaim those areas that may be damaged by activities conducted thereon.

The Permittee agrees to remove from the State Trust Lands, no later than the end of the term of this permit, all equipment, and materials it has placed or brought upon the land and to clean up and remove from the land any trash, waste, effluent, or other products used or brought upon the land in connection with this permit.

## **15. SPECIAL INSTRUCTIONS AND/OR RESTRICTIONS**

1. No off road traffic allowed.

2. No wood collection or tree cutting allowed.

**3.** Disturbing, dislodging, damaging, defacing, destroying or removing historical archaeological, paleontological or cultural sites or artifacts in a manner inconsistent with the provisions of the granted permit is prohibited.

4. Disturbing, dislodging, damaging, defacing, destroying any improvement, fixture, item, object or thing placed or located in, under or upon the land is prohibited.

5. This permit does not grant a right to enter State Trust Lands to which there is no public access.

6. Any uses or activities not within the scope of this permit are not allowed unless prior written approval from the Commissioner of Public Lands is granted.

7. Line pressure not to exceed 125 psi.



By:

ay Bateman, Vice-President of New Mexico

#### ACKNOWLEDGMENT

STATE OF TEXAS ) ss. COUNTY OF MIDLAND ) The foregoing instrument was acknowledged before me this 27th day of November , 20 17, by of COG Operating LLC a Clay Bateman corporation, on behalf of said corporation. Delaware LLC My Commission Expires: 1-29-202 NOTARY PUBLIC Jana Asebedo Votary Public, State of Texas Notary ID 1075101-9 Commission Exp. 01-29-2021 STATE OF NEW MEXICO BY: AUBREY DUNN COMMISSIONER OF PUBLIC LANDS S E DATE:

**RE - 3481** 

Gunner 16 SWD #1









# **Surface Lessee Contact Information**

Please notify all lessee's provided below prior to the start of your project.

• GT-2459- Dinwiddie Cattle Company, LLC P.O. Box 374, Roswell, New Mexico 88202-0374

Appendix D

#### LOAMY (L) SITES SEED MIXTURE:

COMMON NAME	VARIETY	APPLICATION RATE (PLS/Acre)	DRILL BOX	
Grasses:				
Black grama	VNS, Southern	1.0	D	
Blue grama	Lovington	1.0	Ď	
Sideoats grama	Vaughn, El Reno	4.0	F	
Sand dropseed	VNS, Southern	2.0	s	
Alkali sacaton	VNS, Southern	1.0	-	
Little bluestem	Cimarron, Pastura	1.5	F	
Forbs:				
Firewheel ( <i>Gaillardia</i> )	VNS, Southern	1.0	D	
Shrubs:				
Fourwing saltbush	Marana, Santa Rita	1.0	D	
Common winterfat	VNS, Southern	0.5	F	
	Total PLS/acre	18.0		

S = Small seed drill box, D = Standard seed drill box, F = Fluffy seed drill box VNS = Variety Not Stated, PLS = Pure Live Seed

- Seed mixes should be provided in bags separating seed types into the three categories: small (S), standard (D) and fluffy (F).
- VNS, Southern Seed should be from a southern latitude collection of this species.
- Double seed application rate for broadcast or hydroseeding.
- If one species is not available, contact the SLO for an approved substitute; alternatively the SLO may require other species proportionately increased.
- Additional information on these seed species can be found on the USDA Plants Database website at <a href="http://plants.usda.gov">http://plants.usda.gov</a>.



## Lea County, New Mexico

#### PU—Pyote and maljamar fine sands

#### Map Unit Setting

National map unit symbol: dmqq Elevation: 3,000 to 3,900 feet Mean annual precipitation: 10 to 12 inches Mean annual air temperature: 60 to 62 degrees F Frost-free period: 190 to 205 days Farmland classification: Not prime farmland

#### **Map Unit Composition**

Pyote and similar soils: 45 percent
Maljamar and similar soils: 45 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

#### **Description of Pyote**

#### Setting

Landform: Plains Landform position (three-dimensional): Rise Down-slope shape: Linear Across-slope shape: Linear Parent material: Sandy eolian deposits derived from sedimentary rock

#### **Typical profile**

A - 0 to 30 inches: fine sand Bt - 30 to 60 inches: fine sandy loam

#### **Properties and qualities**

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Gypsum, maximum in profile: 1 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 2.0
Available water storage in profile: Low (about 5.1 inches)

#### Interpretive groups

Land capability classification (irrigated): 6e

USDA

Land capability classification (nonirrigated): 7s Hydrologic Soil Group: A Ecological site: Loamy Sand (R042XC003NM) Hydric soil rating: No

#### **Description of Maljamar**

#### Setting

Landform: Plains Landform position (three-dimensional): Rise Down-slope shape: Linear Across-slope shape: Linear Parent material: Sandy eolian deposits derived from sedimentary rock

#### **Typical profile**

A - 0 to 24 inches: fine sand Bt - 24 to 50 inches: sandy clay loam Bkm - 50 to 60 inches: cemented material

#### Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 40 to 60 inches to petrocalcic
Natural drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Gypsum, maximum in profile: 1 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 2.0

Available water storage in profile: Low (about 5.6 inches)

#### Interpretive groups

Land capability classification (irrigated): 6e Land capability classification (nonirrigated): 7e Hydrologic Soil Group: B Ecological site: Loamy Sand (R042XC003NM) Hydric soil rating: No

#### **Minor Components**

#### Kermit

*Percent of map unit:* 10 percent *Ecological site:* Sandhills (R042XC022NM)

JSDA

Hydric soil rating: No

## **Data Source Information**

Soil Survey Area: Lea County, New Mexico Survey Area Data: Version 14, Sep 10, 2017



Appendix E

# Analytical Report 571798

for Tetra Tech- Midland

**Project Manager: Ike Tavarez** 

COG-Gunner 16 SWD #1 (Pad Area)

### 29-DEC-17

Collected By: Client





### 1211 W. Florida Ave, Midland TX 79701

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)



29-DEC-17



Project Manager: **Ike Tavarez Tetra Tech- Midland** 4000 N. Big Spring Suite 401 Midland, TX 79705

#### Reference: XENCO Report No(s): **571798 COG-Gunner 16 SWD #1 (Pad Area)** Project Address: Lea County NM

#### Ike Tavarez:

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) 571798. 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. 571798 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,

Huns hoah

Kelsey Brooks Project Manager

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



Sample Id
BH-1 0-1
BH-1 2-3
BH-1 4-5
BH-1 6-7
BH-1 9-10
BH-1 14-15
BH-1 19-20
BH-1 24-25
BH-2 0-1
BH-2 2-3
BH-2 4-5
BH-2 6-7
BH-2 9-10
BH-2 14-15
BH-3 0-1
BH-3 2-3
BH-3 4-5
BH-3 6-7
BH-3 9-10
BH-3 14-15

## Sample Cross Reference 571798



COG-Gunner 16 SWD #1 (Pad Area)

Matrix	Date Collected	Sample Depth	Lab Sample Id
S	12-18-17 00:00	0 - 1	571798-001
S	12-18-17 00:00	2 - 3	571798-002
S	12-18-17 00:00	4 - 5	571798-003
S	12-18-17 00:00	6 - 7	571798-004
S	12-18-17 00:00	9 - 10	571798-005
S	12-18-17 00:00	14 - 15	571798-006
S	12-18-17 00:00	19 - 20	571798-007
S	12-18-17 00:00	24 - 25	571798-008
S	12-18-17 00:00	0 - 1	571798-009
S	12-18-17 00:00	2 - 3	571798-010
S	12-18-17 00:00	4 - 5	571798-011
S	12-18-17 00:00	6 - 7	571798-012
S	12-18-17 00:00	9 - 10	571798-013
S	12-18-17 00:00	14 - 15	571798-014
S	12-18-17 00:00	0 - 1	571798-015
S	12-18-17 00:00	2 - 3	571798-016
S	12-18-17 00:00	4 - 5	571798-017
S	12-18-17 00:00	6 - 7	571798-018
S	12-18-17 00:00	9 - 10	571798-019
S	12-18-17 00:00	14 - 15	571798-020





## CASE NARRATIVE

Client Name: Tetra Tech- Midland Project Name: COG-Gunner 16 SWD #1 (Pad Area)

Project ID: Work Order Number(s): 571798 
 Report Date:
 29-DEC-17

 Date Received:
 12/19/2017

#### Sample receipt non conformances and comments:

#### Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments: Batch: LBA-3036624 BTEX by EPA 8021B Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

#### Batch: LBA-3036675 BTEX by EPA 8021B

Soil samples were not received in Terracore kits and therefore were prepared by method 5030. Lab Sample ID 571798-009 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). o-Xylene recovered below QC limits in the Matrix Spike and Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 571798-002, -009, -010, -015. The Laboratory Control Sample for o-Xylene is within laboratory Control Limits, therefore the data was accepted.



Certificate of Analysis Summary 571798

Tetra Tech- Midland, Midland, TX

Project Name: COG-Gunner 16 SWD #1 (Pad Area)



Date Received in Lab:Tue Dec-19-17 04:05 pmReport Date:29-DEC-17Project Manager:Kelsey Brooks

	Lab Id:	571798-	001	571798-	002	571798-0	03	571798-0	04	571798-0	005	571798-0	)06
	Field Id:	BH-1 0	)-1	BH-1 2	-3	BH-1 4-	5	BH-1 6-	7	BH-1 9-	10	BH-1 14-	-15
Analysis Requested	Depth:	0-1		2-3		4-5		6-7		9-10		14-15	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Dec-18-17	00:00	Dec-18-17	00:00	Dec-18-17 0	00:00	Dec-18-17 (	00:00	Dec-18-17 (	00:00	Dec-18-17 (	00:00
BTEX by EPA 8021B	Extracted:	Dec-21-17	13:00	Dec-21-17	17:00								
	Analyzed:	Dec-21-17	23:12	Dec-22-17	05:10								
	Units/RL:	mg/kg	RL	mg/kg	RL								
Benzene		< 0.00199	0.00199	< 0.00201	0.00201								
Toluene		0.0101	0.00199	0.00937	0.00201								
Ethylbenzene		0.0183	0.00199	0.0214	0.00201								
m,p-Xylenes		0.0874	0.00398	0.0821	0.00402								
o-Xylene		0.0628	0.00199	0.0611	0.00201								
Total Xylenes		0.150	0.00199	0.143	0.00201								
Total BTEX		0.179	0.00199	0.174	0.00201								
Inorganic Anions by EPA 300/300.1	Extracted:	Dec-26-17	10:30	Dec-26-17	10:30	Dec-26-17 1	0:30	Dec-26-17	0:30	Dec-26-17	12:06	Dec-26-17	12:06
	Analyzed:	Dec-26-17	19:15	Dec-26-17	19:22	Dec-26-17 1	9:29	Dec-26-17	9:36	Dec-27-17	10:38	Dec-27-17	10:59
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		1270	24.9	3500	24.9	7120	49.1	1610	24.8	29.0	4.99	168	4.97
TPH By SW8015 Mod	Extracted:	Dec-21-17	07:00	Dec-21-17	07:00	Dec-28-17 1	0:00						
	Analyzed:	Dec-21-17	23:25	Dec-21-17	23:44	Dec-28-17 1	3:17						
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL						
Gasoline Range Hydrocarbons (GRO)		608	74.8	553	74.9	<15.0	15.0						
Diesel Range Organics (DRO)		6970	74.8	8340	74.9	<15.0	15.0						
Oil Range Hydrocarbons (ORO)		1900	74.8	2460	74.9	<15.0	15.0						
Total TPH		9480	74.8	11400	74.9	<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.

Huns Boah

Kelsey Brooks Project Manager



Certificate of Analysis Summary 571798

Tetra Tech- Midland, Midland, TX

Project Name: COG-Gunner 16 SWD #1 (Pad Area)



Date Received in Lab:Tue Dec-19-17 04:05 pmReport Date:29-DEC-17Project Manager:Kelsey Brooks

	Lab Id:	571798-0	007	571798-0	08	571798-0	09	571798-	010	571798-0	011	571798-0	)12
	Field Id:	BH-1 19-	-20	BH-1 24-	25	BH-2 0-	1	BH-2 2	2-3	BH-2 4-	.5	BH-2 6-	-7
Analysis Requested	Depth:	19-20		24-25		0-1		2-3		4-5		6-7	
	Matrix:	SOIL		SOIL		SOIL		SOIL	_	SOIL		SOIL	
	Sampled:	Dec-18-17 (	00:00	Dec-18-17 (	00:00	Dec-18-17 (	00:00	Dec-18-17	00:00	Dec-18-17 (	00:00	Dec-18-17 (	00:00
BTEX by EPA 8021B	Extracted:					Dec-21-17	17:00	Dec-21-17	17:00				
	Analyzed:					Dec-22-17 (	02:22	Dec-22-17	02:40				
	Units/RL:					mg/kg	RL	mg/kg	RL				
Benzene						< 0.00199	0.00199	< 0.00200	0.00200				
Toluene						< 0.00199	0.00199	< 0.00200	0.00200				
Ethylbenzene						< 0.00199	0.00199	< 0.00200	0.00200				
m,p-Xylenes						< 0.00398	0.00398	< 0.00399	0.00399				
o-Xylene						< 0.00199	0.00199	< 0.00200	0.00200				
Total Xylenes						< 0.00199	0.00199	< 0.00200	0.00200				
Total BTEX						< 0.00199	0.00199	< 0.00200	0.00200				
Inorganic Anions by EPA 300/300.1	Extracted:	Dec-26-17	12:06	Dec-26-17 1	2:06	Dec-26-17	12:06	Dec-26-17	12:06	Dec-26-17	12:06	Dec-26-17	12:06
	Analyzed:	Dec-27-17	11:06	Dec-27-17 1	1:13	Dec-27-17	1:20	Dec-27-17	11:41	Dec-27-17	11:48	Dec-27-17	11:55
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		102	4.93	116	4.93	866	4.96	891	4.93	466	4.93	335	4.99
TPH By SW8015 Mod	Extracted:					Dec-21-17 (	07:00	Dec-21-17	07:00				
	Analyzed:					Dec-22-17 (	00:07	Dec-22-17	00:27				
	Units/RL:					mg/kg	RL	mg/kg	RL				
Gasoline Range Hydrocarbons (GRO)	·					<15.0	15.0	<15.0	15.0				
Diesel Range Organics (DRO)						<15.0	15.0	<15.0	15.0				
Oil Range Hydrocarbons (ORO)						<15.0	15.0	<15.0	15.0				
Total TPH						<15.0	15.0	<15.0	15.0				

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Huns Boah

Kelsey Brooks Project Manager



Certificate of Analysis Summary 571798

Tetra Tech- Midland, Midland, TX

Project Name: COG-Gunner 16 SWD #1 (Pad Area)



Date Received in Lab:Tue Dec-19-17 04:05 pmReport Date:29-DEC-17Project Manager:Kelsey Brooks

	Lab Id:	571798-0	13	571798-0	014	571798-0	15	571798-0	16	571798-0	017	571798-0	18
	Field Id:	BH-2 9-1	-	BH-2 14-		BH-3 0-	-	BH-3 2-	-	BH-3 4-		BH-3 6-	
Analysis Requested	Depth:	9-10	10	14-15	15	0-1	1	2-3	.5	4-5		6-7	/
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Dec-18-17 (	00:00	Dec-18-17 (	00:00	Dec-18-17 0	00:00	Dec-18-17 (	00:00	Dec-18-17	00:00	Dec-18-17 (	00:00
BTEX by EPA 8021B	Extracted:					Dec-21-17 1	7:00				[		
	Analyzed:					Dec-22-17 0	2:59						
	Units/RL:					mg/kg	RL						
Benzene						< 0.00202	0.00202						
Toluene						< 0.00202	0.00202						
Ethylbenzene						< 0.00202	0.00202						
m,p-Xylenes						< 0.00403	0.00403						
o-Xylene						< 0.00202	0.00202						
Total Xylenes						< 0.00202	0.00202						
Total BTEX						< 0.00202	0.00202						
Inorganic Anions by EPA 300/300.1	Extracted:	Dec-26-17	12:06	Dec-26-17	12:06	Dec-26-17 1	2:06	Dec-26-17	12:06	Dec-26-17	12:06	Dec-26-17 1	2:06
	Analyzed:	Dec-27-17	12:02	Dec-27-17	12:16	Dec-27-17 1	2:09	Dec-27-17	12:37	Dec-27-17	12:44	Dec-27-17 1	13:05
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		8.96	4.98	45.1	4.90	4500	24.8	5060	49.4	113	4.96	22.5	4.94
TPH By SW8015 Mod	Extracted:					Dec-21-17 0	7:00						
	Analyzed:					Dec-22-17 0	0:47						
	Units/RL:					mg/kg	RL						
Gasoline Range Hydrocarbons (GRO)	·					<15.0	15.0						
Diesel Range Organics (DRO)						<15.0	15.0						
Oil Range Hydrocarbons (ORO)						<15.0	15.0						
Total TPH						<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.

Huns Boah

Kelsey Brooks Project Manager



Certificate of Analysis Summary 571798

Tetra Tech- Midland, Midland, TX

Project Name: COG-Gunner 16 SWD #1 (Pad Area)



Date Received in Lab:Tue Dec-19-17 04:05 pmReport Date:29-DEC-17Project Manager:Kelsey Brooks

	Lab Id:	571798-0	19	571798-0	20			
Analysis Requested	Field Id:	BH-3 9-	10	BH-3 14-	15			
Analysis Kequestea	Depth:	9-10		14-15				
	Matrix:	SOIL		SOIL				
	Sampled:	Dec-18-17 (	00:00	Dec-18-17 (	00:00			
Inorganic Anions by EPA 300/300.1	Extracted:	Dec-26-17	12:06	Dec-26-17	2:06		1	
	Analyzed:	Dec-27-17	13:12	Dec-27-17 1	3:19			
	Units/RL:	mg/kg	RL	mg/kg	RL			
Chloride		16.6	4.92	186	4.96			

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Huns Boah

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
- + 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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9701 Harry Hines Blvd, Dallas, TX 75220	(214) 902 0300	(214) 351-9139
5332 Blackberry Drive, San Antonio TX 78238	(210) 509-3334	(210) 509-3335
1211 W Florida Ave, Midland, TX 79701	(432) 563-1800	(432) 563-1713
2525 W. Huntington Dr Suite 102, Tempe AZ 85282	(602) 437-0330	



FT •4	#: 3036624						
Units:	mg/kg	Date Analyzed: 12/21/17 23:12	SU	RROGATE R	ECOVERY S	STUDY	
	BTEX	K by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
		Analytes			[D]		
1,4-Difluoro	benzene		0.0251	0.0300	84	80-120	
4-Bromoflue	orobenzene		0.0310	0.0300	103	80-120	
Lab Batch	#: 3036672	Sample: 571798-001 / SMP	Batcl	h: 1 Matrix	: Soil		
Units:	mg/kg	Date Analyzed: 12/21/17 23:25	SU	RROGATE R	ECOVERY S	STUDY	
	TPH I	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooct	ane	Anaryus	97.5	99.7	98	70-135	
o-Terphenyl			43.4	49.9	87	70-135	
	#: 3036672	Sample: 571798-002 / SMP	Batcl			10 155	
Units:	mg/kg	Date Analyzed: 12/21/17 23:44		RROGATE R		STUDY	
	TPH I	By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flage
		Analytes			[D]		
1-Chlorooct	ane		95.7	99.8	96	70-135	
o-Terphenyl			44.1	49.9	88	70-135	
Lab Batch	#: 3036672	Sample: 571798-009 / SMP	Batc	h: 1 Matrix	: Soil	·	
Units:	mg/kg	Date Analyzed: 12/22/17 00:07	SU	RROGATE R	ECOVERY S	STUDY	
	TPH I	By SW8015 Mod	Amount Found	True Amount [B]	Recovery %R	Control Limits %R	Flags
		Analytes	[A]	[D]	[D]		
1-Chlorooct	ane	Analytes	[A] 81.8	99.9	[D] 82	70-135	
1-Chlorooct o-Terphenyl		Analytes				70-135 70-135	
o-Terphenyl		Analytes  Sample: 571798-010 / SMP	81.8	99.9 50.0	82           86		
o-Terphenyl Lab Batch	l		81.8 42.8 Batcl	99.9 50.0	82 86 Soil	70-135	
o-Terphenyl Lab Batch	#: 3036672 mg/kg TPH H	Sample: 571798-010 / SMP Date Analyzed: 12/22/17 00:27 By SW8015 Mod	81.8 42.8 Batcl	99.9 50.0 h: 1 Matrix	82       86       ECOVERY S       Recovery %R	70-135	Flags
o-Terphenyl	#: 3036672 mg/kg <b>TPH H</b>	Sample: 571798-010 / SMP Date Analyzed: 12/22/17 00:27	81.8 42.8 Batcl SU Amount Found	99.9 50.0 h: 1 Matrix RROGATE R True Amount	82 86 ECOVERY S Recovery	70-135 STUDY Control Limits	Flags

\* Surrogate outside of Laboratory QC limits

\*\* Surrogates outside limits; data and surrogates confirmed by reanalysis

\*\*\* Poor recoveries due to dilution

Surrogate Recovery [D] = 100 \* A / B



Units:	mg/kg	Date Analyzed: 12/22/17 00:47	CT.		FCOVEDV		
Jints.	iiig/Kg	Date Analyzeu: 12/22/17/00.47	SL	RROGATE R	ECOVERYS	Control Limits %R           70-135           70-135           70-135           STUDY           &           80-120           80-120           80-120           80-120           STUDY           Control Limits %R           80-120           STUDY           Control Limits %R           80-120           STUDY           Control Limits %R           80-120           STUDY           Study           80-120           STUDY           Study           80-120           STUDY	
	TPH I	3y SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R		Flags
		Analytes			[D]		
1-Chlorooct	ane		86.9	99.7	87	70-135	
o-Terpheny			44.4	49.9	89	70-135	
Lab Batch	#: 3036675	Sample: 571798-009 / SMP	Batc	h: 1 Matrix	: Soil		
U <b>nits:</b>	mg/kg	Date Analyzed: 12/22/17 02:22	SU	RROGATE R	ECOVERY S	STUDY	
	BTEX	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Limits	Flags
1,4-Difluoro	obenzene		0.0282	0.0300	94	80-120	
4-Bromoflu			0.0265	0.0300	88		
	#: 3036675	Sample: 571798-010 / SMP	Batc			00 120	
Units:	mg/kg	Date Analyzed: 12/22/17 02:40	SURROGATE RECOVERY STUDY				
	BTEX	K by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Limits	Flag
		Analytes			[D]		
1,4-Difluoro	obenzene		0.0288	0.0300	96	80-120	
4-Bromoflu			0.0262	0.0300	87	80-120	
Lab Batch	#: 3036675	Sample: 571798-015 / SMP	Batc	h: 1 Matrix	: Soil		
Units:	mg/kg	Date Analyzed: 12/22/17 02:59	SU	RROGATE R	ECOVERY S	STUDY	
	ВТЕХ	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Limits	Flags
1,4-Difluoro	obenzene		0.0277	0.0300	92	80-120	
4-Bromoflu	orobenzene		0.0275	0.0300	92	80-120	
Lab Batch	#: 3036675	Sample: 571798-002 / SMP	Batc	h: 1 Matrix	: Soil	<u> </u>	
Units:	mg/kg	Date Analyzed: 12/22/17 05:10	SU	RROGATE R	ECOVERY S	STUDY	
	ВТЕХ	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Limits	Flage
1,4-Difluoro	obenzene	·	0.0297	0.0300	99	80-120	
				1	1		

\* Surrogate outside of Laboratory QC limits

\*\* Surrogates outside limits; data and surrogates confirmed by reanalysis

\*\*\* Poor recoveries due to dilution

Surrogate Recovery [D] = 100 \* A / B



Work Ord Lab Batch #:	ers: 57179	8, <b>Sample:</b> 571798-003 / SMP	Batch	Project ID : 1 Matrix			
Units:	mg/kg	Date Analyzed: 12/28/17 13:17	SUI	RROGATE R	RECOVERY	Control Limits %R 70-135 70-135 TUDY Control Limits %R 80-120 80-120 TUDY Control Limits %R 70-135 70-135 70-135 70-135 70-135 70-135 70-135 80-120	
	TPH I	By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Limits	Flags
		Analytes			[D]		
1-Chlorooctan	ie		82.0	100	82	70-135	
o-Terphenyl			42.4	50.0	85	70-135	
Lab Batch #:	: 3036624	Sample: 7636429-1-BLK / BI	LK Batch	: 1 Matrix	: Solid		
Units:	mg/kg	Date Analyzed: 12/21/17 16:12	SUI	RROGATE R	RECOVERY	STUDY	
	BTEX	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Limits	Flags
		Analytes					
1,4-Difluorob			0.0278	0.0300	93		
4-Bromofluor			0.0248	0.0300	83	80-120	
Lab Batch #:		Sample: 7636449-1-BLK / BI	LK Batch	: 1 Matrix	: Solid		
Units:	mg/kg	Date Analyzed: 12/21/17 17:13	SURROGATE RECOVERY STUDY				
	TPH I	3y SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Limits	Flags
		Analytes			[D]		
1-Chlorooctan	ie		83.4	100	83	70-135	
o-Terphenyl			43.3	50.0	87	70-135	
Lab Batch #:	: 3036675	Sample: 7636472-1-BLK / BI	LK Batch	: 1 Matrix	: Solid		
Units:	mg/kg	Date Analyzed: 12/22/17 02:03	SUI	RROGATE R	RECOVERY	STUDY	
	BTEX	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Limits	Flags
1,4-Difluorob	enzene		0.0269	0.0300	90	80-120	
4-Bromofluor	obenzene		0.0241	0.0300	80	80-120	
Lab Batch #:	: 3037188	Sample: 7636777-1-BLK / BI	LK Batch		: Solid	1	1
Units:	mg/kg	Date Analyzed: 12/28/17 12:16	SUI	RROGATE R	RECOVERY	STUDY	
	TPH I	By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Limits	Flage
1 Chlasser		Analytes	01.7	100		70.125	
1-Chlorooctan	le		81.7	100	82		
o-Terphenyl			42.9	50.0	86	70-135	

\* Surrogate outside of Laboratory QC limits

\*\* Surrogates outside limits; data and surrogates confirmed by reanalysis

\*\*\* Poor recoveries due to dilution

Surrogate Recovery [D] = 100 \* A / B



Units:	mg/kg	<b>Date Analyzed:</b> 12/21/17 13:48	CT	DDOCATE	RECOVERY	STUDV	
cints.	iiig/ Kg	Date Analyzet. 12/21/17 13.40	SU	KKUGATE	RECOVERYS		
	BTEX	K by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R         80-120         80-120         STUDY         Control Limits %R         70-135         70-135         80-120         80-120         80-120         80-120         80-120         STUDY         Study         80-120         80-120         70-135         70-135         70-135         70-135         70-135         70-135	Flags
		Analytes			[D]		
1,4-Difluor	obenzene		0.0335	0.0300	112	80-120	
4-Bromoflu			0.0331	0.0300	110	80-120	
Lab Batch	<b>#:</b> 3036672	Sample: 7636449-1-BKS / B	KS Bate	h: 1 Matı	rix: Solid		
Units:	mg/kg	Date Analyzed: 12/21/17 17:33	SU	RROGATE	<b>RECOVERY</b> S	STUDY	
		By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Limits	Flags
1-Chlorooc			84.1	100	84	70-135	
o-Terpheny			45.3	50.0	91		
	#: 3036675	Sample: 7636472-1-BKS / B			rix: Solid	10-155	
Units:     mg/kg     Date Analyzed: 12/22/17 00:09     SURROGATE RECOVERY STUDY							
omus.	ing/kg	Date Analyzet. 12/22/17 00:09	SU	RROGATE	RECOVERYS	STUDY	
	BTEX	K by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Limits	Flags
		Analytes			[D]		
1,4-Difluor	obenzene		0.0309	0.0300	103	80-120	
4-Bromoflu	orobenzene		0.0299	0.0300	100	80-120	
Lab Batch	<b>#:</b> 3037188	Sample: 7636777-1-BKS / B	KS Bate	h: 1 Matu	rix: Solid		
Units:	mg/kg	Date Analyzed: 12/28/17 12:36	SU	RROGATE	<b>RECOVERY</b>	STUDY	
	TPH I	3y SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Limits	Flags
1-Chlorooc	ane		89.6	100	90	70-135	
o-Terpheny			53.1	50.0	106		
	#: 3036624	Sample: 7636429-1-BSD / B			rix: Solid		
Units:	mg/kg	Date Analyzed: 12/21/17 14:35			RECOVERY S	STUDY	
		X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Limits	Flags
		Analytes			[D]		
1,4-Difluor			0.0329	0.0300	110	80-120	
4 D (1	orobenzene		0.0357	0.0300	119	00 120	

\* Surrogate outside of Laboratory QC limits

\*\* Surrogates outside limits; data and surrogates confirmed by reanalysis

\*\*\* Poor recoveries due to dilution

Surrogate Recovery [D] = 100 \* A / B



	rders : 57179 #: 3036672	8, Sample: 7636449-1-BSD / F	BSD Bate	Project ID h: 1 Matrix				
Units:	mg/kg	Date Analyzed: 12/21/17 17:53	SU	RROGATE R	ECOVERY	STUDY		
	TPH I	By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags	
		Analytes			[D]			
1-Chlorooc	tane		83.7	100	84	70-135		
o-Terpheny	/1		45.4	50.0	91	70-135		
Lab Batch	#: 3036675	Sample: 7636472-1-BSD / H	BSD Bate	h: 1 Matrix	: Solid			
Units:	mg/kg	Date Analyzed: 12/22/17 00:28	SU	RROGATE R	ECOVERY	STUDY		
	BTEX	K by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags	
1 4 D'fler - 1		Anarytes	0.0000	0.0200		00.100		
1,4-Difluor	obenzene		0.0290	0.0300	97	80-120		
		Samely 7/2/777 1 DSD / I	0.0276	0.0300	92	80-120		
	#: 3037188	Sample: 7636777-1-BSD / H			-			
Units:	mg/kg	Date Analyzed: 12/28/17 12:58	SURROGATE RECOVERY STU					
	TPH I	By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags	
		Analytes			[D]			
1-Chlorooc	tane		85.4	100	85	70-135		
o-Terpheny	/1		50.7	50.0	101	70-135		
Lab Batch	#: 3036672	Sample: 571792-001 S / MS	Batc	h: 1 Matrix	: Soil			
Units:	mg/kg	Date Analyzed: 12/21/17 18:36	SU	RROGATE R	ECOVERY	STUDY		
	TPH I	By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags	
		Analytes			[D]			
1-Chlorooc			82.7	99.8	83	70-135		
o-Terpheny			44.6	49.9	89	70-135		
Lab Batch	#: 3036624	Sample: 571522-005 S / MS	Batc	h: 1 Matrix	: Soil			
Units:	mg/kg	Date Analyzed: 12/21/17 23:31	SU	RROGATE R	ECOVERY	STUDY		
	BTE	K by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flage	
1,4-Difluor	obenzene		0.0310	0.0300	103	80-120		
	orobenzene							
	ioi obenizelle		0.0293	0.0300	98	80-120		

\* Surrogate outside of Laboratory QC limits

\*\* Surrogates outside limits; data and surrogates confirmed by reanalysis

\*\*\* Poor recoveries due to dilution

Surrogate Recovery [D] = 100 \* A / B



	rders : 57179 #: 3036675	8, Sample: 571798-009 S / MS	Batel	Project ID h: 1 Matrix						
U <b>nits:</b>	mg/kg	Date Analyzed: 12/22/17 00:47	SU	RROGATE R	ECOVERY S	STUDY				
	BTEX	K by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags			
		Analytes			[D]					
1,4-Difluor	obenzene		0.0304	0.0300	101	80-120				
	iorobenzene		0.0303	0.0300	101	80-120				
Lab Batch	#: 3037188	Sample: 572153-001 S / MS	Batcl	h: 1 Matrix	: Soil					
Units:	mg/kg	Date Analyzed: 12/28/17 17:56	SU	RROGATE R	ECOVERY	STUDY				
	TPH I	3y SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags			
1 Chlanses	4	Anarytes	74.0	100		70.105				
1-Chlorooc			76.9	100	77	70-135				
o-Terpheny		Sec. 1. 571522.005 SD / N	41.2	50.0	82	70-135				
	#: 3036624	Sample: 571522-005 SD / M								
Units:	mg/kg	Date Analyzed: 12/21/17 15:15	SURROGATE RECOVERY STUDY							
	BTEX	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags			
		Analytes			[D]					
1,4-Difluor	obenzene		0.0268	0.0300	89	80-120				
4-Bromoflu	orobenzene		0.0275	0.0300	92	80-120				
Lab Batch	#: 3036672	Sample: 571792-001 SD / M	ISD Batcl	h: 1 Matrix	: Soil					
U <b>nits:</b>	mg/kg	Date Analyzed: 12/21/17 18:56	SU	RROGATE R	ECOVERY S	STUDY				
	TPH I	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags			
1-Chlorooc	tane		80.3	100	80	70-135				
o-Terpheny	1		42.9	50.0	86	70-135				
Lab Batch	#: 3036675	Sample: 571798-009 SD / M	ISD Bate	h: 1 Matrix	Soil	1	1			
U <b>nits:</b>	mg/kg	Date Analyzed: 12/22/17 01:06	SU	RROGATE R	ECOVERY	STUDY				
	ВТЕХ	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags			
1.4 Difluor	obenzene	<b>.</b>	0.0324	0.0300	108	80-120				
1,4-DIIIu01										

\* Surrogate outside of Laboratory QC limits

\*\* Surrogates outside limits; data and surrogates confirmed by reanalysis

\*\*\* Poor recoveries due to dilution

Surrogate Recovery [D] = 100 \* A / B


	rders: 57179 #: 3037188	8, <b>Sample:</b> 572153-001 SD / N	MSD Batch	Project ID: 1 Matrix:			
Units:	mg/kg	Date Analyzed: 12/28/17 18:15	SU	RROGATE RI	ECOVERY S	STUDY	
	TPH I	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooc	ctane		88.4	100	88	70-135	
o-Terpheny	yl		43.9	50.0	88	70-135	

\* Surrogate outside of Laboratory QC limits

\*\* Surrogates outside limits; data and surrogates confirmed by reanalysis

\*\*\* Poor recoveries due to dilution

Surrogate Recovery [D] = 100 \* A / B





#### Project Name: COG-Gunner 16 SWD #1 (Pad Area)

Work Order #: 571798	Project ID:										
Analyst: ALJ	D	ate Prepar	red: 12/21/20	17			Date A	nalyzed:	12/21/2017		
Lab Batch ID: 3036624 Sample: 7636429-1	-BKS	Batcl	<b>h #:</b> 1					Matrix:	Solid		
Units: mg/kg		BLAN	K /BLANK	SPIKE / 1	BLANK S	SPIKE DUP	LICATE	RECOV	ERY STUI	ŊŶ	
BTEX by EPA 8021B Analytes	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
Benzene	< 0.00202	0.101	0.0826	82	0.100	0.0851	85	3	70-130	35	
Toluene	< 0.00202	0.101	0.0764	76	0.100	0.0786	79	3	70-130	35	
Ethylbenzene	< 0.00202	0.101	0.0828	82	0.100	0.0850	85	3	71-129	35	
m,p-Xylenes	< 0.00403	0.202	0.165	82	0.201	0.169	84	2	70-135	35	
o-Xylene	< 0.00202	0.101	0.0770	76	0.100	0.0785	79	2	71-133	35	
Analyst: ALJ	D	ate Prepar	red: 12/21/20	17			Date A	nalyzed:	12/22/2017		
Lab Batch ID: 3036675 Sample: 7636472-1	-BKS	Batcl	<b>h #:</b> 1					Matrix:	Solid		
Units: mg/kg		BLAN	K /BLANK	SPIKE / 1	BLANK S	SPIKE DUP	LICATE	RECOV	ERY STUI	DY	
BTEX by EPA 8021B Analytes	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
Benzene	< 0.00200	0.0998	0.0872	87	0.100	0.0854	85	2	70-130	35	
Toluene	< 0.00200	0.0998	0.0805	81	0.100	0.0788	79	2	70-130	35	
Ethylbenzene	< 0.00200	0.0998	0.0871	87	0.100	0.0848	85	3	71-129	35	
m,p-Xylenes	< 0.00399	0.200	0.172	86	0.201	0.167	83	3	70-135	35	
o-Xylene	< 0.00200	0.0998	0.0824	83	0.100	0.0798	80	3	71-133	35	





#### Project Name: COG-Gunner 16 SWD #1 (Pad Area)

Work Order #: 571798							Proj	ject ID:			
Analyst: LRI	D	ate Prepar	red: 12/26/201	7			Date A	nalyzed: 1	2/26/2017		
Lab Batch ID: 3036899 Sample: 7636590-1-	-BKS	Batcl	<b>h #:</b> 1					Matrix: S	Solid		
Units: mg/kg		BLAN	K /BLANK S	SPIKE / 1	BLANK S	SPIKE DUPI	LICATE	RECOVI	ERY STUD	ΟY	
Inorganic Anions by EPA 300/300.1 Analytes	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
Chloride	<5.00	250	244	98	250	241	96	1	90-110	20	
Analyst: LRI	D	ate Prepar	red: 12/26/201	7	•		Date A	nalyzed: 1	2/27/2017	•	·'
Lab Batch ID: 3036946 Sample: 7636593-1-	-BKS Batch #: 1 Matrix: Solid										
Units: mg/kg		S Batch #: 1 Matrix: Solid BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY									
Inorganic Anions by EPA 300/300.1 Analytes	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
Chloride	<5.00	250	253	101	250	250	100	1	90-110	20	
Analyst: ARM			253 red: 12/21/201		250	250		1 nalyzed: 1		20	
	D	ate Prepar			250	250		-	2/21/2017	20	
Analyst: ARM	D	ate Prepar Batcl	red: 12/21/201	17		<u> </u>	Date A	nalyzed: 1 Matrix: S	2/21/2017 Solid		
Analyst:         ARM           Lab Batch ID:         3036672         Sample:         7636449-1-	D	ate Prepar Batcl	red: 12/21/201 h #: 1	17		<u> </u>	Date A	nalyzed: 1 Matrix: S	2/21/2017 Solid		Flag
Analyst: ARM Lab Batch ID: 3036672 Sample: 7636449-1- Units: mg/kg TPH By SW8015 Mod	D -BKS Blank Sample Result	ate Prepar Batcl BLAN Spike Added	red: 12/21/201 h #: 1 K /BLANK S Blank Spike Result	SPIKE / 1 Blank Spike %R	BLANK S Spike Added	SPIKE DUPI Blank Spike Duplicate	Date A LICATE Blk. Spk Dup. %R	nalyzed: 1 Matrix: S RECOVI	2/21/2017 Solid ERY STUE Control Limits	DY Control Limits	Flag





#### Project Name: COG-Gunner 16 SWD #1 (Pad Area)

Work Order	·#: 571798				Project ID:								
Analyst:	JUM	D	ate Prepar	red: 12/28/201	17 <b>Date Analyzed:</b> 12/28/2017								
Lab Batch ID	<b>:</b> 3037188 <b>Sample:</b> 7636777-1	BKS	<b>h #:</b> 1	Matrix: Solid									
Units:	mg/kg		K /BLANK S	SPIKE / 1	BLANK S	SPIKE DUPI	LICATE	RECOVI	ERY STUI	DY			
	TPH By SW8015 Mod	Blank Sample Result [A]	Spike Added	Blank Spike Result	Blank Spike %R	Spike Added	Blank Spike Duplicate	Blk. Spk Dup. %R	RPD %	Control Limits %R	Control Limits %RPD	Flag	
Analy	vtes		[B]	[C]	[D]	[E]	Result [F]	[G]					
Gasoline I	Range Hydrocarbons (GRO)	<15.0	1000	939	94	1000	866	87	8	70-135	35		
Diesel Rat	nge Organics (DRO)	<15.0	1000	975	98	1000	920	92	6	70-135	35		



# STR ACCREDING

#### Project Name: COG-Gunner 16 SWD #1 (Pad Area)

<b>Work Order # :</b> 571798						Project II	):				
Lab Batch ID: 3036624	QC- Sample ID:	571522	-005 S	Ba	tch #:	1 Matrix	<b>x:</b> Soil				
<b>Date Analyzed:</b> 12/21/2017	Date Prepared:	12/21/2	017	An	alyst: A	ALJ					
<b>Reporting Units:</b> mg/kg		Μ	ATRIX SPIK	E / MAT	RIX SPI	KE DUPLICA	TE REC	OVERY	STUDY		
BTEX by EPA 8021B	Parent Sample Result	Spike Added	Spiked Sample Result [C]	Spiked Sample %R	Spike Added	Duplicate Spiked Sample Result [F]	Spiked Dup. %R	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes	[A]	[B]		[D]	[E]		[G]				
Benzene	< 0.00199	0.0994	0.0734	74	0.0998	0.0880	88	18	70-130	35	
Toluene	< 0.00199	0.0994	0.0689	69	0.0998	0.0833	83	19	70-130	35	X
Ethylbenzene	< 0.00199	0.0994	0.0721	73	0.0998	0.0767	77	6	71-129	35	
m,p-Xylenes	< 0.00398	0.199	0.142	71	0.200	0.138	69	3	70-135	35	X
o-Xylene	< 0.00199	0.0994	0.0675	68	0.0998	0.0685	69	1	71-133	35	X
Lab Batch ID: 3036675	QC- Sample ID:	571798	-009 S	Ba	tch #:	1 Matrix	<b>x:</b> Soil				
<b>Date Analyzed:</b> 12/22/2017	Date Prepared:	12/21/2	017	An	alyst: A	ALJ					
<b>Reporting Units:</b> mg/kg		Μ	ATRIX SPIK	E / MAT	RIX SPI	KE DUPLICA	TE REC	OVERY	STUDY		
BTEX by EPA 8021B 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
Benzene	<0.00201	0.100	0.0767	77	0.101	0.0767	76	0	70-130	35	
Toluene	< 0.00201	0.100	0.0707	71	0.101	0.0702	70	1	70-130	35	
Ethylbenzene	< 0.00201	0.100	0.0745	75	0.101	0.0747	74	0	71-129	35	
m,p-Xylenes	< 0.00402	0.201	0.146	73	0.202	0.147	73	1	70-135	35	
o-Xylene	<0.00201	0.100	0.0694	69	0.101	0.0702	70	1	71-133	35	X

Matrix Spike Percent Recovery  $[D] = 100^{*}(C-A)/B$ Relative Percent Difference RPD =  $200^{*}|(C-F)/(C+F)|$  Matrix Spike Duplicate Percent Recovery [G] = 100\*(F-A)/E



#### Project Name: COG-Gunner 16 SWD #1 (Pad Area)



Work Order # :	571798						Project II	):				
Lab Batch ID:	3036899	QC- Sample ID:	571456	-002 S	Ba	tch #:	1 Matrix	<b>k:</b> Soil				
Date Analyzed:	12/26/2017	Date Prepared:	12/26/2	017	An	alyst: I	RI					
<b>Reporting Units:</b>	mg/kg		Μ	ATRIX SPIK	E / MAT	RIX SPI	KE DUPLICA	TE REC	OVERY	STUDY		
Inorgar	nic Anions by EPA 300/300.1	Parent Sample Result	Spike Added	Spiked Sample Result [C]	Spiked Sample %R	Spike Added	Duplicate Spiked Sample Result [F]	Spiked Dup. %R	RPD %	Control Limits %R	Control Limits %RPD	Flag
	Analytes	[A]	[B]	[C]	[D]	[E]	Kesun [F]	[G]	/0	70K	70KI D	
Chloride		1050	245	1210	65	245	1210	65	0	90-110	20	X
Lab Batch ID:	3036899	QC- Sample ID:	572053	-007 S	Ba	tch #:	1 Matrix	k: Soil				
Date Analyzed:	12/26/2017	Date Prepared:12/26/2017Analyst:LRI										
<b>Reporting Units:</b>	mg/kg		Μ	ATRIX SPIK	E / MAT	RIX SPI	KE DUPLICA	TE REC	OVERY	STUDY		
Inorgar	nic Anions by EPA 300/300.1	Parent Sample Result	Spike Added	Spiked Sample Result [C]	Spiked Sample %R	Spike Added	Duplicate Spiked Sample Result [F]	Spiked Dup. %R	RPD %	Control Limits %R	Control Limits %RPD	Flag
	Analytes	[A]	[B]	[C]	[D]	[E]	Kesun [F]	76K [G]	/0	70K	70KF D	
Chloride		292	246	551	105	246	550	105	0	90-110	20	
Lab Batch ID:	3036946	QC- Sample ID:	571798	-005 S	Ba	tch #:	1 Matrix	<b>k:</b> Soil				
Date Analyzed:	12/27/2017	Date Prepared:	12/26/2	017	An	alyst: I	RI					
<b>Reporting Units:</b>	mg/kg		Μ	ATRIX SPIK	E / MAT	RIX SPI	KE DUPLICA	TE REC	OVERY	STUDY		
Inorgar	nic Anions by EPA 300/300.1	Parent Sample Result	Spike Added	Spiked Sample Result	Spiked Sample %R	Spike Added	Duplicate Spiked Sample Result [F]	Spiked Dup. %R	RPD %	Control Limits %R	Control Limits %RPD	Flag
	Analytes	[A]	Added [B]	[C]	%K [D]	E]	Kesult [F]	%K [G]	-/0	-70K	70KPD	
Chloride		29.0	250	289	104	250	290	104	0	90-110	20	

Matrix Spike Percent Recovery  $[D] = 100^{*}(C-A)/B$ Relative Percent Difference RPD =  $200^{*}|(C-F)/(C+F)|$  Matrix Spike Duplicate Percent Recovery [G] = 100\*(F-A)/E



#### Project Name: COG-Gunner 16 SWD #1 (Pad Area)



Work Order # :	571798						Project II	<b>)</b> :				
Lab Batch ID:	3036946	QC- Sample ID:	571798	-014 S	Ba	tch #:	1 Matrix	: Soil				
Date Analyzed:	12/27/2017	Date Prepared:	12/26/2	017	An	alyst: I	RI					
<b>Reporting Units:</b>	mg/kg		N	IATRIX SPIK	E / MAT	RIX SPI	KE DUPLICA	TE REC	OVERY	STUDY		
Inorga	anic Anions by EPA 300/300.1	Parent Sample Result	Spike Added	Spiked Sample Result [C]	Spiked Sample %R	Spike Added	Duplicate Spiked Sample Result [F]	Spiked Dup. %R	RPD %	Control Limits %R	Control Limits %RPD	Flag
	Analytes	[A]	[B]	[C]	[D]	[E]	Kesun [F]	[G]	/0	70K	70KI D	
Chloride		45.1	245	295	102	245	295	102	0	90-110	20	
Lab Batch ID:	3036672	QC- Sample ID:	571792	-001 S	Ba	tch #:	1 Matrix	: Soil				
Date Analyzed:	12/21/2017	Date Prepared:12/21/2017Analyst:ARM										
<b>Reporting Units:</b>	mg/kg	MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY										
	TPH By SW8015 Mod	Parent Sample Result	Spike	Spiked Sample Result	Spiked Sample %R	Spike	Duplicate Spiked Sample	Spiked Dup.	RPD	Control Limits	Control Limits	Flag
	Analytes	[A]	Added [B]	[C]	%K [D]	Added [E]	Result [F]	%R [G]	%	%R	%RPD	
Gasoline Rang	e Hydrocarbons (GRO)	<15.0	998	858	86	1000	841	84	2	70-135	35	
Diesel Range O	Organics (DRO)	<15.0	998	869	87	1000	857	86	1	70-135	35	
Lab Batch ID:	3037188	QC- Sample ID:	572153	-001 S	Ba	tch #:	1 Matrix	: Soil				
Date Analyzed:	12/28/2017	Date Prepared:	12/28/2	017	An	alyst: J	UM					
<b>Reporting Units:</b>	mg/kg		N	IATRIX SPIK	E / MAT	RIX SPI	KE DUPLICA	TE REC	OVERY	STUDY		
	TPH By SW8015 Mod	Parent Sample Result	Spike Added	Spiked Sample Result [C]	Spiked Sample %R	Spike Added	Duplicate Spiked Sample Result [F]	Spiked Dup. %R	RPD %	Control Limits %R	Control Limits %RPD	Flag
	Analytes	[A]	[B]	[0]	[D]	[E]	Result [F]	[G]				
Gasoline Rang	e Hydrocarbons (GRO)	<15.0	1000	798	80	1000	916	92	14	70-135	35	
Diesel Range (	Organics (DRO)	18.0	1000	771	75	1000	755	74	2	70-135	35	

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

Project Name: Analysis Request of Chain of Custody Record Relinquished by: Receiving Laboratory: Client Name: **Belinquished by** nvoice to: telinquished by: Comments: county, state) roject Location LAB USE LAB # 1 Crac Ę Kay deper 604 BH-3F g 1. -: --200 unner -11 be ma N 200 6 Tetra Tech, Inc. 9-10 51-171 N 0 Samples 6-7 4-5 Ko 24-25 SAMPLE IDENTIFICATION 0 9.20 p ١ 6 1 S 3 M 51 0000 12/19/ 137 Date: Date: Date: 5 RH 1 # Denzene lime: Time: ime ex ceed 600 C 20 exceeds Area ORIGINAL COPY Sampler S/gnature: Project #: Site Manager: Received by Received p Received by: 5 N EAR: ANnus 8 DATE 18/17 SAMPLING ina 10 mg/kg, total 25 5 TIME 5 YANN WATER Unacul MATRIX 4000 N. Big Spring Street, Ste 401 Midland, Texas 79705 Tel (432) 682-4559 Fax (432) 682-3946 SOIL onavez 12/19 Date: Date: Date: HCL D PRESERVATIVE HNO<sub>3</sub> WIEX METHOD 2:35 5 4 × ICE Time: Ime l'ime: 5 # CONTAINERS 8 FILTERED (Y/N) 17 BTEX 8021B BTEX 8260B Sample Temperatur-X (Circle) HAND DEL ONLY ONLY TPH TX1005 (Ext to C35) 0.1 TPH 8015M ( GRO - DRO - CBO - MP 1 PAH 8270C Circle or Specify Method Total Metals Ag As Ba Cd Cr Pb Se Hg 571798 Page TCLP Metals Ag As Ba Cd Cr Pb Se Hg Temp: Corrected Temp: CF:(0-6: -0.2°C) RUSH: Same Dav TCLP Volatiles REMARKS: ANALYSIS REQUEST TCLP Semi Volatiles (6-23: +0.2°C) RCI GC/MS Vol. 8260B / 624 0 GC/MS Semi. Vol. 8270C/625 PCB's 8082 / 608 NORM PLM (Asbestos) IR ID:R-8 01 h-K + + Chloride tx + + X × No TDS Chloride Sulfate General Water Chemistry (see attached list) - -Anion/Cation Balance e M M Hold

of 25

Final 1.00

Relinquished by: delinquished by: refinduished ph: Receiving Laboratory: Invoice to: Project Name Client Name: Analysis Request of Chain of Custody Record Comments: county, state) roject Location: LAB USE LAB # 1She Ħ g see peuge BH-314author DG 1. 11 ~ 11 Re ---5 Koince Co N 50 Tetra Tech, Inc. 4 54 6-7 SAMPLE IDENTIFICATION 9-10 0 4.5 2-3 0, 4.15 30 6 1-10 4-15 8 3 100 SUUC p N Date: Date: Date: 1.01 # Time: I Ime; l ime: 605 136 K R Site Manager: ORIGINAL COPY Received by Received Received by: Sampler Signa Project #: N KIRA EAR NUNNUN 8 DATE SAMPLING 5 TIME CNONCT WATER MATRIX A メ × 4 SOIL × 4000 N. Big Spring Street, Ste 401 Midland, Texas 79705 17Re 010 Tel (432) 682-4559 Fax (432) 682-3946 Date: Date: Date: HCL METHOD È HNO<sub>3</sub> 2:35 × F < \* × X ICE 1 Time: Time: I Ime: # CONTAINERS FILTERED (Y/N) (Circle) HANE BTEX 80218 BTEX 8260B Sample Temper × TPH TX1005 (Ext to C35) UNLY ONLY × PH 8015M (GBO DRO ORD MIC) PAH 8270C (Circle or Specify Method No. Corrected Temp: Total Metals Ag As Ba Cd Cr Pb Se Hg Temp: CF:(0-6: -0.2°C) TCLP Metals Ag As Ba Cd Cr Pb Se Hg (6-23: +0.2°C) REMARKS: TCLP Volatiles ANALYSIS REQUEST RUSH: Same Day 24 hr TCLP Semi Volatiles RCI GC/MS Vol. 8260B / 624 19OPage GC/MS Semi. Vol. 8270C/625 PCB's 8082 / 608 NORM 1. IR ID:R-8 PLM (Asbestos) Ar 144 17 Chloride) Chloride TDS Sulfate 48 hr General Water Chemistry (see attached list) Anion/Cation Balance 72 hr of the Hold of 25 Final 1.00



Client: Tetra Tech- Midland

# **XENCO Laboratories**



Prelogin/Nonconformance Report- Sample Log-In

Client: Tetra Tech- Midland	Acceptable Temperature Range: 0 - 6 degC
Date/ Time Received: 12/19/2017 04:05:00 PM	Air and Metal samples Acceptable Range: Ambient
Work Order #: 571798	Temperature Measuring device used : R8
Sample Re	ceipt Checklist Comments
#1 *Temperature of cooler(s)?	1
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	Yes
#5 Custody Seals intact on sample bottles?	Yes
#6*Custody Seals Signed and dated?	Yes
#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

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

Analyst:

PH Device/Lot#:

#18 Water VOC samples have zero headspace?

Date: 12/20/2017

N/A

Checklist completed by: Jessica Vramer Jessica Kramer Checklist reviewed by: Markana Kelsey Brooks

Date: 12/26/2017

# Analytical Report 571800

for Tetra Tech- Midland

**Project Manager: Ike Tavarez** 

COG-Gunner 16 SWD #1 (Pasture)

#### 28-DEC-17

Collected By: Client





#### 1211 W. Florida Ave, Midland TX 79701

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)



28-DEC-17



Project Manager: **Ike Tavarez Tetra Tech- Midland** 4000 N. Big Spring Suite 401 Midland, TX 79705

#### Reference: XENCO Report No(s): **571800 COG-Gunner 16 SWD #1 (Pasture)** Project Address: Lea County NM

#### Ike Tavarez:

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) 571800. 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. 571800 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,

le p

Mike Kimmel Client Services Manager

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Sample Id BH-4 0-1 BH-4 2-3 BH-4 4-5 BH-4 6-7 BH-4 9-10 BH-4 14-15 BH-5 0-1 BH-5 2-3 BH-5 4-5 BH-5 6-7 BH-5 9-10 BH-5 14-15 BH-6 0-1 BH-6 2-3 BH-6 4-6 BH-6 6-7 BH-6 9-10 BH-6 14-15

Sample Cross	s Reference	571800
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### Tetra Tech- Midland, Midland, TX

COG-Gunner 16 SWD #1 (Pasture)

Matrix	Date Collected	Sample Depth	Lab Sample Id
S	12-19-17 00:00	0 - 1	571800-001
S	12-19-17 00:00	2 - 3	571800-002
S	12-19-17 00:00	4 - 5	571800-003
S	12-19-17 00:00	6 - 7	571800-004
S	12-19-17 00:00	9 - 10	571800-005
S	12-19-17 00:00	14 - 15	571800-006
S	12-19-17 00:00	0 - 1	571800-007
S	12-19-17 00:00	2 - 3	571800-008
S	12-19-17 00:00	4 - 5	571800-009
S	12-19-17 00:00	6 - 7	571800-010
S	12-19-17 00:00	9 - 10	571800-011
S	12-19-17 00:00	14 - 15	571800-012
S	12-19-17 00:00	0 - 1	571800-013
S	12-19-17 00:00	2 - 3	571800-014
S	12-19-17 00:00	4 - 6	571800-015
S	12-19-17 00:00	6 - 7	571800-016
S	12-19-17 00:00	9 - 10	571800-017
S	12-19-17 00:00	14 - 15	571800-018



## CASE NARRATIVE

Client Name: Tetra Tech- Midland Project Name: COG-Gunner 16 SWD #1 (Pasture)

Project ID: Work Order Number(s): 571800 
 Report Date:
 28-DEC-17

 Date Received:
 12/19/2017

#### Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments: Batch: LBA-3036675 BTEX by EPA 8021B Soil samples were not received in Terracore kits and therefore were prepared by method 5030.



Project Id:Contact:Ike TavarezProject Location:Lea County NM

Certificate of Analysis Summary 571800

Tetra Tech- Midland, Midland, TX

Project Name: COG-Gunner 16 SWD #1 (Pasture)



Date Received in Lab:Tue Dec-19-17 04:05 pmReport Date:28-DEC-17Project Manager:Kelsey Brooks

	Lab Id:	571800-0	001	571800-0	002	571800-0	03	571800-0	04	571800-0	005	571800-0	06
Analysis Paguested	Field Id:	BH-4 0-	-1	BH-4 2	-3	BH-4 4-	5	BH-4 6-	7	BH-4 9-	10	BH-4 14-	15
Analysis Requested	Depth:	0-1		2-3		4-5		6-7		9-10		14-15	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Dec-19-17	00:00	Dec-19-17	00:00	Dec-19-17 (	00:00	Dec-19-17	00:00	Dec-19-17	00:00	Dec-19-17 (	00:00
BTEX by EPA 8021B	Extracted:	Dec-21-17	17:00	Dec-21-17	17:00								
	Analyzed:	Dec-22-17	03:18	Dec-22-17	03:37								
	Units/RL:	mg/kg	RL	mg/kg	RL								
Benzene		< 0.00202	0.00202	< 0.00200	0.00200								
Toluene		< 0.00202	0.00202	< 0.00200	0.00200								
Ethylbenzene		< 0.00202	0.00202	< 0.00200	0.00200								
m,p-Xylenes		< 0.00404	0.00404	< 0.00401	0.00401								
o-Xylene		< 0.00202	0.00202	< 0.00200	0.00200								
Total Xylenes		< 0.00202	0.00202	< 0.00200	0.00200								
Total BTEX		< 0.00202	0.00202	< 0.00200	0.00200								
Inorganic Anions by EPA 300/300.1	Extracted:	Dec-26-17	12:06	Dec-26-17	12:06	Dec-26-17 1	2:06	Dec-26-17	2:06	Dec-26-17	12:50	Dec-26-17 1	12:50
	Analyzed:	Dec-27-17	13:26	Dec-27-17	13:33	Dec-27-17 1	3:40	Dec-27-17	3:47	Dec-28-17	10:10	Dec-27-17 1	15:03
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		10.0	4.97	40.2	4.99	813	4.98	5.60	4.93	43.4	4.91	69.3	4.95
TPH By SW8015 Mod	Extracted:	Dec-21-17	07:00	Dec-21-17	07:00								
	Analyzed:	Dec-22-17	01:07	Dec-22-17	01:29								
	Units/RL:	mg/kg	RL	mg/kg	RL								
Gasoline Range Hydrocarbons (GRO)		<15.0	15.0	<14.9	14.9								
Diesel Range Organics (DRO)		<15.0	15.0	<14.9	14.9								
Oil Range Hydrocarbons (ORO)		<15.0	15.0	<14.9	14.9								
Total TPH		<15.0	15.0	<14.9	14.9								

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.%

Mike Kimmel Client Services Manager



Project Id:Contact:Ike TavarezProject Location:Lea County NM

Certificate of Analysis Summary 571800

Tetra Tech- Midland, Midland, TX

SUP ACCREDING

Project Name: COG-Gunner 16 SWD #1 (Pasture)

Date Received in Lab:Tue Dec-19-17 04:05 pmReport Date:28-DEC-17Project Manager:Kelsey Brooks

	Lab Id:	571800-0	007	571800-0	008	571800-0	09	571800-0	10	571800-0	011	571800-0	012
An aluaia De au este d	Field Id:	BH-5 0-	-1	BH-5 2	-3	BH-5 4-	5	BH-5 6-	7	BH-5 9-	10	BH-5 14-	-15
Analysis Requested	Depth:	0-1		2-3		4-5		6-7		9-10		14-15	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Dec-19-17	00:00	Dec-19-17	00:00	Dec-19-17 (	00:00	Dec-19-17 (	00:00	Dec-19-17	00:00	Dec-19-17	00:00
BTEX by EPA 8021B	Extracted:	Dec-21-17	17:00	Dec-21-17	17:00								
	Analyzed:	Dec-22-17	03:56	Dec-22-17	04:14								
	Units/RL:	mg/kg	RL	mg/kg	RL								
Benzene		< 0.00200	0.00200	< 0.00200	0.00200								
Toluene		< 0.00200	0.00200	< 0.00200	0.00200								
Ethylbenzene		< 0.00200	0.00200	< 0.00200	0.00200								
m,p-Xylenes		< 0.00399	0.00399	< 0.00400	0.00400								
o-Xylene		< 0.00200	0.00200	< 0.00200	0.00200								
Total Xylenes		< 0.00200	0.00200	< 0.00200	0.00200								
Total BTEX		< 0.00200	0.00200	< 0.00200	0.00200								
Inorganic Anions by EPA 300/300.1	Extracted:	Dec-26-17	12:50	Dec-26-17	12:50	Dec-26-17 1	2:50	Dec-26-17 1	2:50	Dec-26-17	12:50	Dec-26-17	12:50
	Analyzed:	Dec-27-17	15:10	Dec-27-17	15:17	Dec-27-17 15:24		Dec-27-17 15:44		Dec-27-17	15:51	Dec-27-17 15:58	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		2850	24.7	6380	49.2	864	4.92	<4.99	4.99	8.35	4.96	67.1	5.00
TPH By SW8015 Mod	Extracted:	Dec-21-17	07:00	Dec-21-17	07:00								
	Analyzed:	Dec-22-17	01:49	Dec-22-17	02:09								
	Units/RL:	mg/kg	RL	mg/kg	RL								
Gasoline Range Hydrocarbons (GRO)		<15.0	15.0	<15.0	15.0								
Diesel Range Organics (DRO)		<15.0	15.0	<15.0	15.0								
Oil Range Hydrocarbons (ORO)		<15.0	15.0	<15.0	15.0								
Total TPH		<15.0	15.0	<15.0	15.0								

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Version: 1.%

Mike Kimmel Client Services Manager



Project Id:Contact:Ike TavarezProject Location:Lea County NM

Certificate of Analysis Summary 571800

Tetra Tech- Midland, Midland, TX

Project Name: COG-Gunner 16 SWD #1 (Pasture)



Date Received in Lab:Tue Dec-19-17 04:05 pmReport Date:28-DEC-17Project Manager:Kelsey Brooks

	Lab Id:	571800-0	013	571800-0	014	571800-0	15	571800-0	16	571800-0	)17	571800-0	018
Analysis Paguested	Field Id:	BH-6 0	-1	BH-6 2	-3	BH-6 4-	6	BH-6 6-	7	BH-6 9-	10	BH-6 14-	15
Analysis Requested	Depth:	0-1		2-3		4-6		6-7		9-10		14-15	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Dec-19-17	00:00	Dec-19-17	00:00	Dec-19-17 (	00:00	Dec-19-17 (	00:00	Dec-19-17	00:00	Dec-19-17 (	00:00
BTEX by EPA 8021B	Extracted:	Dec-21-17	17:00	Dec-21-17	17:00								
	Analyzed:	Dec-22-17	04:33	Dec-22-17	04:52								
	Units/RL:	mg/kg	RL	mg/kg	RL								
Benzene		< 0.00201	0.00201	< 0.00199	0.00199								
Toluene		< 0.00201	0.00201	< 0.00199	0.00199								
Ethylbenzene		< 0.00201	0.00201	< 0.00199	0.00199								
m,p-Xylenes		< 0.00402	0.00402	< 0.00398	0.00398								
o-Xylene		< 0.00201	0.00201	<0.00199	0.00199								
Total Xylenes		< 0.00201	0.00201	<0.00199	0.00199								
Total BTEX		< 0.00201	0.00201	<0.00199	0.00199								
Inorganic Anions by EPA 300/300.1	Extracted:	Dec-26-17	12:50	Dec-26-17	12:50	Dec-26-17 1	2:50	Dec-26-17	2:50	Dec-26-17	12:50	Dec-26-17 1	12:50
	Analyzed:	Dec-27-17	16:05	Dec-27-17	16:12	Dec-27-17 1	6:40	Dec-28-17	0:45	Dec-27-17	16:47	Dec-27-17 1	17:08
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		39.2	4.97	3390	24.6	3890	24.9	5.52	4.90	85.6	4.99	209	4.92
TPH By SW8015 Mod	Extracted:	Dec-21-17	16:00	Dec-21-17	16:00								
	Analyzed:	Dec-22-17	03:54	Dec-22-17	04:54								
	Units/RL:	mg/kg	RL	mg/kg	RL								
Gasoline Range Hydrocarbons (GRO)	· · · · · · · · · · · · · · · · · · ·	<15.0	15.0	<15.0	15.0								
Diesel Range Organics (DRO)		<15.0	15.0	<15.0	15.0								
Oil Range Hydrocarbons (ORO)		<15.0	15.0	<15.0	15.0								
Total TPH		<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.

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Version: 1.%

Mike Kimmel Client Services 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
- + 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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1211 W Florida Ave, Midland, TX 79701	(432) 563-1800	(432) 563-1713
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Units: n	ng/kg	Date Analyzed: 12/22/17 01:07	~-		EGOUPPE		
	TPH By SW801 Analytes Chlorooctane Ferpheny1 D Batch #: 3036672 its: mg/kg Date A TPH By SW803 Analytes Chlorooctane Ferpheny1 D Batch #: 3036672 its: mg/kg Date A TPH By SW803 Analytes Chlorooctane Ferpheny1 D Batch #: 3036672 its: mg/kg Date A TPH By SW803 Analytes Chlorooctane Ferpheny1 D Batch #: 3036672 its: mg/kg Date A	Date Analyzeu: 12/22/17/01.07	SU	<b>RROGATE R</b>	ECOVERY	STUDY	
	TPH F	By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flage
		Analytes			[D]		
1-Chlorooctane			76.1	99.8	76	70-135	
o-Terphenyl			39.9	49.9	80	70-135	
Lab Batch #: 3	036672	Sample: 571800-002 / SMP	Batc	h: 1 Matrix	: Soil		
Units: n	ng/kg	Date Analyzed: 12/22/17 01:29	SU	RROGATE R	ECOVERY	STUDY	
		By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flage
1-Chlorooctane		Analy C.S	80.7	99.6	81	70-135	
o-Terphenyl			41.8	49.8	84	70-135	
	036672	Sample: 571800-007 / SMP	Batc		-		
Units: n	ng/kg	Date Analyzed: 12/22/17 01:49	SU	RROGATE R	ECOVERYS	STUDY	
	TPH F	By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flag
		Analytes	[A]	[D]	[D]	70K	
1-Chlorooctane			83.5	99.8	84	70-135	
o-Terphenyl			43.2	49.9	87	70-135	
Lab Batch #: 3	036672	Sample: 571800-008 / SMP	Batc	h: 1 Matrix	: Soil		
Units: n	ng/kg	Date Analyzed: 12/22/17 02:09	SU	RROGATE R	ECOVERY	STUDY	
		By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flage
1-Chlorooctane			89.0	99.8	89	70-135	
o-Terphenyl			45.5	49.9	91	70-135	
	036675	Sample: 571800-001 / SMP	Batc				
Units: n	ng/kg	Date Analyzed: 12/22/17 03:18	SU	RROGATE R	ECOVERY	STUDY	
		by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flag
		Analytes			[D]		
1,4-Difluorobenz	ene		0.0273	0.0300	91	80-120	

\* Surrogate outside of Laboratory QC limits

\*\* Surrogates outside limits; data and surrogates confirmed by reanalysis

\*\*\* Poor recoveries due to dilution

Surrogate Recovery [D] = 100 \* A / B



Units:	mg/kg	Date Analyzed: 12/22/17 03:37	CT.	RROGATE R	FCOVEDV		
Jints.	ing/kg		SU	KKUGAIE K			
	BTEX	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
		Analytes			[D]		
1,4-Difluoro	obenzene		0.0289	0.0300	96	80-120	
4-Bromoflu	orobenzene		0.0261	0.0300	87	80-120	
Lab Batch	#: 3036677	Sample: 571800-013 / SMP	Batc	h: 1 Matrix	: Soil		
Units:	mg/kg	Date Analyzed: 12/22/17 03:54	SU	RROGATE R	ECOVERY S	STUDY	
	TPH I	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooct	ane	Anarytes	73.5	99.9	74	70-135	
o-Terphenyl			39.6	50.0	74	70-135	
	#: 3036675	Sample: 571800-007 / SMP	Batc			10 155	
Units:	mg/kg	Date Analyzed: 12/22/17 03:56		RROGATE R		STUDY	
	BTEX	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flage
		Analytes			[D]		
1,4-Difluoro	obenzene		0.0278	0.0300	93	80-120	
4-Bromoflu	orobenzene		0.0261	0.0300	87	80-120	
Lab Batch	#: 3036675	Sample: 571800-008 / SMP	Batc	h: 1 Matrix	: Soil		
Units:	mg/kg	Date Analyzed: 12/22/17 04:14	SU	RROGATE R	ECOVERY S	STUDY	
	ВТЕХ	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluoro	obenzene		0.0283	0.0300	94	80-120	
4-Bromoflu	orobenzene		0.0282	0.0300	94	80-120	
Lab Batch	#: 3036675	Sample: 571800-013 / SMP	Batc		: Soil	I	
Units:	mg/kg	Date Analyzed: 12/22/17 04:33	SU	RROGATE R	ECOVERY	STUDY	
		X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flage
1,4-Difluoro			0.0288	0.0300	96	80-120	
					1 1 1 1		

\* Surrogate outside of Laboratory QC limits

\*\* Surrogates outside limits; data and surrogates confirmed by reanalysis

\*\*\* Poor recoveries due to dilution

Surrogate Recovery [D] = 100 \* A / B



	r <b>ders :</b> 57180 #: 3036675	0, <b>Sample:</b> 571800-014 / SMP	Batch	Project ID			
Units:	mg/kg	Date Analyzed: 12/22/17 04:52	SU	RROGATE R	RECOVERY	STUDY	
	BTEX	K by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
		Analytes			[D]		
1,4-Difluor	obenzene		0.0287	0.0300	96	80-120	
4-Bromoflu	orobenzene		0.0279	0.0300	93	80-120	
Lab Batch	#: 3036677	Sample: 571800-014 / SMP	Batch	a: 1 Matrix	: Soil		
Units:	mg/kg	Date Analyzed: 12/22/17 04:54	SU	RROGATE R	RECOVERY	STUDY	
		By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooc		Analytes	83.3	99.7	84	70-135	
o-Terpheny			43.6	49.9	87	70-135	
	#: 3036672	<b>Sample:</b> 7636449-1-BLK / E			Solid	/0-135	
Lab Batch Units:	mg/kg	<b>Date Analyzed:</b> 12/21/17 17:13					
omus.	ing/kg	Date Anaryzett. 12/21/17 17:15	501	RROGATE R	LCOVERY	STUDY	
		3y SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
		Analytes			[D]		
1-Chlorooc	tane		83.4	100	83	70-135	
o-Terpheny			43.3	50.0	87	70-135	
Lab Batch	#: 3036675	Sample: 7636472-1-BLK / E	LK Batch	1 Matrix	: Solid		
Units:	mg/kg	Date Analyzed: 12/22/17 02:03	SUI	RROGATE R	RECOVERY	STUDY	
		K by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluor		•	0.0269	0.0300	90	80-120	
4-Bromoflu	orobenzene		0.0241	0.0300	80	80-120	
Lab Batch	#: 3036677	Sample: 7636450-1-BLK / E	LK Batch	: 1 Matrix	: Solid	I	<u> </u>
Units:	mg/kg	Date Analyzed: 12/22/17 02:51	SU	RROGATE R	RECOVERY	STUDY	
		By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1.011		Analytes	00.0	100		70.125	
1-Chlorooc			80.3	100	80	70-135	
o-Terpheny	1		41.5	50.0	83	70-135	

\* Surrogate outside of Laboratory QC limits

\*\* Surrogates outside limits; data and surrogates confirmed by reanalysis

\*\*\* Poor recoveries due to dilution

Surrogate Recovery [D] = 100 \* A / B



	<b>:ders : 5</b> 7180 #: 3036672	), Sample: 7636449-1-BKS / H	3KS Batch	Project ID n: 1 Matrix			
Units:	mg/kg	Date Analyzed: 12/21/17 17:33	SU	RROGATE R	RECOVERY	STUDY	
	TPH I	By SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
		Analytes			[D]		
1-Chlorooc	tane		84.1	100	84	70-135	
o-Terpheny	1		45.3	50.0	91	70-135	
Lab Batch	#: 3036675	Sample: 7636472-1-BKS / H	BKS Batch	n: 1 Matrix	: Solid		
Units:	mg/kg	Date Analyzed: 12/22/17 00:09	SU	RROGATE R	RECOVERY	STUDY	
	BTEX	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluor	henzene	Anaryus	0.0309	0.0300		80-120	
4-Bromoflu			0.0309	0.0300	103	80-120	
	#: 3036677	Sample: 7636450-1-BKS / H			Solid	00-120	
Lab Batch Units:		Date Analyzed: 12/22/17 03:10					
	mg/kg	Date Analyzeu: 12/22/17 05.10	SU.	RROGATE R	RECOVERY	STUDY	
	TPH I	3y SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
		Analytes			[D]		
1-Chlorooc	tane		77.3	100	77	70-135	
o-Terpheny	1		40.7	50.0	81	70-135	
Lab Batch	#: 3036672	Sample: 7636449-1-BSD / H	BSD Batch	n: 1 Matrix	: Solid		
Units:	mg/kg	Date Analyzed: 12/21/17 17:53	SU	RROGATE R	RECOVERY	STUDY	
	TPH I	By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooc	ane	111111 y CC3	83.7	100	84	70-135	
o-Terpheny			45.4	50.0	91	70-135	
	#: 3036675	Sample: 7636472-1-BSD / H			: Solid		
Units:	mg/kg	Date Analyzed: 12/22/17 00:28		RROGATE R		STUDY	
	BTEX	C by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
		Analytes			[D]		
1,4-Difluor			0.0290	0.0300	97	80-120	
4-Bromoflu	orobenzene		0.0276	0.0300	92	80-120	

\* Surrogate outside of Laboratory QC limits

\*\* Surrogates outside limits; data and surrogates confirmed by reanalysis

\*\*\* Poor recoveries due to dilution

Surrogate Recovery [D] = 100 \* A / B



Units: m	g/kg	Date Analyzed: 12/22/17 03:32	CT		ECOVEDV 4		
ennes. ma	g/ Kg	Date Analyzeu. 12/22/17 05:52	SU	JRROGATE R	ECOVERYS	STUDY	
	TPH F	3y SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flage
		Analytes			[D]	Control Limits %R70-13570-13570-135STUDYControl Limits %R70-135STUDYControl Limits %R80-12080-120STUDYControl Limits %R70-13570-135	
1-Chlorooctane			79.2	100	79	70-135	
o-Terphenyl			41.8	50.0	84	70-135	
Lab Batch #: 30	36672	Sample: 571792-001 S / MS	B Batc	h: 1 Matrix	: Soil		
U <b>nits:</b> mg	g/kg	Date Analyzed: 12/21/17 18:36	SU	JRROGATE R	ECOVERYS	STUDY	
		By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Limits	Flags
1-Chlorooctane			82.7	99.8	83	70-135	
o-Terphenyl			44.6	49.9	89		
Lab Batch #: 30	36675	<b>Sample:</b> 571798-009 S / MS		h: 1 Matrix	: Soil		
Units: mg	g/kg	<b>Date Analyzed:</b> 12/22/17 00:47		JRROGATE R	ECOVERY	STUDY	
		K by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Limits	Flage
		Analytes			[D]		
1,4-Difluorobenze	ne		0.0304	0.0300	101	80-120	
4-Bromofluoroben			0.0303	0.0300	101	80-120	
Lab Batch #: 30	36677	Sample: 571800-013 S / MS	B Bate	h: 1 Matrix	: Soil		
Units: mg	g/kg	Date Analyzed: 12/22/17 04:14	SU	JRROGATE R	ECOVERY	STUDY	
		By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Limits	Flags
1-Chlorooctane			74.4	99.8	75	70-135	
o-Terphenyl			40.5	49.9	81	70-135	
Lab Batch #: 30	36672	Sample: 571792-001 SD / M	ISD Batc	h: 1 Matrix	: Soil		
U <b>nits:</b> mg	g/kg	Date Analyzed: 12/21/17 18:56	SU	JRROGATE R	ECOVERY	STUDY	
		By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Limits	Flag
1 Chloro-stars		Analy 105	20.2	100		70.125	
1-Chlorooctane			80.3	100	80	70-135	
o-Terphenyl			42.9	50.0	86	70 125	

\* Surrogate outside of Laboratory QC limits

\*\* Surrogates outside limits; data and surrogates confirmed by reanalysis

\*\*\* Poor recoveries due to dilution

Surrogate Recovery [D] = 100 \* A / B



Work Orders : 5 Lab Batch #: 303667		MSD Batc	<b>Project ID:</b> h: 1 Matrix:			
Units: mg/kg	Date Analyzed: 12/22/17 01:06	SU	JRROGATE RI	ECOVERY S	STUDY	
B	TEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	Analytes	0.0324	0.0300	108	80-120	
4-Bromofluorobenzene		0.0325	0.0300	108	80-120	
Lab Batch #: 303667	77 Sample: 571800-013 SD / 1	MSD Bate	h: 1 Matrix:	Soil	1	I
Units: mg/kg	Date Analyzed: 12/22/17 04:34	SU	JRROGATE RI	ECOVERY	STUDY	
T	PH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane		82.6	99.9	83	70-135	
o-Terphenyl		43.6	50.0	87	70-135	

\* Surrogate outside of Laboratory QC limits

\*\* Surrogates outside limits; data and surrogates confirmed by reanalysis

\*\*\* Poor recoveries due to dilution

Surrogate Recovery [D] = 100 \* A / B





#### Project Name: COG-Gunner 16 SWD #1 (Pasture)

Work Order #: 571800							Proj	ect ID:			
Analyst: ALJ	D	ate Prepar	red: 12/21/201	17			Date A	nalyzed: 1	12/22/2017		
Lab Batch ID: 3036675 Sample: 7636472-1-	BKS	Batcl	<b>h #:</b> 1					Matrix: S	Solid		
Units: mg/kg		BLAN	K /BLANK	SPIKE / I	BLANK S	SPIKE DUP	LICATE	RECOVI	ERY STUI	DY	
BTEX by EPA 8021B	Blank Sample Result [A]	Spike Added	Blank Spike Result	Blank Spike %R	Spike Added	Blank Spike Duplicate	Blk. Spk Dup. %R	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes		[B]	[C]	[D]	[E]	Result [F]	[G]				
Benzene	< 0.00200	0.0998	0.0872	87	0.100	0.0854	85	2	70-130	35	
Toluene	< 0.00200	0.0998	0.0805	81	0.100	0.0788	79	2	70-130	35	
Ethylbenzene	< 0.00200	0.0998	0.0871	87	0.100	0.0848	85	3	71-129	35	
m,p-Xylenes	< 0.00399	0.200	0.172	86	0.201	0.167	83	3	70-135	35	
o-Xylene	< 0.00200	0.0998	0.0824	83	0.100	0.0798	80	3	71-133	35	
Analyst: LRI	D	ate Prepar	red: 12/26/201	17	•		Date A	nalyzed:	2/27/2017	•	
Lab Batch ID: 3036946 Sample: 7636593-1-	BKS	Batcl	<b>h #:</b> 1					Matrix: S	Solid		
Units: mg/kg		BLAN	K /BLANK	SPIKE / I	BLANK S	SPIKE DUP	LICATE	RECOV	ERY STUI	ЭY	
Inorganic Anions by EPA 300/300.1 Analytes	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
Chloride	<5.00	250	253	101	250	250	100	1	90-110	20	





#### Project Name: COG-Gunner 16 SWD #1 (Pasture)

Work Order #: 571800							Pro	ject ID:			
Analyst: LRI	D	ate Prepar	red: 12/26/201	17			Date A	nalyzed:	12/27/2017		
Lab Batch ID: 3037043 Sample: 7636594-1-	BKS	Batc	<b>h #:</b> 1					Matrix: S	Solid		
Units: mg/kg		BLAN	K/BLANK	SPIKE / ]	BLANK S	SPIKE DUP	LICATE	RECOV	ERY STUI	DY	
Inorganic Anions by EPA 300/300.1 Analytes	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
Chloride	<5.00	250	254	102	250	252	101	1	90-110	20	
Analyst: ARM	<b>Date Prepared:</b> 12/21/2017 <b>Date Analyzed:</b> 12/21/2017										
Lab Batch ID: 3036672 Sample: 7636449-1-	BKS										
Units: mg/kg		BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY									
TPH By SW8015 Mod	Blank Sample Result [A]	Spike Added	Blank Spike Result	Blank Spike %R	Spike Added	Blank Spike Duplicate	Blk. Spk Dup. %R	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes		[B]	[C]	[D]	[E]	Result [F]	[G]				
Gasoline Range Hydrocarbons (GRO)	<15.0	1000	881	88	1000	882	88	0	70-135	35	
Diesel Range Organics (DRO)	<15.0	1000	914	91	1000	919	92	1	70-135	35	
Analyst: ARM	D	ate Prepar	red: 12/21/201	17			Date A	nalyzed:	2/22/2017		
Lab Batch ID: 3036677 Sample: 7636450-1-	BKS	Batc	<b>h #:</b> 1					Matrix: S	Solid		
Units: mg/kg		BLAN	K /BLANK	SPIKE / ]	BLANK S	SPIKE DUP	LICATE	RECOV	ERY STUI	DY	
TPH By SW8015 Mod Analytes	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
Gasoline Range Hydrocarbons (GRO)	<15.0	1000	813	81	1000	851	85	5	70-135	35	
Diesel Range Organics (DRO)	<15.0	1000	845	85	1000	866	87	2	70-135	35	



#### Project Name: COG-Gunner 16 SWD #1 (Pasture)



Work Order # :	571800						Project II	<b>)</b> :				
Lab Batch ID:	3036675	QC- Sample ID:	571798	-009 S	Ba	tch #:	1 Matrix	<b>k:</b> Soil				
Date Analyzed:	12/22/2017	Date Prepared:	12/21/2	017	An	alyst: A	ALJ					
<b>Reporting Units:</b>	mg/kg		Ν	IATRIX SPIK	E / MAT	RIX SPI	KE DUPLICA	TE REC	OVERY	STUDY		
]	BTEX by EPA 8021B	Parent Sample Result	Spike Added	Spiked Sample Result [C]	Spiked Sample %R	Spike Added	Duplicate Spiked Sample Result [F]	Spiked Dup. %R	RPD %	Control Limits %R	Control Limits %RPD	Flag
	Analytes	[A]	[ <b>B</b> ]		[D]	[E]		[G]				
Benzene		<0.00201	0.100	0.0767	77	0.101	0.0767	76	0	70-130	35	
Toluene		<0.00201	0.100	0.0707	71	0.101	0.0702	70	1	70-130	35	
Ethylbenzene		< 0.00201	0.100	0.0745	75	0.101	0.0747	74	0	71-129	35	
m,p-Xylenes		< 0.00402	0.201	0.146	73	0.202	0.147	73	1	70-135	35	
o-Xylene		< 0.00201	0.100	0.0694	69	0.101	0.0702	70	1	71-133	35	X
Lab Batch ID:	3036946	QC- Sample ID:	571798	-005 S	Ba	tch #:	1 Matrix	k: Soil				
Date Analyzed:	12/27/2017	Date Prepared:	12/26/2	017	An	alyst: I	RI					
<b>Reporting Units:</b>	mg/kg		N	IATRIX SPIK	E / MAT	RIX SPI	KE DUPLICA	TE REC	OVERY	STUDY		
Inorgar	nic Anions by EPA 300/300.1	Parent Sample Result	Spike Added	Spiked Sample Result [C]	Spiked Sample %R	Spike Added	Duplicate Spiked Sample Result [F]	Spiked Dup. %R	RPD %	Control Limits %R	Control Limits %RPD	Flag
	Analytes	[A]	[B]	[C]	/0K [D]	[E]	Kesun [F]	[G]	70	70K	70KI D	
Chloride		29.0	250	289	104	250	290	104	0	90-110	20	
Lab Batch ID:	3036946	QC- Sample ID:	571798	-014 S	Ba	tch #:	1 Matrix	k: Soil			-	
Date Analyzed:	12/27/2017	Date Prepared:	12/26/2	017	An	alyst: I	LRI					
<b>Reporting Units:</b>	mg/kg		N	IATRIX SPIK	E / MAT	RIX SPI	KE DUPLICA	TE REC	OVERY	STUDY		
Inorgar	nic Anions by EPA 300/300.1	Parent Sample Result	Spike Added	Spiked Sample Result [C]	Sample %R	Spike Added	Duplicate Spiked Sample Result [F]	Spiked Dup. %R	RPD %	Control Limits %R	Control Limits %RPD	Flag
	Analytes	[A]	[B]		[D]	[E]		[G]				
Chloride		45.1	245	295	102	245	295	102	0	90-110	20	

Matrix Spike Percent Recovery  $[D] = 100^{*}(C-A)/B$ Relative Percent Difference RPD =  $200^{*}|(C-F)/(C+F)|$  Matrix Spike Duplicate Percent Recovery [G] = 100\*(F-A)/E



#### Project Name: COG-Gunner 16 SWD #1 (Pasture)



Work Order # :	571800						Project II	):				
Lab Batch ID:	3037043	QC- Sample ID:	571800	-005 S	Ba	tch #:	1 Matrix	<b>x:</b> Soil				
Date Analyzed:	12/28/2017	Date Prepared:	12/26/2	017	An	alyst: 1	LRI					
<b>Reporting Units:</b>	mg/kg	MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY										
Inorganic Anions by EPA 300/300.1		Parent Sample Result	Spike Added	Spiked Sample Result [C]	Spiked Sample %R	Spike Added	Duplicate Spiked Sample Result [F]	Spiked Dup. %R	RPD %	Control Limits %R	Control Limits %RPD	Flag
	Analytes	[A]	[B]	[0]	[D]	[E]	Kesun [F]	[G]	/0	701		
Chloride		43.4	246	287	99	246	288	99	0	90-110	20	
Lab Batch ID:	3037043	QC- Sample ID:	571800	-016 S	Ba	tch #:	1 Matrix	k: Soil				
Date Analyzed:	12/28/2017	Date Prepared:	12/26/2	017	An	alyst: I	LRI					
<b>Reporting Units:</b>	mg/kg	MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY										
Inorganic Anions by EPA 300/300.1		Parent Sample Result	Spike Added	Spiked Sample Result [C]	Spiked Sample %R	Spike Added	Duplicate Spiked Sample Result [F]	Spiked Dup. %R	RPD %	Control Limits %R	Control Limits %RPD	Flag
	Analytes	[A]	[B]	[C]	<sup>76</sup> K [D]	E]	Kesun [r]	50K [G]	70	70K	70KFD	
Chloride		5.52	245	242	97	245	251	100	4	90-110	20	
Lab Batch ID:	3036672	QC- Sample ID:	571792	-001 S	Ba	tch #:	1 Matrix	<b>x:</b> Soil				
Date Analyzed:	12/21/2017	Date Prepared:12/21/2017Analyst:ARM										
<b>Reporting Units:</b>	mg/kg	MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY										
	TPH By SW8015 Mod	Parent Sample Result	Spike Added	Spiked Sample Result	Spiked Sample %R	Spike	Duplicate Spiked Sample	Spiked Dup.	RPD %	Control Limits %R	Control Limits %RPD	Flag
	Analytes	[A]	Added [B]	[C]	%K [D]	Added [E]	Result [F]	%R [G]	70	70K	70KFD	
Gasoline Range	e Hydrocarbons (GRO)	<15.0	998	858	86	1000	841	84	2	70-135	35	
Diesel Range O	Organics (DRO)	<15.0	998	869	87	1000	857	86	1	70-135	35	

Matrix Spike Percent Recovery  $[D] = 100^{\circ}(C-A)/B$ Relative Percent Difference RPD =  $200^{\circ}|(C-F)/(C+F)|$  Matrix Spike Duplicate Percent Recovery [G] = 100\*(F-A)/E



#### Project Name: COG-Gunner 16 SWD #1 (Pasture)



Work Order # :	571800						Project II	):				
Lab Batch ID:	3036677	QC- Sample ID:	571800	-013 S	Ba	tch #:	1 Matrix	k: Soil				
Date Analyzed:	12/22/2017	Date Prepared:	12/21/2	017	An	alyst: A	ARM					
<b>Reporting Units:</b>	mg/kg MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY											
Т	PH By SW8015 Mod	Parent Sample	Spike	Spiked Sample Result	Spiked Sample	Spike	Duplicate Spiked Sample	Spiked Dup.	RPD	Control Limits	Control Limits	Flag
	Analytes	Result [A]	Added [B]	[C]	%R [D]	Added [E]	Result [F]	%R [G]	%	%R	%RPD	
Gasoline Range H	Hydrocarbons (GRO)	<15.0	998	823	82	999	830	83	1	70-135	35	
Diesel Range Org	ganics (DRO)	<15.0	998	851	85	999	853	85	0	70-135	35	

Matrix Spike Percent Recovery  $[D] = 100^{*}(C-A)/B$ Relative Percent Difference RPD =  $200^{*}|(C-F)/(C+F)|$  Matrix Spike Duplicate Percent Recovery  $[G] = 100^{*}(F-A)/E$ 







Client: Tetra Tech- Midland

# **XENCO Laboratories**



Prelogin/Nonconformance Report- Sample Log-In

Client: Tetra Tech- Midland	Acceptable Temperature Range: 0 - 6 degC Air and Metal samples Acceptable Range: Ambient								
Date/ Time Received: 12/19/2017 04:05:00 PM									
Work Order #: 571800	Temperature Measuring device used : R8								
Sample Re	ceipt Checklist Comments								
#1 *Temperature of cooler(s)?	1								
#2 *Shipping container in good condition?	Yes								
#3 *Samples received on ice?	Yes								
#4 *Custody Seals intact on shipping container/ cooler?	Yes								
#5 Custody Seals intact on sample bottles?	Yes								
#6*Custody Seals Signed and dated?	Yes								
#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								

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

Analyst:

PH Device/Lot#:

#18 Water VOC samples have zero headspace?

Date: 12/20/2017

N/A

Checklist completed by: Jessica WAMER Jessica Kramer Checklist reviewed by: May Moah Kelsey Brooks

Date: 12/26/2017

# APPENDIX VI









22 May 2018, 14:22


22 May 2018, 14:22

LILIAN



# 22 May 2018, 14:23



06 Jun 2018, 07:57





26 Jun 2018, 12:20

# APPENDIX VI



Sheldon Hitchcock Lea Co. NM

**Contact:** 

**Project Location:** 

## Certificate of Analysis Summary 586658

COG Operating LLC, Artesia, NM Project Name: Gunner 16St. SWD #1



Date Received in Lab:Mon May-21-18 09:56 amReport Date:22-MAY-18Project Manager:Jessica Kramer

	Lab Id:	586658-0	01	586658-0	02	586658-0	03	586658-0	04	586658-0	05	586658-0	06
America Born onto d	Field Id:	L-N. SV	V	L-SW-1		L-SW-2	2	L-SW-3	;	L-SW-4	L	L-SW-5	5
Analysis Requested	Depth:												
	Matrix:	SOIL											
	Sampled:	May-17-18 (	00:00										
Chloride by EPA 300	Extracted:	May-21-18	5:00	May-21-18 1	5:00	May-21-18	15:00	May-21-18 1	.5:00	May-21-18	5:00	May-21-18	15:00
	Analyzed:	May-21-182	20:16	May-21-18 2	0:22	May-21-18 2	20:40	May-21-18 2	0:46	May-21-18 2	20:52	May-21-18 2	20:58
	Units/RL:	mg/kg	RL										
Chloride		<4.95	4.95	213	4.95	155	4.95	149	4.97	21.6	4.96	136	4.99

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.%

fession kenner

Jessica Kramer Project Assistant



Sheldon Hitchcock Lea Co. NM

**Contact:** 

**Project Location:** 

Certificate of Analysis Summary 586658

COG Operating LLC, Artesia, NM Project Name: Gunner 16St. SWD #1



Date Received in Lab:Mon May-21-18 09:56 amReport Date:22-MAY-18Project Manager:Jessica Kramer

	Lab Id:	586658-00	)7	586658-00	08	586658-00	)9	586658-0	10	586658-01	1	
Analysis Page estad	Field Id:	L-SW-6		L-S. SW	7	L-Bttm-1	8'	L- Bttm-2	8'	L-Bttm-3	8'	
Analysis Requested	Depth:					8- ft		8- ft		8- ft		
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		
	Sampled:	May-17-18 0	0:00	May-17-18 (	00:00	May-17-180	08:00	May-17-18 (	08:02	May-17-180	8:04	
Chloride by EPA 300	Extracted:	May-21-18 1	5:00	May-21-18 1	5:00	May-21-18 1	5:00	May-22-18 (	8:30	May-22-18 0	8:30	
	Analyzed:	May-21-18 2	1:04	May-21-18 2	21:10	May-21-18 2	1:16	May-22-18	0:02	May-22-18 1	1:26	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	
Chloride		<4.97	4.97	217	4.99	<5.00	5.00	7.32	5.00	<5.00	5.00	

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.%

fession kenner

Jessica Kramer Project Assistant

# **Analytical Report 586658**

for COG Operating LLC

Project Manager: Sheldon Hitchcock Gunner 16St. SWD #1

#### 22-MAY-18

Collected By: Client





1211 W. Florida Ave, Midland TX 79701

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: **Sheldon Hitchcock COG Operating LLC** 2407 Pecos Avenue Artesia, NM 88210

Reference: XENCO Report No(s): **586658 Gunner 16St. SWD #1** Project Address: Lea Co. NM

#### Sheldon Hitchcock:

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) 586658. 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. 586658 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,

Jessica Vramer

Jessica Kramer Project Assistant

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# Sample Cross Reference 586658



#### COG Operating LLC, Artesia, NM

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
L-N. SW	S	05-17-18 00:00		586658-001
L-SW-1	S	05-17-18 00:00		586658-002
L-SW-2	S	05-17-18 00:00		586658-003
L-SW-3	S	05-17-18 00:00		586658-004
L-SW-4	S	05-17-18 00:00		586658-005
L-SW-5	S	05-17-18 00:00		586658-006
L-SW-6	S	05-17-18 00:00		586658-007
L-S. SW	S	05-17-18 00:00		586658-008
L- Bttm-1 8'	S	05-17-18 08:00	8 ft	586658-009
L- Bttm-2 8'	S	05-17-18 08:02	8 ft	586658-010
L- Bttm-3 8'	S	05-17-18 08:04	8 ft	586658-011



#### CASE NARRATIVE

Client Name: COG Operating LLC Project Name: Gunner 16St. SWD #1

Project ID: Work Order Number(s): 586658 Report Date: 22-MAY-18 Date Received: 05/21/2018

#### Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

#### Analytical non conformances and comments:

Batch: LBA-3050914 Chloride by EPA 300

Lab Sample ID 586658-011 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride recovered below QC limits in the Matrix Spike. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 586658-010, -011.

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





## COG Operating LLC, Artesia, NM

Gunner 16St. SWD #1

Sample Id: Lab Sample I	L-N. SW d: 586658-001		Matrix: Date Colle	Soil cted: 05.17.18 00.00		6		
Analytical Me	ethod: Chloride by EP.	A 300				Prep Method: E3	00P	
Tech:	SCM					% Moisture:		
Analyst:	SCM		Date Prep:	05.21.18 15.00		Basis: W	et Weight	
Seq Number:	3050896							
Parameter		Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride		16887-00-6	<4.95	4.95	mg/kg	05.21.18 20.16	U	1





## COG Operating LLC, Artesia, NM

Sample Id: Lab Sample I	<b>L-SW-1</b> d: 586658-002		Matrix:SoilDate Received:05.21.18 0Date Collected:05.17.18 00.00					
Analytical Me	ethod: Chloride by EPA	. 300			]	Prep Method: E30	)0P	
Tech:	SCM					% Moisture:		
Analyst:	SCM		Date Prepa	05.21.18 15.00	]	Basis: We	t Weight	
Seq Number:	3050896							
Parameter		Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride		16887-00-6	213	4.95	mg/kg	05.21.18 20.22		1





## COG Operating LLC, Artesia, NM

Sample Id: Lab Sample Id:	L-SW-2 586658-003		Matrix: Date Collec	Soil cted: 05.17.18 00.00					
Analytical Meth	nod: Chloride by EPA	300			1	Prep Method: E3	00P		
Tech:	SCM					% Moisture:			
Analyst:	SCM		Date Prep:	05.21.18 15.00		Basis: We	et Weight		
Seq Number:	3050896								
Parameter		Cas Number	Result	RL	Units	Analysis Date	Flag	Dil	
Chloride		16887-00-6	155	4.95	mg/kg	05.21.18 20.40		1	





## COG Operating LLC, Artesia, NM

Sample Id: Lab Sample I	<b>L-SW-3</b> d: 586658-004		Matrix: Date Colle	Soil cted: 05.17.18 00.00	Date Received:05.21.18 09.50				
Analytical Me	ethod: Chloride by EPA	300				Prep Method: E30	OP		
Tech:	SCM					% Moisture:			
Analyst:	SCM		Date Prep:	05.21.18 15.00		Basis: We	t Weight		
Seq Number:	3050896								
Parameter		Cas Number	Result	RL	Units	Analysis Date	Flag	Dil	
Chloride		16887-00-6	149	4.97	mg/kg	05.21.18 20.46		1	





## COG Operating LLC, Artesia, NM

Sample Id: L-SW-4		Matrix:	Soil		21.18 09.50	6	
Lab Sample Id: 586658-005		Date Colle					
Analytical Method: Chloride by	EPA 300				Prep Method: E30	00P	
Tech: SCM					% Moisture:		
Analyst: SCM		Date Prep:	05.21.18 15.00		Basis: We	t Weight	
Seq Number: 3050896							
Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	21.6	4.96	mg/kg	05.21.18 20.52		1





## COG Operating LLC, Artesia, NM

Sample Id: <b>L-SW-5</b> Lab Sample Id: 586658-006		Matrix: Date Collect	Soil ed: 05.17.18 00.00	Date Received:05.21.18 09.56				
Analytical Method: Chloride by E Tech: SCM	PA 300				Prep Method: E30 % Moisture:	00P		
Analyst: SCM Seq Number: 3050896		Date Prep:	05.21.18 15.00			t Weight		
Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil	
Chloride	16887-00-6	136	4.99	mg/kg	05.21.18 20.58		1	





## COG Operating LLC, Artesia, NM

Gunner 16St. SWD #1

Sample Id: L-SW-6		Matrix:	Soil	Date R	eceived:05.2	1.18 09.56	
Lab Sample Id: 586658-007		Date Collect	ed: 05.17.18 00.00				
Analytical Method: Chloride by EPA	300			Prep M	fethod: E30	0P	
Tech: SCM				% Moi	sture:		
Analyst: SCM		Date Prep:	05.21.18 15.00	Basis:	Wet	Weight	
Seq Number: 3050896							
Parameter	Cas Number	Result	RL	Units Ana	alysis Date	Flag	Dil

<4.97

Chloride

16887-00-6

4.97

mg/kg

05.21.18 21.04

U

1





## COG Operating LLC, Artesia, NM

Sample Id: Lab Sample I	<b>L-S. SW</b> d: 586658-008		Matrix: Date Colle	Soil ected: 05.17.18 00.00					
Analytical Me	ethod: Chloride by EPA	300				Prep Method: E30	OP		
Tech:	SCM					% Moisture:			
Analyst:	SCM		Date Prep:	05.21.18 15.00		Basis: We	t Weight		
Seq Number:	3050896								
Parameter		Cas Number	Result	RL	Units	Analysis Date	Flag	Dil	
Chloride		16887-00-6	217	4.99	mg/kg	05.21.18 21.10		1	





U

1

## COG Operating LLC, Artesia, NM

Gunner 16St. SWD #1

Sample Id: L- Bttm-1 8' Lab Sample Id: 586658-009		Matrix: Date Collect	Soil ed: 05.17.18 08.00	Date Received:05.21.18 09. Sample Depth:8 ft			5
Analytical Method: Chloride by EPA Tech: SCM	. 300				Prep Method: % Moisture:	E300P	
Analyst: SCM		Date Prep:	05.21.18 15.00		Basis:	Wet Weight	
Seq Number: 3050896							
Parameter	Cas Number	Result	RL	Units	Analysis Da	te Flag	Dil

< 5.00

Chloride

16887-00-6

5.00

mg/kg 05.21.18 21.16





## COG Operating LLC, Artesia, NM

Gunner 16St. SWD #1

Sample Id: L- Bttm-2 8' Lab Sample Id: 586658-010		Matrix: Date Colle	Soil ected: 05.17.18 08.02		Date Received:05 Sample Depth:8 t		6
Analytical Method: Chloride	oy EPA 300			]	Prep Method: E3	300P	
Tech: SCM				(	% Moisture:		
Analyst: SCM		Date Prep:	05.22.18 08.30	]	Basis: W	et Weight	
Seq Number: 3050914							
Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	7.32	5.00	mg/kg	05.22.18 10.02		1





## COG Operating LLC, Artesia, NM

Gunner 16St. SWD #1

Sample Id: L- Bttm-3 8' Lab Sample Id: 586658-011		Matrix: Date Collect	Soil ed: 05.17.18 08.04		Date Received Sample Depth:		
Analytical Method: Chloride by EPA Tech: SCM Analyst: SCM	300	Date Prep:	05.22.18 08.30		Prep Method: % Moisture: Basis:	E300P Wet Weight	
Seq Number: 3050914 Parameter	Cas Number	Result ]	RL	Units	Analysis Dat	te Flag	Dil

Chloride

16887-00-6

< 5.00 5.00 mg/kg

05.22.18 11.26

U

1



# **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 Clie	nt Sample	BLK	Method Blank	
BKS/LCS	Blank Spike/Laboratory Control Sample	BKSD/LCSD	Blank Spike Duplicate/Labo	ratory 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 586658

#### **COG Operating LLC**

Gunner 16St. SWD #1

Analytical Method: Seq Number:	<b>Chloride by EPA 3</b> 3050896	00		Matrix:					Date Pr		21.18	
MB Sample Id:	7645179-1-BLK		LCS Sa	mple Id:	7645179-	1-BKS		LCS	D Sample	e Id: 764	5179-1-BSD	
Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	% RP D	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	227	91	230	92	90-110	1	20	mg/kg	05.21.18 18:23	
<b>Analytical Method:</b> Seq Number: MB Sample Id:	<b>Chloride by EPA 3</b> (3050914) 7645182-1-BLK	00	LCS Sa	Matrix:	Solid 7645182-	1-BKS			rep Meth Date Pr D Sample	ep: 05.2	0P 22.18 5182-1-BSD	
WD Sample R.	MB	Spike	LCS	LCS	LCSD	LCSD	Limits	%RP	RPD	Units	Analysis	
Parameter	Result	Amount	Result	%Rec	Result	%Rec	Linits	D	Limit	Cinto	Date	Flag
Chloride	<5.00	250	244	98	244	98	90-110	0	20	mg/kg	05.22.18 09:50	
Analytical Method: Seq Number: Parent Sample Id: Parameter Chloride	<b>Chloride by EPA 30</b> 3050896 586386-001 <b>Parent</b> <b>Result</b> 188	00 Spike Amount 249	MS Sa MS Result 429	Matrix: mple Id: <b>MS</b> %Rec 97	Soil 586386-0 <b>MSD</b> Result 437	01 S MSD %Rec 100	<b>Limits</b> 90-110		rep Metho Date Pr D Sample <b>RPD</b> Limit 20	ep: 05.2	0P 21.18 386-001 SD Analysis Date 05.21.18 18:41	Flag
<b>Analytical Method:</b> Seq Number: Parent Sample Id:	<b>Chloride by EPA 3</b> ( 3050896 586657-010	00	MS Sa	Matrix: mple Id:	Soil 586657-0	10 S			rep Methe Date Pr D Sample	ep: 05.2		
Parameter	Parent	Spike	MS	MS	MSD	MSD	Limits	%RP	RPD	Units	Analysis	Flag
Chloride	Result 352	Amount 248	Result 242	<b>% Rec</b> 0	Result 239	<b>% Rec</b> 0	90-110	<b>D</b> 1	Limit 20	mg/kg	Date 05.21.18 20:04	Х
<b>Analytical Method:</b> Seq Number: Parent Sample Id:	<b>Chloride by EPA 3</b> (3050914 586658-010	00	MS Sa	Matrix: mple Id:	Soil 586658-0	10 S			rep Metho Date Pr D Sample	ep: 05.2	0P 22.18 658-010 SD	

Parent Sample Id:	586658-010		MS Sat	mple Id:	586658-0	10 S		MS		e Id: 5860	558-010 SD	
Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	% RP D	RPD Limit	Units	Analysis Date	Flag
Chloride	7.32	250	262	102	262	102	90-110	0	20	mg/kg	05.22.18 10:08	

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



QC Summary 586658

#### **COG Operating LLC**

Gunner 16St. SWD #1

Analytical Method:	Chloride by EPA 3	)0						P	rep Metho	od: E30	0P	
Seq Number:	3050914			Matrix:	Soil				Date Pr	ep: 05.2	2.18	
Parent Sample Id:	586658-011		MS Sat	mple Id:	586658-0	11 S		MS	D Sample	e Id: 586	658-011 SD	
Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RP D	RPD Limit	Units	Analysis Date	Flag
Chloride	< 5.00	250	218	87	227	91	90-110	4	20	mg/kg	05.22.18 11:32	Х

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

LABORATORIES			Page 1 of 2		
Setting the Standard since 1990 Stafford,Texas (281-240-4200) Dallas Texas (214-902-0300)	Sar Mid	San Antonio, Texas (210-509-3334) Midland, Texas (432-704-5251)	σ	<sup>9</sup> hoenix, Arizona (480-355-0900)	00)
		www.xenco.com		Xenco Quote #	Xenco Job # 58 (2658)
Client / Reporting Information		Project Information		Analytical Information	nation Matrix Codes
Company Name / Branch: COG Operating, LLC	Proj	Project Name/Number: G CI. N.N. Cr	した St. S Lu D #1		W = Water S = Spil/Solid
Company Address: 2407 Pecos Ave. Arlesia NM 88210	Proj	Project Location:			GW =Ground Water DW = Drinking Water
Email: <u>shlichcock@concho.com</u> Phone No: 575-703-6475 dneel2@concho.com; alieb@concho.com; rhaskell@concho.com	3-6475	COG O			P = Product SW = Surface water SL = Sludge
Project Contact: Sheldon Hitchcock		1		D	OW =Ocean/Sea Water WI = Wipe
Samplers's Name: Sheldon Hitchcock	10				O = Oil WW= Waste Water
	Co	Collection	Number of preserved bottles		A = Air
No. Field ID / Point of Collection	Sample Depth c	Date Time Matrix bottles 곳	NaOH/Zn Acetate HNO3 H2SO4 NaOH NaHSO4 MEOH NONE	TPH E> BTEX CHLOR	Field Comments
1 L-N.SV		1 s 1		-	
2 L-SW-1	1	s 1	/	/	
3 L-SW-2		s 1	/	/	
4 L S V - 3		S 1		1	
5 L S W - 4		s 1	/	~	
5-M57 9		S 1		<	
7 L-5W-6		s 1		/	
8 L- 5, 5W	1	S 1			
0 L- B++m - 1 8	<i>s</i> ,	Store S 1		/	
10 L B++m-28	8	R:02 S 1		/	
Turnaround Time ( Business days)		Data Deliverable Information	e Information	No	Notes:
Same Day TAT 5 Day TAT		Level II Std QC	Level IV (Full Data Pkg /raw data)	aw data)	
Next Day EMERGENCY		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	5:00 pm				FED-EX / UPS: Tracking #
2	TODY MUST BE DOCI	IMENTED BELOW EACH TIME SAMPLES CI	SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY	- 1	
1 Martin Martin	Date Time:	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Relinquished By:	+ 5/18 15;	Received By:
Relinquished by: 3	Date Time: 5-21-/89.1	45	Relinguished By:		Received By:
Relinquished by:	Date Time:	Received By:	Custody Seal #	Preserved where applicab	Preserved where applicable On Ice Cooler Temp. Thermo, Corr, Factor

XENCO LABORATORIES		CI	CHAIN OF CUSTODY	Page 2	F	10 21	TSI	Ő	ΟY									
Sering the Standard Since 1990 Stafford,Texas (281-240-4200) Dallas Texas (214-902-0300)	San	San Antonio, Texas (210-509-3334) Midland, Texas (432-704-5251)	s (210-509-: 2-704-5251	3334)					P	hoenix	, Arizo	na (48	Phoenix, Arizona (480-355-0900)	(008				
			WW	www.xenco.com	com				×	Xenco Quote #	ote #			Xe	Xenco Job #	#	5	えんんたち
												Inalytic	Analytical Information	nation			K	Matrix Codes
Client / Reporting Information		Pn	Project Information	ition						_	-			-				
Company Name / Branch: COG Operating, LLC	Proj	Project Name/Number:	Gunner	en .	6 5	St. SW	0	#					_	_		_		W = Water
Company Address: 2407 Pecos Ave. Artesia NM 88210	Proj	Project Location:	-				ſ			_					_			GW = Ground Water
AND FEVO AVE, AIRENA IM OCTIV	5	en co	NN						_						_	_		DW = Drinking Water P = Product
Email: shitchcock@concho.com dneel2@concho.com; alieb@concho.com; rhaskell@concho.com	3-6475	Invoice To: COG O Altn: Ro	COG Operating, LLC Attn: Robert McNeill	-0						_								SW = Surface water SL = Sludge
Project Contact: Sheldon Hitchcock		600 W. Midland	600 W. Illnois Ave. Midland Tx, 79701							)				_		-		OW =Ocean/Sea Water
Samplace's Name-Shaldon Hitchcock	PON	PO Number:								DED	1		_			-		110 = 0
Samplers's Name: Sheldon Hitchcock										ND	S							WW= Waste Water
	Col	Collection	_		Numb	Number of preserved bottles	eserved	bottles		TEI	IDE					-	_	A = Air
No. Field ID / Point of Collection	Sample Depth p	Dale	Matrix	# of CI	laOH/Zn cetate	INO3 12SO4	laOH	IaHSO4	IONE	TPH EX	CHLOR							
1 L- B++m-2 8	~	00		-		-	-	-	4	-	-	1		-	-			
×	0		s	-		_		-	-	_				-	-	1		
ω			S	+		_		-		-				-	-	1		
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8			s	-		_		-			-			-	-	1		
9			s	-		-		-		-	1			-	-	+		
10			S	-				-		-	-	1		-	-			
Turnaround Time ( Business days)			Dat	Data Deliverable Information	le Informa	ation		-					z	Notes:	-	-		
Same Day TAT	-		Level II Std QC	a			Level IV (Full Data Pkg /ra	Full Data	Pkg /ra	w data)								
Next Day EMERGENCY			Level III Std QC+ Forms	C+ Forms			TRRP Level IV	el IV										
2 Day EMERGENCY Contract TAT	(AT		Level 3 (CLP Forms)	orms)			UST/RG -411	411										
3 Day EMERGENCY			TRRP Checklist	st														
TAT Starts Day received by Lab, if received by 5:00 pm	y 5:00 pm												FED-E)	FED-EX / UPS: Tracking #	: Track	ng #		
	SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER	MENTED BELOW	EACH TIME S	AMPLES C	HANGE P	OSSESSI	ON, INCL	UDING C	OURIER	DELIVERY	Ŷ			-				
A Chain	Date Time:	Received By:	d By:	10	2	Re 2	Relinquished By:	Ed By:	2	d,		Date Time: 578 /S	5-30	-	Received By: 2	By:		
3	SILING 9.	145 3 But	dBy:CUR	D	)	4 Re	Relinguished By:	ed By:			Date	Date Time:			Received By:	By:		
Relinquished by:	Date Time:	Received By:	d By:			0	Custody Seal #	eal #		Pro	served	where	Preserved where applicable	ble		On Ice	1°e	Relinquished by: Date Time: Received By: Custody Seal # Preserved where applicable On Ice Cooler Temp. Thermo. Corr. Factor

Page



Date/ Time Received: 05/21/2018 09:56:16 AM

## XENCO Laboratories Prelogin/Nonconformance Report- Sample Log-In



Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Work Order #: 586658

Client: COG Operating LLC

Temperature Measuring device used : R8

	Sample Receipt Checklist		Comments
#1 *Temperature of cooler(s)?		22.3	
#2 *Shipping container in good condition?		Yes	
#3 *Samples received on ice?		Yes	Ice had melted before we received the sample
#4 *Custody Seals intact on shipping conta	ainer/ cooler?	N/A	
#5 Custody Seals intact on sample bottles	?	N/A	
#6*Custody Seals Signed and dated?		N/A	
<pre>#7 *Chain of Custody present?</pre>		Yes	
#8 Any missing/extra samples?		No	
#9 Chain of Custody signed when relinquis	shed/ 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	d test(s)?	Yes	
#16 All samples received within hold time?	>	Yes	
#17 Subcontract of sample(s)?		No	
#18 Water VOC samples have zero heads	pace?	N/A	

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

Withenue

Analyst:

PH Device/Lot#:

Checklist completed by:

Katie Lowe

Date: 05/21/2018

Checklist reviewed by:

fession Kramer

Jessica Kramer

Date: 05/21/2018



Project Id:Contact:Sheldon HitchcockProject Location:Lea County, NM

Certificate of Analysis Summary 587060

COG Operating LLC, Artesia, NM Project Name: Gunner 16 State SWD #001



Date Received in Lab:Thu May-24-18 10:20 amReport Date:25-MAY-18Project Manager:Jessica Kramer

	Lab Id:	587060-0	001	587060-0	02	587060-0	003	587060-0	04	587060-0	05	587060-0	06
	Field Id:	BH-6/Re	ow	P-Bttm-1	4'	P-Bttm-2	4'	P-Bttm-3	4'	P-Bttm- 4	4'	P Bttm-5	4'
Analysis Requested	Depth:			4		4		4		4		4	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	May-18-18	08:00	May-18-18 (	08:05	May-18-18	08:10	May-18-18	08:15	May-22-18	4:00	May-22-18	14:05
BTEX by EPA 8021B	Extracted:	May-24-18	17:00										
	Analyzed:	May-24-18	21:27										
	Units/RL:	mg/kg	RL										
Benzene		< 0.00201	0.00201										
Toluene		< 0.00201	0.00201										
Ethylbenzene		< 0.00201	0.00201										
m,p-Xylenes		< 0.00402	0.00402										
o-Xylene		< 0.00201	0.00201										
Total Xylenes		< 0.00201	0.00201										
Total BTEX		< 0.00201	0.00201										
Chloride by EPA 300	Extracted:	May-24-18	16:00	May-24-18	6:00	May-24-18	16:00	May-24-18	16:00	May-24-18	6:00	May-24-18	16:00
	Analyzed:	May-24-18	17:05	May-24-18	7:23	May-24-18	17:29	May-24-18	17:40	May-24-18	7:46	May-24-18	18:04
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		27.3	4.97	51.0	4.96	254	5.00	65.3	5.00	594	4.95	230	4.98
TPH By SW8015 Mod	Extracted:	May-24-18	11:00										
	Analyzed:	May-24-18	17:20										
	Units/RL:	mg/kg	RL										
Gasoline Range Hydrocarbons (GRO)		<15.0	15.0										
Diesel Range Organics (DRO)		<15.0	15.0										
Oil Range Hydrocarbons (ORO)		<15.0	15.0										
Total TPH		<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

fession kenner

Jessica Kramer Project Assistant



Sheldon Hitchcock

Lea County, NM

**Contact:** 

**Project Location:** 

Certificate of Analysis Summary 587060

COG Operating LLC, Artesia, NM Project Name: Gunner 16 State SWD #001



Date Received in Lab:Thu May-24-18 10:20 amReport Date:25-MAY-18Project Manager:Jessica Kramer

	Lab Id:	587060-0	07	587060-00	18	587060-0	09	587060-0	10	587060-0	11	587060-01	12
									-				
Analysis Requested	Field Id:	P-SW-	l	P-SW-2		P-SW-3	;	P-SW-4	-	P-SW-5		P-SW-6	
Anulysis Kequesleu	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	May-18-18	May-18-18 08:20		8:25	May-18-18 0	08:30	May-18-18 (	)8:35	May-18-18 (	08:40	May-18-18 0	08:40
Chloride by EPA 300	Extracted:	May-24-18	16:00	May-24-18 1	6:00	May-24-18 1	6:00	May-24-18 1	6:00	May-24-18 1	6:00	May-24-18 1	6:00
	Analyzed:	May-24-18	18:10	May-24-18 1	8:16	May-24-18 1	8:22	May-24-18 1	8:28	May-24-18 1	8:34	May-24-18 1	8:52
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		1090	4.95	< 5.00	5.00	130	4.98	138	5.00	< 5.00	5.00	<4.95	4.95

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

fession kenner

Jessica Kramer Project Assistant



Sheldon Hitchcock

Lea County, NM

**Contact:** 

**Project Location:** 

Certificate of Analysis Summary 587060

COG Operating LLC, Artesia, NM Project Name: Gunner 16 State SWD #001



Date Received in Lab:Thu May-24-18 10:20 amReport Date:25-MAY-18Project Manager:Jessica Kramer

	Matrix:	SOIL		SOIL	4.05	SOIL	1.20	SOIL	4.05	SOIL		SOIL	
Chloride by EPA 300	Sampled:	May-22-18		May-22-18 1		May-22-18 1		May-22-18		May-22-18		May-22-18 1	
Chiofide by EPA 500	Extracted: Analyzed:	May-24-18 May-24-18		May-24-18 1 May-24-18 1		May-24-18 1 May-24-18 1		May-24-18 1 May-24-18 1		May-24-18		May-24-18 1 May-24-18 1	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		82.8	5.00	18.2	4.99	<4.98	4.98	358	5.00	507	5.00	38.7	4.99

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

fession kenner

Jessica Kramer Project Assistant

# Analytical Report 587060

for COG Operating LLC

Project Manager: Sheldon Hitchcock Gunner 16 State SWD #001

#### 25-MAY-18

Collected By: Client





#### 1211 W. Florida Ave, Midland TX 79701

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)





25-MAY-18

Project Manager: **Sheldon Hitchcock COG Operating LLC** 2407 Pecos Avenue Artesia, NM 88210

Reference: XENCO Report No(s): **587060 Gunner 16 State SWD #001** Project Address: Lea County, NM

#### Sheldon Hitchcock:

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) 587060. 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. 587060 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,

Jessica Vramer

Jessica Kramer Project Assistant

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



# Sample Cross Reference 587060



## COG Operating LLC, Artesia, NM

Gunner 16 State SWD #001

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
BH-6/Row	S	05-18-18 08:00		587060-001
P-Bttm-1 4'	S	05-18-18 08:05	- 4	587060-002
P-Bttm-2 4'	S	05-18-18 08:10	- 4	587060-003
P-Bttm-3 4'	S	05-18-18 08:15	- 4	587060-004
P-Bttm- 4 4'	S	05-22-18 14:00	- 4	587060-005
P Bttm-5 4'	S	05-22-18 14:05	- 4	587060-006
P-SW-1	S	05-18-18 08:20		587060-007
P-SW-2	S	05-18-18 08:25		587060-008
P-SW-3	S	05-18-18 08:30		587060-009
P-SW-4	S	05-18-18 08:35		587060-010
P-SW-5	S	05-18-18 08:40		587060-011
P-SW-6	S	05-18-18 08:40		587060-012
P-SW-7	S	05-22-18 14:20		587060-013
P-SW-8	S	05-22-18 14:25		587060-014
P-SW-9	S	05-22-18 14:30		587060-015
P-SW-10	S	05-22-18 14:35		587060-016
P-SW-11	S	05-22-18 14:40		587060-017
P-SW-12	S	05-22-18 14:45		587060-018



## CASE NARRATIVE

#### Client Name: COG Operating LLC Project Name: Gunner 16 State SWD #001

Project ID: Work Order Number(s): 587060 Report Date: 25-MAY-18 Date Received: 05/24/2018

#### Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

#### Analytical non conformances and comments:

Batch: LBA-3051416 BTEX by EPA 8021B

Lab Sample ID 587060-001 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Benzene, Ethylbenzene, Toluene, m,p-Xylenes, o-Xylene recovered below QC limits in the Matrix Spike. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 587060-001. The Laboratory Control Sample for Toluene, Benzene, m,p-Xylenes, Ethylbenzene, o-Xylene is within laboratory Control Limits, therefore the data was accepted.

Benzene, Ethylbenzene, Toluene, m,p-Xylenes, o-Xylene Relative Percent Difference (RPD) between matrix spike and duplicate were above quality control limits. Samples in the analytical batch are: 587060-001 Soil samples were not received in Terracore kits and therefore were prepared by method 5030.




### COG Operating LLC, Artesia, NM

Sample Id:	BH-6/Row		Matrix:	Soil		Date Received:05.	24.18 10.2	0
Lab Sample I	d: 587060-001		Date Colle	cted: 05.18.18 08.00				
Analytical M	ethod: Chloride by EPA	300				Prep Method: E30	90P	
Tech:	SCM					% Moisture:		
Analyst:	SCM		Date Prep:	05.24.18 16.00		Basis: We	t Weight	
Seq Number:	3051340							
Parameter		Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride		16887-00-6	27.3	4.97	mg/kg	05.24.18 17.05		1

Analytical Method:TPH By SW801Tech:ARMAnalyst:ARMSeq Number:3051431	5 Mod	Date Prep: 05.24.18 11.00			Prep Method: TX1005P % Moisture: Basis: Wet Weight			
Parameter	Cas Number	Result	RL		Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0		mg/kg	05.24.18 17.20	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0		mg/kg	05.24.18 17.20	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0		mg/kg	05.24.18 17.20	U	1
Total TPH	PHC635	<15.0	15.0		mg/kg	05.24.18 17.20	U	1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane		111-85-3	89	%	70-135	05.24.18 17.20		
o-Terphenyl		84-15-1	88	%	70-135	05.24.18 17.20		





### COG Operating LLC, Artesia, NM

Sample Id:BH-6/RowLab Sample Id:587060-001	Matrix: Date Collecte	Soil ed: 05.18.18 08.00	Date Receive	ed:05.24.18 10.20
Analytical Method:BTEX by EPA 8021BTech:ALJAnalyst:ALJSeq Number:3051416	Date Prep:	05.24.18 17.00	Prep Method % Moisture: Basis:	l: SW5030B Wet Weight

Parameter	Cas Number	Result	RL		Units	Analysis Date	Flag	Dil
Benzene	71-43-2	< 0.00201	0.00201		mg/kg	05.24.18 21.27	U	1
Toluene	108-88-3	< 0.00201	0.00201		mg/kg	05.24.18 21.27	U	1
Ethylbenzene	100-41-4	< 0.00201	0.00201		mg/kg	05.24.18 21.27	U	1
m,p-Xylenes	179601-23-1	< 0.00402	0.00402		mg/kg	05.24.18 21.27	U	1
o-Xylene	95-47-6	< 0.00201	0.00201		mg/kg	05.24.18 21.27	U	1
Total Xylenes	1330-20-7	< 0.00201	0.00201		mg/kg	05.24.18 21.27	U	1
Total BTEX		< 0.00201	0.00201		mg/kg	05.24.18 21.27	U	1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene		540-36-3	100	%	70-130	05.24.18 21.27		
4-Bromofluorobenzene		460-00-4	104	%	70-130	05.24.18 21.27		





#### COG Operating LLC, Artesia, NM

Gunner 16 State SWD #001

Sample Id: Lab Sample Id	<b>P-Bttm-1 4'</b> l: 587060-002		Matrix: Date Collec	Soil ted: 05.18.18 08.05		Date Received Sample Depth		4.18 10.20	
Analytical Me Tech:	thod: Chloride by EPA 3 SCM	00				Prep Method: % Moisture:	E300	P	
Analyst:	SCM		Date Prep:	05.24.18 16.00		Basis:	Wet V	Weight	
Seq Number:	3051340								
Parameter		Cas Number	Result	RL	Units	Analysis Da	ate	Flag	Dil

51.0

16887-00-6

4.96

mg/kg

05.24.18 17.23

1





#### COG Operating LLC, Artesia, NM

Gunner 16 State SWD #001

Sample Id: Lab Sample Id	<b>P-Bttm-2 4'</b> 1: 587060-003		Matrix: Date Collec	Soil ted: 05.18.18 08.10		Date Received Sample Depth		0.20
Analytical Me Tech:	ethod: Chloride by EPA 3 SCM	00				Prep Method: % Moisture:	E300P	
Analyst:	SCM		Date Prep:	05.24.18 16.00		Basis:	Wet Weight	t
Seq Number:	3051340							
Parameter		Cas Number	Result	RL	Units	Analysis Da	ate Flag	Dil

16887-00-6 254

5.00

mg/kg 05.24.18 17.29

1





#### COG Operating LLC, Artesia, NM

Gunner 16 State SWD #001

Sample Id: Lab Sample Id	<b>P-Bttm-3 4'</b> d: 587060-004		Matrix: Date Collec	Soil ted: 05.18.18 08.15		Date Received: Sample Depth:		0
Analytical Me Tech: Analyst: Seq Number:	ethod: Chloride by EPA 3 SCM SCM 3051340	00	Date Prep:	05.24.18 16.00		Prep Method: % Moisture: Basis:	E300P Wet Weight	
Parameter		Cas Number	Result	RL	Units	Analysis Da	te Flag	Dil

16887-00-6 **65.3** 

5.00

mg/kg

05.24.18 17.40

1

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#### COG Operating LLC, Artesia, NM

Gunner 16 State SWD #001

Sample Id: Lab Sample Id:	<b>P-Bttm- 4 4'</b> 587060-005		Matrix: Date Collec	Soil ted: 05.22.18 14.00		Date Received Sample Depth		0.20
Tech:	hod: Chloride by EPA 30 SCM SCM	00	Date Prep:	05.24.18 16.00		Prep Method: % Moisture: Basis:	E300P Wet Weight	t
Seq Number:	3051340							
Parameter		Cas Number	Result	RL	Units	Analysis Da	ate Flag	Dil

594

16887-00-6

4.95

mg/kg

05.24.18 17.46

1





#### COG Operating LLC, Artesia, NM

Gunner 16 State SWD #001

Parameter		Cas Number	Result	RL	Units	Analysis Da	ate Flag	Dil
Seq Number:	3051340							
Analyst:	SCM		Date Prep:	05.24.18 16.00		Basis:	Wet Weigh	nt
Tech:	SCM					% Moisture:		
Analytical Me	ethod: Chloride by EPA 3	600				Prep Method:	E300P	
Sample Id: Lab Sample Id	<b>P Bttm-5 4'</b> d: 587060-006		Matrix: Date Collec	Soil ted: 05.22.18 14.05		Date Received Sample Depth		0.20

230

16887-00-6

4.98

mg/kg

05.24.18 18.04

1





#### COG Operating LLC, Artesia, NM

Sample Id: Lab Sample Id	<b>P-SW-1</b> d: 587060-007		Matrix: Date Colle	Soil cted: 05.18.18 08.20		Date Received:05	24.18 10.2	0
Analytical Me	ethod: Chloride by EPA	300				Prep Method: E3	00P	
Tech:	SCM					% Moisture:		
Analyst:	SCM		Date Prep:	05.24.18 16.00		Basis: We	et Weight	
Seq Number:	3051340							
Parameter		Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride		16887-00-6	1090	4.95	mg/kg	05.24.18 18.10		1





#### COG Operating LLC, Artesia, NM

Gunner 16 State SWD #001

Sample Id: Lab Sample Id	<b>P-SW-2</b> d: 587060-008		Matrix: Date Colle	Soil cted: 05.18.18 08.25	]	Date Received:05.	24.18 10.2	0
Analytical Me Tech:	ethod: Chloride by EPA	A 300				Prep Method: E3	)0P	
Analyst:	SCM		Date Prep:	05.24.18 16.00			t Weight	
Seq Number:	3051340							
Parameter		Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride		16887-00-6	< 5.00	5.00	mg/kg	05.24.18 18.16	U	1





#### COG Operating LLC, Artesia, NM

Sample Id: Lab Sample Id	<b>P-SW-3</b> d: 587060-009		Matrix: Date Colle	Soil cted: 05.18.18 08.30		Date Received:05	.24.18 10.2	0
Analytical Me	ethod: Chloride by EPA	300				Prep Method: E3	00P	
Tech:	SCM					% Moisture:		
Analyst:	SCM		Date Prep:	05.24.18 16.00		Basis: We	et Weight	
Seq Number:	3051340							
Parameter		Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride		16887-00-6	130	4.98	mg/kg	05.24.18 18.22		1





#### COG Operating LLC, Artesia, NM

Sample Id: Lab Sample Id	<b>P-SW-4</b> d: 587060-010		Matrix: Date Colle	Soil cted: 05.18.18 08.35		0		
Analytical Me	ethod: Chloride by EPA	. 300				Prep Method: E3	00P	
Tech:	SCM					% Moisture:		
Analyst:	SCM		Date Prep:	05.24.18 16.00		Basis: We	et Weight	
Seq Number:	3051340							
Parameter		Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride		16887-00-6	138	5.00	mg/kg	05.24.18 18.28		1





#### COG Operating LLC, Artesia, NM

Gunner 16 State SWD #001

Sample Id: Lab Sample Id	<b>P-SW-5</b> d: 587060-011		Matrix: Date Colle	Soil cted: 05.18.18 08.40	Date Received:05.24.18 10.20			0
	ethod: Chloride by EPA	x 300				Prep Method: E3	)0P	
Tech: Analyst:	SCM SCM		Date Prep:	05.24.18 16.00		% Moisture: Basis: We	t Weight	
Seq Number:	3051340		Bute Hep.				0	
Parameter		Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride		16887-00-6	<5.00	5.00	mg/kg	05.24.18 18.34	U	1





#### COG Operating LLC, Artesia, NM

Gunner 16 State SWD #001

Sample Id: Lab Sample Id	<b>P-SW-6</b> d: 587060-012		Matrix: Date Colle	Soil cted: 05.18.18 08.40	]	0		
Analytical Me	ethod: Chloride by EPA	A 300			]	Prep Method: E3	00P	
Tech:	SCM				(	% Moisture:		
Analyst:	SCM		Date Prep:	05.24.18 16.00	]	Basis: We	et Weight	
Seq Number:	3051340							
Parameter		Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride		16887-00-6	<4.95	4.95	mg/kg	05.24.18 18.52	U	1





#### COG Operating LLC, Artesia, NM

Sample Id: Lab Sample Id	<b>P-SW-7</b> d: 587060-013		Matrix: Date Colle	Soil cted: 05.22.18 14.20		0		
Analytical Me	ethod: Chloride by EPA	. 300				Prep Method: E3	00P	
Tech:	SCM					% Moisture:		
Analyst:	SCM		Date Prep:	05.24.18 16.00		Basis: We	et Weight	
Seq Number:	3051340							
Parameter		Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride		16887-00-6	82.8	5.00	mg/kg	05.24.18 18.58		1





#### COG Operating LLC, Artesia, NM

Sample Id: Lab Sample Id	<b>P-SW-8</b> d: 587060-014		Matrix: Date Colle	Soil cted: 05.22.18 14.25		20		
Analytical Me	ethod: Chloride by EPA	300				Prep Method: E3	00P	
Tech:	SCM					% Moisture:		
Analyst:	SCM		Date Prep:	05.24.18 16.00		Basis: We	et Weight	
Seq Number:	3051340							
Parameter		Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride		16887-00-6	18.2	4.99	mg/kg	05.24.18 19.16		1





#### COG Operating LLC, Artesia, NM

Gunner 16 State SWD #001

Sample Id: Lab Sample Id	<b>P-SW-9</b> d: 587060-015		Matrix: Date Colle	Soil cted: 05.22.18 14.30	Date Received:05.24.18 10.20			0
	ethod: Chloride by EPA	A 300				Prep Method: E3	00P	
Tech: Analyst:	SCM		Date Prep:	05.24.18 16.00			et Weight	
Seq Number:	3051340							
Parameter		Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride		16887-00-6	<4.98	4.98	mg/kg	05.24.18 19.22	U	1





#### COG Operating LLC, Artesia, NM

Sample Id: P Lab Sample Id: 5	<b>P-SW-10</b> 87060-016		Matrix: Date Collec	Soil eted: 05.22.18 14.35		0		
Analytical Metho	d: Chloride by EPA 3	800				Prep Method: E	2300P	
Tech: SC	CM					% Moisture:		
Analyst: SC	CM		Date Prep:	05.24.18 16.00		Basis: V	Vet Weight	
Seq Number: 30	051340							
Parameter		Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride		16887-00-6	358	5.00	mg/kg	05.24.18 19.28	;	1





#### COG Operating LLC, Artesia, NM

Sample Id: Lab Sample Id	<b>P-SW-11</b> d: 587060-017		Matrix: Date Colle	Soil cted: 05.22.18 14.40		Date Received:05.24.18 10.20			
Analytical Me	ethod: Chloride by EPA	300				Prep Method: E3	00P		
Tech:	SCM					% Moisture:			
Analyst:	SCM		Date Prep:	05.24.18 16.00		Basis: We	et Weight		
Seq Number:	3051340								
Parameter		Cas Number	Result	RL	Units	Analysis Date	Flag	Dil	
Chloride		16887-00-6	507	5.00	mg/kg	05.24.18 19.34		1	





#### COG Operating LLC, Artesia, NM

Sample Id: Lab Sample Id	<b>P-SW-12</b> : 587060-018		Matrix: Date Colle	Soil cted: 05.22.18 14.45		0		
Analytical Me	thod: Chloride by EPA	300				Prep Method: E3	00P	
Tech:	SCM					% Moisture:		
Analyst:	SCM		Date Prep:	05.24.18 16.00		Basis: W	et Weight	
Seq Number:	3051340							
Parameter		Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride		16887-00-6	38.7	4.99	mg/kg	05.24.18 19.40		1



# **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 LimitSDLSample Detection LimitLOD 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/Labor	ratory 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 587060

#### **COG Operating LLC**

Gunner 16 State SWD #001

Analytical Method:	Chloride by EPA 30	)0						Pı	ep Metho	od: E30	OP	
Seq Number:	3051340			Matrix:	Solid				Date Pr	ep: 05.2	24.18	
MB Sample Id:	7655441-1-BLK		LCS Sar	nple Id:	7655441-	1-BKS		LCS	D Sample	e Id: 765	5441-1-BSD	
Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Lim	it Units	Analysis Date	Flag
Chloride	< 5.00	250	229	92	231	00	90-110	1	20	mg/kg	05.24.18 16:53	

Analytical Method:	Chloride by EPA 30	)0						Pr	ep Metho	od: E30	OP	
Seq Number:	3051340			Matrix:	Soil				Date Pre	ep: 05.2	24.18	
Parent Sample Id:	587060-001		MS Sar	nple Id:	587060-00	01 S		MSI	O Sample	d: 587	060-001 SD	
Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD ]	RPD Limi	it Units	Analysis Date	Flag

Analytical Method:	Chloride by EPA 30	00						Prep Metho	d: E300	OP 90	
Seq Number:	3051340			Matrix:	Soil			Date Pre	ep: 05.2	4.18	
Parent Sample Id:	587060-011		MS San	nple Id:	587060-01	1 S		MSD Sample	Id: 5870	)60-011 SD	
<b>D</b>	Parent	<b>G</b> 1	1.40	MC			<b>.</b>				
Parameter	Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD RPD Limi	t Units	Analysis Date	Flag

Analytical Method:	TPH By S	W8015 M	lod						I	Prep Method	l: TX1	005P	
Seq Number:	3051431				Matrix:	Solid				Date Prep	p: 05.2	4.18	
MB Sample Id:	7655483-1	-BLK		LCS Sar	nple Id:	7655483-	1-BKS		LCS	SD Sample	ld: 765	5483-1-BSD	
Parameter		MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarb	ons (GRO)	<15.0	1000	977	98	1030	103	70-135	5	20	mg/kg	05.24.18 12:13	
Diesel Range Organics	(DRO)	<15.0	1000	1050	105	1130	113	70-135	7	20	mg/kg	05.24.18 12:13	
Surrogate		MB %Rec	MB Flag		CS Rec	LCS Flag	LCSI %Re			Limits	Units	Analysis Date	
1-Chlorooctane		98		1	09		123		7	0-135	%	05.24.18 12:13	
o-Terphenyl		100		1	01		109		7	0-135	%	05.24.18 12:13	

[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



#### **COG Operating LLC**

Gunner 16 State SWD #001

Analytical Method:	TPH By S	SW8015 M	Iod						]	Prep Method	l: TXI	005P	
Seq Number:	3051431				Matrix:	Soil				Date Prep	p: 05.2	4.18	
Parent Sample Id:	586753-00	)1		MS San	nple Id:	586753-00	01 S		Μ	SD Sample l	ld: 586	753-001 SD	
Parameter		Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPI	ORPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarb	ons (GRO)	<15.0	998	979	98	989	99	70-135	1	20	mg/kg	05.24.18 13:35	
Diesel Range Organics	(DRO)	<15.0	998	1030	103	1040	104	70-135	1	20	mg/kg	05.24.18 13:35	
Surrogate					AS Rec	MS Flag	MSD %Re		-	Limits	Units	Analysis Date	
1-Chlorooctane				1	08		108		-	70-135	%	05.24.18 13:35	
o-Terphenyl				ç	<del>9</del> 7		97		-	70-135	%	05.24.18 13:35	

<b>Analytical Method:</b> Seq Number: MB Sample Id:	<b>BTEX by EPA 802</b> 3051416 7655458-1-BLK	1B	LCS San	Matrix: nple Id:	Solid 7655458-	1-BKS			Prep Methoo Date Prej SD Sample	p: 05.2	5030B 4.18 5458-1-BSD	
Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPI	) RPD Limit	Units	Analysis Date	Flag
Benzene	< 0.00200	0.0998	0.0986	99	0.0901	90	70-130	9	35	mg/kg	05.24.18 19:38	
Toluene	< 0.00200	0.0998	0.0940	94	0.0885	89	70-130	6	35	mg/kg	05.24.18 19:38	
Ethylbenzene	< 0.00200	0.0998	0.100	100	0.0914	91	70-130	9	35	mg/kg	05.24.18 19:38	
m,p-Xylenes	< 0.00399	0.200	0.211	106	0.192	96	70-130	9	35	mg/kg	05.24.18 19:38	
o-Xylene	< 0.00200	0.0998	0.106	106	0.0955	96	70-130	10	35	mg/kg	05.24.18 19:38	
Surrogate	MB %Rec	MB Flag			LCS Flag	LCSD %Rec			Limits	Units	Analysis Date	
1,4-Difluorobenzene	86		1	01		89		-	70-130	%	05.24.18 19:38	
4-Bromofluorobenzene	108		1	02		88			70-130	%	05.24.18 19:38	

Analytical Method: Seq Number: Parent Sample Id:	<b>BTEX by EPA 802</b> 3051416 587060-001	1B	MS San	Matrix: nple Id:	Soil 587060-00	01 S			Prep Metho Date Pre SD Sample	p: 05.2	5030B 4.18 060-001 SD	
Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	< 0.00199	0.0996	0.0635	64	0.0974	97	70-130	42	35	mg/kg	05.24.18 20:15	XF
Toluene	< 0.00199	0.0996	0.0624	63	0.0947	95	70-130	41	35	mg/kg	05.24.18 20:15	XF
Ethylbenzene	< 0.00199	0.0996	0.0542	54	0.0949	95	70-130	55	35	mg/kg	05.24.18 20:15	XF
m,p-Xylenes	< 0.00398	0.199	0.133	67	0.198	99	70-130	39	35	mg/kg	05.24.18 20:15	XF
o-Xylene	< 0.00199	0.0996	0.0670	67	0.101	101	70-130	40	35	mg/kg	05.24.18 20:15	XF
Surrogate				1S Rec	MS Flag	MSD %Re		-	Limits	Units	Analysis Date	
1,4-Difluorobenzene			ç	94		96		7	0-130	%	05.24.18 20:15	
4-Bromofluorobenzene			8	32		121		7	0-130	%	05.24.18 20:15	

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

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# CHAIN OF CUSTODY

Dallas Texas (214-902-0300)	Midlar	Midland, Texas (432-704-5251)	10-509-3334)			Phoenix	Phoenix, Arizona (480-355-0900)	0-000-00001		1	
			www.xenco.com	COM		Xenco Quote #	ote #	×	Xenco Job #	1-00	Theo
							Analytic	al Information	-		Mattic
Client / Reporting Information		Project	Project Information			_			-	_	Matrix Codes
COG Operating, LLC	Project	Project Name/Number: Gi	Gunner 16 State SWD #001	1001			_	_	_	_	W = Water
Company Address: 2407 Pecos Ave. Artesia NM 88210	Project	Project Location:				<i>I</i> )	_				S = Soil/Sed/Solid GW =Ground Water
Email: shitchcock@concho.com Phone No: 575-703-6475	03-6475 Invoice To:	200	ea County, NM			015					P = Product
oncho.com; rhask	-04/0		t McNeill			PA80	00)			_	SW = Surface water
Project Contact: Sheldon Hitchcock		Midland Tx, 79701	79701						-		OW =Ocean/Sea Water
Samplers's Name: Sheldon Hitchcock	PO Number:	iber:				-	_	_			0 = 0il
	Collection	tion		Number of pre	Number of preserved bottles			_			WW= Waste Water A = Air
NO. Field ID / Point of Collection	Sample Depth Date	Time	Matrix bottles 7	NaOH/Zn Acetate HNO3 H2SO4	IaOH IaHSO4 IEOH	TPH EX	CHLOR				
1 BH-6/ROV	51	8:00	-	+	2	X	-				Field Comments
2 P-B++m-1 4			s 1				-				
3 P- B++m- 2 4'	1 5/18/	5/19/19 8:10	s 1				-			1	
4 P-B++4 -3 4	5/18/18	18 6:15	s 1			1	-				
5 P- BHM -4 4	Sher15	6 2100	S 1			-	-				
6 P-13++m-54	Sheels 1	\$ 2:05	S 1								
7 P-5W-1	N/A SIN	5/18/18 8:26	S 1			-	-			-	
8 P-5W-2	1 2118/	5118/18 8:25	s 1								
9 P-3ν-3	5/18/19	@ C: 8 11	S 1			-	-				
10 P-5V-4	1 2/18/18	2618 81	S 1			-	-				
Turnaround Time (Business days)		No. and a	Data Deliverable Information	Information				Notes:		-	
X Same Day TAT 5 Day TAT		Level	Level II Std QC	۲.	Level IV (Full Data Pkg /raw data)	kg /raw data)					
Next Day EMERGENCY		Level I	Level III Std QC+ Forms		TRRP Level IV						
2 Day EMERGENCY		Level 3	Level 3 (CLP Forms)	u	UST/RG 411						
3 Day EMERGENCY		TRRP	TRRP Checklist								
TAT Starts Day received by Lab, if received by 5:00 pm	0 pm							FED-EX / UPS: Tracking #	Tracking #		
	SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER	NTED BELOW EACH	TIME SAMPLES CH	ANGE POSSESSIC	ON, INCLUDING COL	IRIER DELIVERY			2		
Niteresec	S/23 1310	Received By:	3/secto	Rel 2	Relinquished By:		Date Time:	15-30 Rece	ce en By	OWIL	Slaulia
3 3	Dáte Time:	Received By:	41	Rel	Relinquished By:		Date Time:		Received By:	the ac	or on on
Relinquished by: 5	Date Time:	Received By:		Cus	+ Custody Seal #	Pre	Preserved where applicable	applicable	Onlce	Cooler Temp.	ap. Thermo. Corr. Factor

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1990		)

# CHAIN OF CUSTODY

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

Dallas Texas (214-902-0300)		Midland, Texas (432-704-5251) www.xer	as (432-704	-5251) <u>www.x</u> e	151) www.xenco.com					Xenco Quote #	iote #		×	Xenco Job #	Ř	20,	7/17	5	
												Analytical Information	formatio	-	(	(		Matrix Codes	odes
Company Name / Branch:	7	Project Name/Number:	18	Project Information er: Gunner 16 State SWD #001	SWD #001		ľ				_			_		_			P
2407 Pecos Ave. Artesia NM 88210		Project Location:								M)								S = Soil/Sed/Solid GW =Ground Water DW = Drinking Wate	S = Soil/Sed/Solid GW =Ground Water DW = Drinking Water
Email: <a href="mailto:shiftchcock@concho.com">shone No: 575-703</a> dneel2@concho.com; cgray@concho.com; rhaskell@concho.com	-6475	Invoice To: CC	COG Operating, LLC Attn: Robert McNeill	ng, LLC IcNeill						PA801	00)							P = Product SW = Surface water SL = Sludge	ict face water ge
Project Contact: Sheldon Hitchcock		1.00	Midland Tx, 79701	Ave. 9701							-		_					OW =Ocea	OW =Ocean/Sea Water WI = Wipe
Samplers's Name: Sheldon Hitchcock		PO Number:								_			_	-				0 = 0il	to Water
		Collection			z	Number of preserved hottles	finreserv	ed hottle	0	-	-					-		A = Air	ste Water
No. Field ID / Point of Collection	Sample				ł/Zn	ite 3	1	04	_							1			
T	Depth	Date T	Time Matrix	rix bottles	HCI	Ace HNC	H2S NaC	Nah	MEG	-	-							Field Comments	ts
1 1-30-3	N/A E	2/18/18 8:40	to s	-		-			×		×			-					
2 P-5U-6	6	5/14/18 8:	8:45 s	-							×			-		-			
3 P-5V-7			s on	1				_	-		×			+		-			
4 P-5W-8		5/22/08/2/25	s 22	-					_	_	×			+					
5 P-SW-9	4	5/22/19 2:30	30 s	4		_	_		-	_	× -	-		+		-			
6 P-51-10		5/22/18 2:35	s 35	-			-		_	_	X			-		-			
7 P-5W-11		C122/18 21,40	to s	-					-	-	~	-		+		-			
8 P-5W-12	1	5/22/16 2:45	s 57	4	-	_			-		X	-		+					
9			s	-							-			+					
10			s	1			-				1	-		+					
Turnaround Time ( Business days)				Data Deli	Data Deliverable Information	ormation							Notes:	ł		-			
X Same Day TAT 5 Day TAT	TAT	П	Level II Std QC	Std QC		П	Level	Level IV (Full Data Pkg /raw data)	ta Pkg /r	aw data									
Next Day EMERGENCY	TAT		Level III	Level III Std QC+ Forms	orms	П	TRRP L	TRRP Level IV				-							
2 Day EMERGENCY Contract TAT	ict TAT		Level 3 (CLP Forms)	CLP Form	s)		UST/RG 411	8G -411											
3 Day EMERGENCY		П	TRRP Checklist	recklist								-							
TAT Starts Day received by Lab, if received by 5:00 pm	d by 5:00 pm											FED	FED-EX / UPS: Tracking #	: Tracki	# BL				
	SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER D	CUMENTED BE	LOW EACH T	IME SAMPL	ES CHANG	SE POSSE	SSION, IN	CLUDING	COURIER	DELIVERY	Y	-		-	7			-	-
Actor .	Date Time:	1310 1 Rec	Received By:	he	h	q	Relinqui	Relinquished By:	Cord		and the second	Date Time:	S	Received	110	9	10	121	Jul 191
Relinquished by: 3	Dáte Time:	Rec	Received By:	0			Relinqui	Relinquished By:			Date			Received By:	By:	T	R	KK	1 min
Relinquished by: s	Date Time:	Rec	Received By:				* Custody Seal #	Seal #		Pr	eserved	Preserved where applicable	cable 4		Onlice		Cooler Temp.	Thermo Corr. Factor	orr. Factor

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Final 1.000



# **XENCO** Laboratories



Prelogin/Nonconformance Report- Sample Log-In

Client: COG Operating LLC	Acceptable Temperatu	re Range: 0 - 6 degC
Date/ Time Received: 05/24/2018 10:20:00 AM	Air and Metal samples	Acceptable Range: Ambient
Work Order #: 587060	Temperature Measurin	g device used : R8
Sa	mple Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	1.8	
#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 label	s/matrix? Yes	
#11 Container label(s) legible and intact?	Yes	
#12 Samples in proper container/ bottle?	Yes	TPH WAS IN BULK CONTAINER
#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:

Brianna Teel

Date: 05/24/2018

Checklist reviewed by: Jession Veamer

Jessica Kramer

Date: 05/24/2018



**Project Id: Contact:** 

Sheldon Hitchcock Lea County, NM **Project Location:** 

Certificate of Analysis Summary 587061

COG Operating LLC, Artesia, NM Project Name: Gunner 16 State SWD #001



Date Received in Lab: Thu May-24-18 10:21 am Report Date: 25-MAY-18 Project Manager: Jessica Kramer

	Lab Id:	587061-0	001	587061-	002	587061-0	003	587061-0	004	587061-	005	587061-0	006
Analusia Dogugatod	Field Id:	Row Bttm-	1 0.5'	Row Bttm-	2 0.5'	Row Bttm-	3 0.5'	Row w.	sw	Row sw	/-1	Row sw	v-2
Analysis Requested	Depth:	0.5 ft		0.5 ft		0.5 ft							
	Matrix:	SOIL	,	SOIL		SOIL		SOIL	,	SOIL	,	SOIL	
	Sampled:	May-22-18	07:30	May-22-18	07:40	May-22-18	07:50	May-22-18	07:00	May-22-18	07:05	May-22-18	07:10
BTEX by EPA 8021B	Extracted:	May-24-18	17:00										
	Analyzed:	May-24-18	21:45	May-24-18	22:04	May-24-18	22:22	May-24-18	22:40	May-24-18	22:58	May-24-18	23:16
	Units/RL:	mg/kg	RL										
Benzene		< 0.00200	0.00200	< 0.00199	0.00199	< 0.00198	0.00198	< 0.00202	0.00202	< 0.00202	0.00202	< 0.00199	0.00199
Toluene		< 0.00200	0.00200	< 0.00199	0.00199	< 0.00198	0.00198	< 0.00202	0.00202	< 0.00202	0.00202	< 0.00199	0.00199
Ethylbenzene		< 0.00200	0.00200	< 0.00199	0.00199	< 0.00198	0.00198	< 0.00202	0.00202	0.0786	0.00202	< 0.00199	0.00199
m,p-Xylenes		< 0.00399	0.00399	< 0.00398	0.00398	< 0.00396	0.00396	< 0.00403	0.00403	< 0.00404	0.00404	< 0.00398	0.00398
o-Xylene		< 0.00200	0.00200	< 0.00199	0.00199	< 0.00198	0.00198	< 0.00202	0.00202	< 0.00202	0.00202	< 0.00199	0.00199
Total Xylenes		< 0.00200	0.00200	< 0.00199	0.00199	< 0.00198	0.00198	< 0.00202	0.00202	< 0.00202	0.00202	< 0.00199	0.00199
Total BTEX		< 0.00200	0.00200	< 0.00199	0.00199	< 0.00198	0.00198	< 0.00202	0.00202	0.0786	0.00202	< 0.00199	0.00199
Chloride by EPA 300	Extracted:	May-24-18	16:00	May-24-18	16:00	May-24-18	17:30	May-24-18	17:30	May-24-18	17:30	May-24-18	17:30
	Analyzed:	May-24-18	19:46	May-24-18	19:52	May-24-18	20:46	May-24-18	20:28	May-24-18	20:52	May-24-18	20:58
	Units/RL:	mg/kg	RL										
Chloride		206	5.00	278	5.00	199	5.00	509	5.00	656	4.98	205	5.00
TPH By SW8015 Mod	Extracted:	May-24-18	11:00										
	Analyzed:	May-24-18	17:47	May-24-18	18:14	May-24-18	19:35	May-24-18	20:02	May-24-18	20:28	May-24-18	20:56
	Units/RL:	mg/kg	RL										
Gasoline Range Hydrocarbons (GRO)		<15.0	15.0	<15.0	15.0	<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	<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	<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	<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,

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fession kenner

Jessica Kramer Project Assistant

Page 1 of 32



Project Id: Contact:

Project Location: Lea County, NM

Sheldon Hitchcock



COG Operating LLC, Artesia, NM Project Name: Gunner 16 State SWD #001



Date Received in Lab:Thu May-24-18 10:21 amReport Date:25-MAY-18Project Manager:Jessica Kramer

	Lab Id:	587061-0	007	587061-0	008	587061-0	009	587061-	010		
Amaluaia Dogwootod	Field Id:	Row sw	/-3	Row sw	-4	Row sw	-5	Row sv	v-6		
Analysis Requested	Depth:										
	Matrix:	SOIL	,	SOIL	,	SOIL		SOIL			
	Sampled:	May-22-18	07:15	May-22-18	07:20	May-22-18	07:25	May-22-18	07:55		
BTEX by EPA 8021B	Extracted:	May-24-18	17:00	May-24-18	17:00	May-24-18	17:00	May-24-18	17:00		
	Analyzed:	May-24-18	23:35	May-24-18	23:53	May-25-18	00:11	May-25-18	01:05		
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL		
Benzene		< 0.00200	0.00200	< 0.00200	0.00200	< 0.00201	0.00201	< 0.00199	0.00199		
Toluene		< 0.00200	0.00200	< 0.00200	0.00200	< 0.00201	0.00201	< 0.00199	0.00199		
Ethylbenzene		< 0.00200	0.00200	< 0.00200	0.00200	0.00291	0.00201	< 0.00199	0.00199		
m,p-Xylenes		< 0.00399	0.00399	< 0.00401	0.00401	< 0.00402	0.00402	< 0.00398	0.00398		
o-Xylene		< 0.00200	0.00200	< 0.00200	0.00200	< 0.00201	0.00201	< 0.00199	0.00199		
Total Xylenes		< 0.00200	0.00200	< 0.00200	0.00200	< 0.00201	0.00201	< 0.00199	0.00199		
Total BTEX		< 0.00200	0.00200	< 0.00200	0.00200	0.00291	0.00201	< 0.00199	0.00199		
Chloride by EPA 300	Extracted:	May-24-18	17:30	May-24-18	17:30	May-24-18	17:30	May-24-18	17:30		
	Analyzed:	May-24-18	21:04	May-24-18	21:22	May-24-18	21:28	May-24-18	21:33		
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL		
Chloride		519	4.97	489	4.99	317	5.00	110	4.99		
TPH By SW8015 Mod	Extracted:	May-24-18	11:00	May-24-18	11:00	May-24-18	11:00	May-24-18	11:00		
	Analyzed:	May-24-18	21:23	May-24-18	21:50	May-24-18	22:17	May-24-18	22:45		
	Units/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	<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		

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fession kenner

Jessica Kramer Project Assistant

# Analytical Report 587061

for COG Operating LLC

Project Manager: Sheldon Hitchcock Gunner 16 State SWD #001

#### 25-MAY-18

Collected By: Client





#### 1211 W. Florida Ave, Midland TX 79701

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)





25-MAY-18

Project Manager: **Sheldon Hitchcock COG Operating LLC** 2407 Pecos Avenue Artesia, NM 88210

Reference: XENCO Report No(s): **587061** Gunner 16 State SWD #001 Project Address: Lea County, NM

#### Sheldon Hitchcock:

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) 587061. 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. 587061 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,

Jessica Vramer

Jessica Kramer Project Assistant

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



#### Sample Id

Row Bttm-1 0.5'
Row Bttm-2 0.5'
Row Bttm-3 0.5'
Row w. sw
Row sw-1
Row sw-2
Row sw-3
Row sw-4
Row sw-5
Row sw-6

# Sample Cross Reference 587061



#### COG Operating LLC, Artesia, NM

Matrix	Date Collected	Sample Depth	Lab Sample Id
S	05-22-18 07:30	- 0.5 ft	587061-001
S	05-22-18 07:40	- 0.5 ft	587061-002
S	05-22-18 07:50	- 0.5 ft	587061-003
S	05-22-18 07:00	ft	587061-004
S	05-22-18 07:05	ft	587061-005
S	05-22-18 07:10	ft	587061-006
S	05-22-18 07:15	ft	587061-007
S	05-22-18 07:20	ft	587061-008
S	05-22-18 07:25	ft	587061-009
S	05-22-18 07:55	ft	587061-010



#### CASE NARRATIVE

#### Client Name: COG Operating LLC Project Name: Gunner 16 State SWD #001

Project ID: Work Order Number(s): 587061 Report Date: 25-MAY-18 Date Received: 05/24/2018

#### Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

#### Analytical non conformances and comments:

Batch: LBA-3051347 Inorganic Anions by EPA 300

Lab Sample ID 587133-002 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: 587061-003, -004, -005, -006, -007, -008, -009, -010. The Laboratory Control Sample for Chloride is within laboratory Control Limits, therefore the data was accepted.

Batch: LBA-3051416 BTEX by EPA 8021B Soil samples were not received in Terracore kits and therefore were prepared by method 5030.





### COG Operating LLC, Artesia, NM

Sample Id: Lab Sample Id:	<b>Row Bttm-1 0.5'</b> 587061-001		Matrix: Date Collec	Soil eted: 05.22.18 07.30		Date Received Sample Depth	1:05.24.18 10.2 : 0.5 ft	21
5	hod: Chloride by EPA 3 SCM	00				Prep Method: % Moisture:	E300P	
Analyst:	SCM		Date Prep:	05.24.18 16.00		Basis:	Wet Weight	
Seq Number:	3051340							
Parameter		Cas Number	Result	RL	Units	Analysis D	ate Flag	Dil

r ar ameter	Cas Number	Result	KL	Units	Analysis Date	Flag	DII
Chloride	16887-00-6	206	5.00	mg/kg	05.24.18 19.46		1

Analytical Method: TPH By SW801 Tech: ARM Analyst: ARM Seq Number: 3051431	5 Mod	Date Pre	p: 05.24.	18 11.00	%	Prep Method: TX 6 Moisture: Basis: We	1005P t Weight	
Parameter	Cas Number	Result	RL		Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0		mg/kg	05.24.18 17.47	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0		mg/kg	05.24.18 17.47	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0		mg/kg	05.24.18 17.47	U	1
Total TPH	PHC635	<15.0	15.0		mg/kg	05.24.18 17.47	U	1
Surrogate 1-Chlorooctane		<b>Cas Number</b> 111-85-3	% Recovery 92	Units %	<b>Limits</b> 70-135	<b>Analysis Date</b> 05.24.18 17.47	Flag	
o-Terphenyl		84-15-1	93	%	70-135	05.24.18 17.47		





## COG Operating LLC, Artesia, NM

Sample Id: Row Bttm-1 0.5'   Lab Sample Id: 587061-001	Matrix: Soil Date Collected: 05.22.18 07.30	Date Received:05.24.18 10.21 Sample Depth: 0.5 ft
Analytical Method:BTEX by EPA 8021BTech:ALJAnalyst:ALJSeq Number:3051416	Date Prep: 05.24.18 17.00	Prep Method: SW5030B % Moisture: Basis: Wet Weight

Parameter	Cas Number	Result	RL		Units	Analysis Date	Flag	Dil
Benzene	71-43-2	< 0.00200	0.00200		mg/kg	05.24.18 21.45	U	1
Toluene	108-88-3	< 0.00200	0.00200		mg/kg	05.24.18 21.45	U	1
Ethylbenzene	100-41-4	< 0.00200	0.00200		mg/kg	05.24.18 21.45	U	1
m,p-Xylenes	179601-23-1	< 0.00399	0.00399		mg/kg	05.24.18 21.45	U	1
o-Xylene	95-47-6	< 0.00200	0.00200		mg/kg	05.24.18 21.45	U	1
Total Xylenes	1330-20-7	< 0.00200	0.00200		mg/kg	05.24.18 21.45	U	1
Total BTEX		< 0.00200	0.00200		mg/kg	05.24.18 21.45	U	1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene		540-36-3	102	%	70-130	05.24.18 21.45		
4-Bromofluorobenzene		460-00-4	107	%	70-130	05.24.18 21.45		





### COG Operating LLC, Artesia, NM

Sample Id: Row Bttm-2 0.5'   Lab Sample Id: 587061-002		Matrix: Date Collecte	Soil d: 05.22.18 07.40		ceived:05.24.18 10.2 Depth:0.5 ft	21
Analytical Method: Chloride by EPA 3 Tech: SCM Analyst: SCM	300	Date Prep:	05.24.18 16.00	Prep Me % Mois Basis:	ethod: E300P ture: Wet Weight	
Seq Number: 3051340	Cog Number	Double D	Ŧ	TT 1/2 A 2.1		
Parameter	Cas Number	Result R	2L	Units Anal	ysis Date Flag	Dil

rarameter	Cas Number	Result	KL	Units	Analysis Date	Flag	Dii
Chloride	16887-00-6	278	5.00	mg/kg	05.24.18 19.52		1

Analytical Method: TPH By SW801 Tech: ARM Analyst: ARM	5 Mod	Date Pre	p: 05.24.	18 11.00	%	rep Method: TX 6 Moisture: 8asis: Wet	1005P Weight	
Seq Number: 3051431								
Parameter	Cas Number	Result	RL		Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0		mg/kg	05.24.18 18.14	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0		mg/kg	05.24.18 18.14	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0		mg/kg	05.24.18 18.14	U	1
Total TPH	PHC635	<15.0	15.0		mg/kg	05.24.18 18.14	U	1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane		111-85-3	92	%	70-135	05.24.18 18.14		
o-Terphenyl		84-15-1	92	%	70-135	05.24.18 18.14		





## COG Operating LLC, Artesia, NM

Sample Id: Row Bttm-2 0.5'   Lab Sample Id: 587061-002	Matrix: Soil Date Collected: 05.22.18 07.40	Date Received:05.24.18 10.21 Sample Depth: 0.5 ft
Analytical Method:BTEX by EPA 8021BTech:ALJAnalyst:ALJSeq Number:3051416	Date Prep: 05.24.18 17.00	Prep Method: SW5030B % Moisture: Basis: Wet Weight

Parameter	Cas Number	Result	RL		Units	Analysis Date	Flag	Dil
Benzene	71-43-2	< 0.00199	0.00199		mg/kg	05.24.18 22.04	U	1
Toluene	108-88-3	< 0.00199	0.00199		mg/kg	05.24.18 22.04	U	1
Ethylbenzene	100-41-4	< 0.00199	0.00199		mg/kg	05.24.18 22.04	U	1
m,p-Xylenes	179601-23-1	< 0.00398	0.00398		mg/kg	05.24.18 22.04	U	1
o-Xylene	95-47-6	< 0.00199	0.00199		mg/kg	05.24.18 22.04	U	1
Total Xylenes	1330-20-7	< 0.00199	0.00199		mg/kg	05.24.18 22.04	U	1
Total BTEX		< 0.00199	0.00199		mg/kg	05.24.18 22.04	U	1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene		540-36-3	98	%	70-130	05.24.18 22.04		
4-Bromofluorobenzene		460-00-4	102	%	70-130	05.24.18 22.04		





#### COG Operating LLC, Artesia, NM

Sample Id:	Row Bttm-3 0.5'		Matrix:	Soil		Date Received:05.	24.18 10.2	1
Lab Sample Id: 587061-003		Date Collected: 05.22.18 07.50		Sample Depth: 0.5 ft				
Analytical M	ethod: Chloride by EPA	300				Prep Method: E30	00P	
Tech:	SCM					% Moisture:		
Analyst:	SCM		Date Prep:	05.24.18 17.30		Basis: We	t Weight	
Seq Number:	3051347							
Parameter		Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride		16887-00-6	199	5.00	mg/kg	05.24.18 20.46		1

Analytical Method:TPH By SW8015 ModTech:ARMAnalyst:ARMSeq Number:3051431		Date Prep: 05.24.18 11.00		Prep Method: TX1005P % Moisture: Basis: Wet Weight				
Parameter	Cas Number	Result	RL		Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0		mg/kg	05.24.18 19.35	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0		mg/kg	05.24.18 19.35	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0		mg/kg	05.24.18 19.35	U	1
Total TPH	PHC635	<15.0	15.0		mg/kg	05.24.18 19.35	U	1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane		111-85-3	90	%	70-135	05.24.18 19.35		
o-Terphenyl		84-15-1	91	%	70-135	05.24.18 19.35		




# COG Operating LLC, Artesia, NM

Sample Id:         Row Bttm-3 0.5'           Lab Sample Id:         587061-003	Matrix: Soil Date Collected: 05.22.18 07.50	Date Received:05.24.18 10.21 Sample Depth: 0.5 ft
Analytical Method:BTEX by EPA 8021BTech:ALJAnalyst:ALJSeq Number:3051416	Date Prep: 05.24.18 17.00	Prep Method: SW5030B % Moisture: Basis: Wet Weight

Parameter	Cas Number	Result	RL		Units	Analysis Date	Flag	Dil
Benzene	71-43-2	< 0.00198	0.00198		mg/kg	05.24.18 22.22	U	1
Toluene	108-88-3	< 0.00198	0.00198		mg/kg	05.24.18 22.22	U	1
Ethylbenzene	100-41-4	< 0.00198	0.00198		mg/kg	05.24.18 22.22	U	1
m,p-Xylenes	179601-23-1	< 0.00396	0.00396		mg/kg	05.24.18 22.22	U	1
o-Xylene	95-47-6	< 0.00198	0.00198		mg/kg	05.24.18 22.22	U	1
Total Xylenes	1330-20-7	< 0.00198	0.00198		mg/kg	05.24.18 22.22	U	1
Total BTEX		< 0.00198	0.00198		mg/kg	05.24.18 22.22	U	1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene		540-36-3	95	%	70-130	05.24.18 22.22		
4-Bromofluorobenzene		460-00-4	112	%	70-130	05.24.18 22.22		





# COG Operating LLC, Artesia, NM

Sample Id:Row w. swLab Sample Id:587061-004		Matrix: Date Collec	Soil cted: 05.22.18 07.00	Date Received:05.24.18 10.21			1
Analytical Method: Chloride by EP	PA 300				Prep Method: E30	)0P	
Tech: SCM					% Moisture:		
Analyst: SCM		Date Prep:	05.24.18 17.30		Basis: We	t Weight	
Seq Number: 3051347							
Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	509	5.00	mg/kg	05.24.18 20.28		1
Analytical Method: TPH By SW80 Tech: ARM Analyst: ARM Seq Number: 3051431	15 Mod	Date Prep:	05.24.18 11.00		Prep Method: TX % Moisture: Basis: Wet	1005P t Weight	
Tech: ARM Analyst: ARM	15 Mod Cas Number	Date Prep: Result	05.24.18 11.00 RL		% Moisture:		Dil
Tech: ARM Analyst: ARM Seq Number: 3051431		I			% Moisture: Basis: We	t Weight	<b>Dil</b>
Tech: ARM Analyst: ARM Seq Number: 3051431 Parameter	Cas Number	Result	RL	Units	Moisture: Basis: We Analysis Date	t Weight Flag	
Tech: ARM Analyst: ARM Seq Number: 3051431 Parameter Gasoline Range Hydrocarbons (GRO)	Cas Number PHC610	<b>Result</b>	<b>RL</b> 15.0	Units mg/kg	% Moisture: Basis: We Analysis Date 05.24.18 20.02	t Weight Flag U	1

		%				
Surrogate	Cas Number	Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	84	%	70-135	05.24.18 20.02	
o-Terphenyl	84-15-1	83	%	70-135	05.24.18 20.02	





# COG Operating LLC, Artesia, NM

Sample Id:Row w. swLab Sample Id:587061-004	Matrix: Soil Date Collected: 05.22.18 07.00	Date Received:05.24.18 10.21
Analytical Method: BTEX by EPA 8021B		Prep Method: SW5030B
Tech: ALJ		% Moisture:
Analyst: ALJ	Date Prep: 05.24.18 17.00	Basis: Wet Weight
Seq Number: 3051416		

Parameter	Cas Number	Result	RL		Units	Analysis Date	Flag	Dil
Benzene	71-43-2	< 0.00202	0.00202		mg/kg	05.24.18 22.40	U	1
Toluene	108-88-3	< 0.00202	0.00202		mg/kg	05.24.18 22.40	U	1
Ethylbenzene	100-41-4	< 0.00202	0.00202		mg/kg	05.24.18 22.40	U	1
m,p-Xylenes	179601-23-1	< 0.00403	0.00403		mg/kg	05.24.18 22.40	U	1
o-Xylene	95-47-6	< 0.00202	0.00202		mg/kg	05.24.18 22.40	U	1
Total Xylenes	1330-20-7	< 0.00202	0.00202		mg/kg	05.24.18 22.40	U	1
Total BTEX		< 0.00202	0.00202		mg/kg	05.24.18 22.40	U	1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene		540-36-3	110	%	70-130	05.24.18 22.40		
4-Bromofluorobenzene		460-00-4	104	%	70-130	05.24.18 22.40		



1-Chlorooctane

o-Terphenyl

# **Certificate of Analytical Results 587061**



## COG Operating LLC, Artesia, NM

Gunner 16 State SWD #001

Sample Id: Row sw-1		Matrix:	Soil	Date Received:05.24.18 10.21			1
Lab Sample Id: 587061-005		Date Colle	ected: 05.22.18 07.05				
Analytical Method: Chloride by EF	PA 300			I	Prep Method: E30	)0P	
Tech: SCM				Q	% Moisture:		
Analyst: SCM		Date Prep:	05.24.18 17.30	I	Basis: We	t Weight	
Seq Number: 3051347						Ũ	
Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	656	4.98	mg/kg	05.24.18 20.52		1
	15 Mod				Prep Method: TX	1005P	
Tech: ARM Analyst: ARM Sea Number: 3051431		Date Prep:	05.24.18 11.00	Q	% Moisture:	1005P t Weight	
	Cas Number	Date Prep: Result	: 05.24.18 11.00 RL	Q	% Moisture:		Dil
Analyst: ARM Seq Number: 3051431				ç I	% Moisture: Basis: We	t Weight	<b>Dil</b> 1
Analyst: ARM Seq Number: 3051431 Parameter	Cas Number	Result	RL	y I Units	<ul> <li>Moisture:</li> <li>Basis: We</li> <li>Analysis Date</li> </ul>	t Weight Flag	
Analyst: ARM Seq Number: 3051431 Parameter Gasoline Range Hydrocarbons (GRO)	Cas Number PHC610	<b>Result</b> <15.0	<b>RL</b> 15.0	Units mg/kg	<ul> <li>Moisture:</li> <li>Basis: We</li> <li>Analysis Date</li> <li>05.24.18 20.28</li> </ul>	t Weight Flag U	1
Analyst: ARM Seq Number: 3051431 Parameter Gasoline Range Hydrocarbons (GRO) Diesel Range Organics (DRO)	Cas Number PHC610 C10C28DRO	<b>Result</b> <15.0 <15.0	<b>RL</b> 15.0 15.0	Units mg/kg mg/kg	Moisture: Basis: We Analysis Date 05.24.18 20.28 05.24.18 20.28	t Weight Flag U U	1
Analyst: ARM Seq Number: 3051431 Parameter Gasoline Range Hydrocarbons (GRO) Diesel Range Organics (DRO) Oil Range Hydrocarbons (ORO)	Cas Number PHC610 C10C28DRO PHCG2835	Result <15.0 <15.0 <15.0 <15.0	<b>RL</b> 15.0 15.0 15.0	Units mg/kg mg/kg mg/kg	<ul> <li>Moisture:</li> <li>Basis: We</li> <li>Analysis Date</li> <li>05.24.18 20.28</li> <li>05.24.18 20.28</li> <li>05.24.18 20.28</li> </ul>	t Weight Flag U U U	1 1 1

85

85

%

%

70-135

70-135

 $05.24.18\ 20.28$ 

 $05.24.18\ 20.28$ 

111-85-3

84-15-1





# COG Operating LLC, Artesia, NM

Sample Id:Row sw-1Lab Sample Id:587061-005	Matrix: So Date Collected: 05		Date Received	:05.24.18 10.21
Analytical Method: BTEX by EPA 8021B Tech: ALJ			Prep Method: % Moisture:	SW5030B
Analyst: ALJ	Date Prep: 05	5.24.18 17.00	Basis:	Wet Weight
Seq Number: 3051416				

Parameter	Cas Number	Result	RL		Units	Analysis Date	Flag	Dil
Benzene	71-43-2	< 0.00202	0.00202		mg/kg	05.24.18 22.58	U	1
Toluene	108-88-3	< 0.00202	0.00202		mg/kg	05.24.18 22.58	U	1
Ethylbenzene	100-41-4	0.0786	0.00202		mg/kg	05.24.18 22.58		1
m,p-Xylenes	179601-23-1	< 0.00404	0.00404		mg/kg	05.24.18 22.58	U	1
o-Xylene	95-47-6	< 0.00202	0.00202		mg/kg	05.24.18 22.58	U	1
Total Xylenes	1330-20-7	< 0.00202	0.00202		mg/kg	05.24.18 22.58	U	1
Total BTEX		0.0786	0.00202		mg/kg	05.24.18 22.58		1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene		540-36-3	116	%	70-130	05.24.18 22.58		
4-Bromofluorobenzene		460-00-4	112	%	70-130	05.24.18 22.58		





# COG Operating LLC, Artesia, NM

Sample Id:Row sw-2Lab Sample Id:587061-006		Matrix: Date Collec	Soil cted: 05.22.18 07.10	Date Received:05.24.18 10.21			1
Analytical Method: Chloride by EF	PA 300				Prep Method: E30	)0P	
Tech: SCM					% Moisture:		
Analyst: SCM		Date Prep:	05.24.18 17.30		Basis: We	t Weight	
Seq Number: 3051347							
Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	205	5.00	mg/kg	05.24.18 20.58		1
Analytical Method: TPH By SW80 Tech: ARM Analyst: ARM Seq Number: 3051431	15 Mod	Date Prep:	05.24.18 11.00		Prep Method: TX % Moisture: Basis: We	1005P t Weight	
Tech: ARM Analyst: ARM	15 Mod Cas Number	Date Prep: Result	05.24.18 11.00 RL		% Moisture:		Dil
Tech:ARMAnalyst:ARMSeq Number:3051431		1			% Moisture: Basis: We	t Weight	<b>Dil</b>
Tech: ARM Analyst: ARM Seq Number: 3051431 Parameter	Cas Number	Result	RL	Units	Moisture: Basis: We Analysis Date	t Weight Flag	
Tech: ARM Analyst: ARM Seq Number: 3051431 Parameter Gasoline Range Hydrocarbons (GRO)	Cas Number PHC610	<b>Result</b>	<b>RL</b> 15.0	Units mg/kg	Moisture: Basis: We Analysis Date 05.24.18 20.56	t Weight Flag U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	88	%	70-135	05.24.18 20.56	
o-Terphenyl	84-15-1	87	%	70-135	05.24.18 20.56	





# COG Operating LLC, Artesia, NM

Sample Id:Row sw-2Lab Sample Id:587061-006	Matrix: Soil Date Collected: 05.2	-	Date Received	:05.24.18 10.21
Analytical Method: BTEX by EPA 8021B Tech: ALJ			Prep Method: % Moisture:	SW5030B
Analyst: ALJ	Date Prep: 05.2	24.18 17.00	Basis:	Wet Weight
Seq Number: 3051416				

Parameter	Cas Number	Result	RL		Units	Analysis Date	Flag	Dil
Benzene	71-43-2	< 0.00199	0.00199		mg/kg	05.24.18 23.16	U	1
Toluene	108-88-3	< 0.00199	0.00199		mg/kg	05.24.18 23.16	U	1
Ethylbenzene	100-41-4	< 0.00199	0.00199		mg/kg	05.24.18 23.16	U	1
m,p-Xylenes	179601-23-1	< 0.00398	0.00398		mg/kg	05.24.18 23.16	U	1
o-Xylene	95-47-6	< 0.00199	0.00199		mg/kg	05.24.18 23.16	U	1
Total Xylenes	1330-20-7	< 0.00199	0.00199		mg/kg	05.24.18 23.16	U	1
Total BTEX		< 0.00199	0.00199		mg/kg	05.24.18 23.16	U	1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene		540-36-3	86	%	70-130	05.24.18 23.16		
4-Bromofluorobenzene		460-00-4	100	%	70-130	05.24.18 23.16		





# COG Operating LLC, Artesia, NM

Sample Id:Row sw-3Lab Sample Id:587061-007		Matrix: Date Collec	Soil cted: 05.22.18 07.15		Date Received:05.2	24.18 10.2	1
Analytical Method: Chloride by EF	PA 300				Prep Method: E30	)0P	
Tech: SCM					% Moisture:		
Analyst: SCM		Date Prep:	05.24.18 17.30		Basis: We	t Weight	
Seq Number: 3051347		-					
Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	519	4.97	mg/kg	05.24.18 21.04		1
Analytical Method: TPH By SW80 Tech: ARM	15 Mod				Prep Method: TX % Moisture:	1005P	
Analyst: ARM Seq Number: 3051431		Date Prep:	05.24.18 11.00			t Weight	
Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	05.24.18 21.23	U	1
	GLOGADERO	150	150		0.5.04.40.04.00	•••	

Parameter	Cas Number	Result	RL		Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0		mg/kg	05.24.18 21.23	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0		mg/kg	05.24.18 21.23	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0		mg/kg	05.24.18 21.23	U	1
Total TPH	PHC635	<15.0	15.0		mg/kg	05.24.18 21.23	U	1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane		111-85-3	84	%	70-135	05.24.18 21.23		
o-Terphenyl		84-15-1	83	%	70-135	05.24.18 21.23		





# COG Operating LLC, Artesia, NM

Sample Id:Row sw-3Lab Sample Id:587061-007	Matrix: Soil Date Collected: 05.22.18 07.15	Date Received:05.24.18 10.21
Analytical Method: BTEX by EPA 8021B		Prep Method: SW5030B
Tech: ALJ		% Moisture:
Analyst: ALJ	Date Prep: 05.24.18 17.00	Basis: Wet Weight
Seq Number: 3051416		

Parameter	Cas Number	Result	RL		Units	Analysis Date	Flag	Dil
Benzene	71-43-2	< 0.00200	0.00200		mg/kg	05.24.18 23.35	U	1
Toluene	108-88-3	< 0.00200	0.00200		mg/kg	05.24.18 23.35	U	1
Ethylbenzene	100-41-4	< 0.00200	0.00200		mg/kg	05.24.18 23.35	U	1
m,p-Xylenes	179601-23-1	< 0.00399	0.00399		mg/kg	05.24.18 23.35	U	1
o-Xylene	95-47-6	< 0.00200	0.00200		mg/kg	05.24.18 23.35	U	1
Total Xylenes	1330-20-7	< 0.00200	0.00200		mg/kg	05.24.18 23.35	U	1
Total BTEX		< 0.00200	0.00200		mg/kg	05.24.18 23.35	U	1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene		540-36-3	81	%	70-130	05.24.18 23.35		
4-Bromofluorobenzene		460-00-4	93	%	70-130	05.24.18 23.35		





# COG Operating LLC, Artesia, NM

Sample Id:Row sw-4Lab Sample Id:587061-008		Matrix: Date Colled	Soil cted: 05.22.18 07.20	Date Received:05.24.18 10.21			1
Analytical Method: Chloride by EF	PA 300				Prep Method: E3	00P	
Tech: SCM					% Moisture:		
Analyst: SCM		Date Prep:	05.24.18 17.30		Basis: We	et Weight	
Seq Number: 3051347							
Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	489	4.99	mg/kg	05.24.18 21.22		1
Analytical Method: TPH By SW80	15 Mod				Prep Method: TX	1005P	
Tech: ARM					% Moisture:		
Analyst: ARM		Date Prep:	05.24.18 11.00		Basis: We	et Weight	
Seq Number: 3051431							
Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	05.24.18 21.50	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	05.24.18 21.50	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	05.24.18 21.50	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	05.24.18 21.50	U	1

otal TPH	PHC635	<15.0	15.0		mg/kg	05.24.18 21.50	U	
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane		111-85-3	86	%	70-135	05.24.18 21.50		
o-Terphenyl		84-15-1	83	%	70-135	05.24.18 21.50		





# COG Operating LLC, Artesia, NM

Sample Id:Row sw-4Lab Sample Id:587061-008	Matrix: Date Collected:	Soil : 05.22.18 07.20	Date Received	d:05.24.18 10.21
Analytical Method: BTEX by EPA 8021B			Prep Method:	SW5030B
Tech: ALJ			% Moisture:	
Analyst: ALJ	Date Prep:	05.24.18 17.00	Basis:	Wet Weight
Seq Number: 3051416				

Parameter	Cas Number	Result	RL		Units	Analysis Date	Flag	Dil
Benzene	71-43-2	< 0.00200	0.00200		mg/kg	05.24.18 23.53	U	1
Toluene	108-88-3	< 0.00200	0.00200		mg/kg	05.24.18 23.53	U	1
Ethylbenzene	100-41-4	< 0.00200	0.00200		mg/kg	05.24.18 23.53	U	1
m,p-Xylenes	179601-23-1	< 0.00401	0.00401		mg/kg	05.24.18 23.53	U	1
o-Xylene	95-47-6	< 0.00200	0.00200		mg/kg	05.24.18 23.53	U	1
Total Xylenes	1330-20-7	< 0.00200	0.00200		mg/kg	05.24.18 23.53	U	1
Total BTEX		< 0.00200	0.00200		mg/kg	05.24.18 23.53	U	1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene		540-36-3	84	%	70-130	05.24.18 23.53		
4-Bromofluorobenzene		460-00-4	92	%	70-130	05.24.18 23.53		





# COG Operating LLC, Artesia, NM

Sample Id:Row sw-5Lab Sample Id:587061-009		Matrix: Date Collec	Soil ted: 05.22.18 07.25	Date Received:05.24.18 10.21	l
Analytical Method:Chloride byTech:SCMAnalyst:SCMSeq Number:3051347	EPA 300	Date Prep:	05.24.18 17.30	Prep Method: E300P % Moisture: Basis: Wet Weight	
Parameter	Cas Number	Result	RL	Units Analysis Date Flag	Dil
Chloride	16887-00-6	317	5.00	mg/kg 05.24.18 21.28	1
Analytical Method: TPH By SW Tech: ARM Analyst: ARM	78015 Mod			Prep Method: TX1005P % Moisture: Basis: Wet Weight	

Parameter	Cas Number	Result	RL		Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0		mg/kg	05.24.18 22.17	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0		mg/kg	05.24.18 22.17	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0		mg/kg	05.24.18 22.17	U	1
Total TPH	PHC635	<15.0	15.0		mg/kg	05.24.18 22.17	U	1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane		111-85-3	87	%	70-135	05.24.18 22.17		
o-Terphenyl		84-15-1	84	%	70-135	05.24.18 22.17		





# COG Operating LLC, Artesia, NM

Sample Id:Row sw-5Lab Sample Id:587061-009	Matrix: Soil Date Collected: 05.22.18 07.25	Date Received:05.24.18 10.21
Analytical Method: BTEX by EPA 8021B		Prep Method: SW5030B
Tech: ALJ		% Moisture:
Analyst: ALJ	Date Prep: 05.24.18 17.00	Basis: Wet Weight
Seq Number: 3051416		

Parameter	Cas Number	Result	RL		Units	Analysis Date	Flag	Dil
Benzene	71-43-2	< 0.00201	0.00201		mg/kg	05.25.18 00.11	U	1
Toluene	108-88-3	< 0.00201	0.00201		mg/kg	05.25.18 00.11	U	1
Ethylbenzene	100-41-4	0.00291	0.00201		mg/kg	05.25.18 00.11		1
m,p-Xylenes	179601-23-1	< 0.00402	0.00402		mg/kg	05.25.18 00.11	U	1
o-Xylene	95-47-6	< 0.00201	0.00201		mg/kg	05.25.18 00.11	U	1
Total Xylenes	1330-20-7	< 0.00201	0.00201		mg/kg	05.25.18 00.11	U	1
Total BTEX		0.00291	0.00201		mg/kg	05.25.18 00.11		1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene		460-00-4	96	%	70-130	05.25.18 00.11		
1,4-Difluorobenzene		540-36-3	86	%	70-130	05.25.18 00.11		





# COG Operating LLC, Artesia, NM

Sample Id:         Row sw-6           Lab Sample Id:         587061-010		Matrix: Date Collec	Soil cted: 05.22.18 07.55		Date Received:05.24.18 10.21					
Analytical Method: Chloride by EF	PA 300				Prep Method: E30	)0P				
Tech: SCM					% Moisture:					
Analyst: SCM		Date Prep:	05.24.18 17.30		Basis: We	t Weight				
Seq Number: 3051347										
Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil			
Chloride	16887-00-6	110	4.99	mg/kg	05.24.18 21.33		1			
Analytical Method: TPH By SW80 Tech: ARM Analyst: ARM Seq Number: 3051431	15 Mod	Date Prep:	05.24.18 11.00		Prep Method: TX % Moisture: Basis: We	1005P t Weight				
Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil			
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	05.24.18 22.45	U	1			
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	05.24.18 22.45	U	1			
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	05.24.18 22.45	U	1			
Total TPH	PHC635	<15.0	15.0	mg/kg	05.24.18 22.45	U	1			

otal TPH	PHC635	<15.0	15.0		mg/kg	05.24.18 22.45	U	1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane		111-85-3	86	%	70-135	05.24.18 22.45		
o-Terphenyl		84-15-1	83	%	70-135	05.24.18 22.45		





# COG Operating LLC, Artesia, NM

Sample Id:Row sw-6Lab Sample Id:587061-010	Matrix: Soil Date Collected: 05.22.1	Date Received:05.24.18 10.21 8 07.55
Analytical Method: BTEX by EPA 8021B Tech: ALJ		Prep Method: SW5030B % Moisture:
Analyst: ALJ	Date Prep: 05.24.1	8 17.00 Basis: Wet Weight
Seq Number: 3051416		

Parameter	Cas Number	Result	RL		Units	Analysis Date	Flag	Dil
Benzene	71-43-2	< 0.00199	0.00199		mg/kg	05.25.18 01.05	U	1
Toluene	108-88-3	< 0.00199	0.00199		mg/kg	05.25.18 01.05	U	1
Ethylbenzene	100-41-4	< 0.00199	0.00199		mg/kg	05.25.18 01.05	U	1
m,p-Xylenes	179601-23-1	< 0.00398	0.00398		mg/kg	05.25.18 01.05	U	1
o-Xylene	95-47-6	< 0.00199	0.00199		mg/kg	05.25.18 01.05	U	1
Total Xylenes	1330-20-7	< 0.00199	0.00199		mg/kg	05.25.18 01.05	U	1
Total BTEX		< 0.00199	0.00199		mg/kg	05.25.18 01.05	U	1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene		540-36-3	82	%	70-130	05.25.18 01.05		
4-Bromofluorobenzene		460-00-4	85	%	70-130	05.25.18 01.05		



# **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 LimitSDLSample Detection LimitLOD Limit of Detection
- PQL Practical Quantitation Limit MQL Method Quantitation Limit LOQ Limit of Quantitation
- DL Method Detection Limit
- NC Non-Calculable

SMP Clie	ent Sample	BLK	Method Blank	
BKS/LCS	Blank Spike/Laboratory Control Sample	BKSD/LCSD	Blank Spike Duplicate/Labor	ratory 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** 587061

#### **COG Operating LLC**

Gunner 16 State SWD #001

Analytical Method: Seq Number: MB Sample Id:	<b>Chloride by EPA 3</b> 3051340 7655441-1-BLK	00	Matrix: Solid LCS Sample Id: 7655441-1-BKS					Prep Method: E300P Date Prep: 05.24.18 LCSD Sample Id: 7655441-1-BSD				
Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Lim	it Units	Analysis Date	Flag
Chloride	<5.00	250	229	92	231	92	90-110	1	20	mg/kg	05.24.18 16:53	
Analytical Method:	Chloride by EPA 3	00						F	Prep Meth	od: E30	0P	
Seq Number:	3051347			Matrix:	Solid				Date Pr	ep: 05.2	4.18	
MB Sample Id:	7655442-1-BLK		LCS Sar	nple Id:	7655442-	1-BKS		LCS	SD Sample	e Id: 7655	5442-1-BSD	
Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Lim	it Units	Analysis Date	Flag
Chloride	< 5.00	250	238	95	235	94	90-110	1	20	mg/kg	05.24.18 20:16	

Analytical Method:	Chloride by EPA 3	00						Pr	ep Metho	od: E300	OP	
Seq Number:	3051340			Matrix:	Soil				Date Pre	ep: 05.2	4.18	
Parent Sample Id:	587060-001		MS San	nple Id:	587060-00	01 S		MS	D Sample	e Id: 5870	)60-001 SD	
	_											
Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Lim	it Units	Analysis Date	Flag

Analytical Method:	Chloride by EPA 30					Pı	ep Metho	od: E30	0P			
Seq Number:	3051340	Matrix:	Soil				Date Pre	ep: 05.2	4.18			
Parent Sample Id:	587060-011		MS Sar	nple Id:	587060-0	11 S		MS	D Sample	e Id: 5870	)60-011 SD	
Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Lim	it Units	Analysis Date	Flag
Chloride	<4.99	250	247	99	245	99	90-110	1	20	mg/kg	05.24.18 18:40	

Analytical Method:	Chloride by EPA 30	)0						Р	rep Meth	od: E30	OP	
Seq Number:	3051347			Matrix:	Soil				Date Pr	ep: 05.2	4.18	
Parent Sample Id:	587061-004		MS Sar	nple Id:	587061-00	)4 S		MS	D Sample	e Id: 5870	)61-004 SD	
Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Lim	it Units	Analysis Date	Flag
Chloride	509	250	748	96	730	88	90-110	2	20	mg/kg	05.24.18 20:34	Х

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

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 AddedD = MSD/LCSD % Rec



QC Summary 587061

### **COG Operating LLC**

Gunner 16 State SWD #001

Analytical Method:	Chloride by EPA 30	)0						Pı	ep Metho	d: E30	0P	
Seq Number:	3051347			Matrix:	Soil				Date Pre	p: 05.2	4.18	
Parent Sample Id:	587133-002		MS Sar	nple Id:	587133-00	02 S		MS	D Sample	Id: 587	133-002 SD	
Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limi	t Units	Analysis Date	Flag
Chloride	691	249	915	90	927	95	90-110	1	20	mg/kg	05.24.18 21:57	

Analytical Method: Seq Number: MB Sample Id:	<b>TPH By S</b> 3051431 7655483-1		lod	LCS Sar	Solid 7655483-	Prep Method: TX1005P Date Prep: 05.24.18 LCSD Sample Id: 7655483-1-BSD							
Parameter		MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarb	oons (GRO)	<15.0	1000	977	98	1030	103	70-135	5	20	mg/kg	05.24.18 12:13	
Diesel Range Organics	(DRO)	<15.0	1000	1050	105	1130	113	70-135	7	20	mg/kg	05.24.18 12:13	
Surrogate		MB %Rec	MB Flag		CS Rec	LCS Flag	LCSI %Re	-	_	Limits	Units	Analysis Date	
1-Chlorooctane		98		1	09		123		7	0-135	%	05.24.18 12:13	
o-Terphenyl		100		1	01		109		7	0-135	%	05.24.18 12:13	

<b>Analytical Method:</b> Seq Number: Parent Sample Id:	<b>TPH By S</b> 3051431 586753-00		lod		Matrix: nple Id:	Soil 586753-00	)1 S			Prep Method Date Prep SD Sample I	o: 05.2	1005P 24.18 753-001 SD	
Parameter		Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarb	ons (GRO)	<15.0	998	979	98	989	99	70-135	1	20	mg/kg	05.24.18 13:35	
Diesel Range Organics	(DRO)	<15.0	998	1030	103	1040	104	70-135	1	20	mg/kg	05.24.18 13:35	
Surrogate					IS Rec	MS Flag	MSD %Ree		_	imits	Units	Analysis Date	
1-Chlorooctane				1	08		108		7	0-135	%	05.24.18 13:35	
o-Terphenyl				9	<del>9</del> 7		97		7	0-135	%	05.24.18 13:35	

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



### **COG Operating LLC**

Gunner 16 State SWD #001

Analytical Method:	BTEX by EPA 802	1B						F	Prep Metho	d: SW:	5030B	
Seq Number:	3051416			Matrix:	Solid				Date Pre	ep: 05.2	4.18	
MB Sample Id:	7655458-1-BLK		LCS Sar	nple Id:	7655458-	1-BKS		LCS	SD Sample	Id: 765	5458-1-BSD	
Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limi	t Units	Analysis Date	Flag
Benzene	< 0.00200	0.0998	0.0986	99	0.0901	90	70-130	9	35	mg/kg	05.24.18 19:38	
Toluene	< 0.00200	0.0998	0.0940	94	0.0885	89	70-130	6	35	mg/kg	05.24.18 19:38	
Ethylbenzene	< 0.00200	0.0998	0.100	100	0.0914	91	70-130	9	35	mg/kg	05.24.18 19:38	
m,p-Xylenes	< 0.00399	0.200	0.211	106	0.192	96	70-130	9	35	mg/kg	05.24.18 19:38	
o-Xylene	< 0.00200	0.0998	0.106	106	0.0955	96	70-130	10	35	mg/kg	05.24.18 19:38	
Surrogate	MB %Rec	MB Flag		CS Rec	LCS Flag	LCSD %Rec			Limits	Units	Analysis Date	
1,4-Difluorobenzene	86		1	01		89		7	0-130	%	05.24.18 19:38	
4-Bromofluorobenzene	108		1	02		88		7	0-130	%	05.24.18 19:38	

Analytical Method:	BTEX by EPA 8021	1B						I	Prep Metho	d: SW:	5030B	
Seq Number:	3051416			Matrix:	Soil				Date Pre	p: 05.2	4.18	
Parent Sample Id:	587060-001		MS San	nple Id:	587060-00	01 S		M	SD Sample	Id: 587	060-001 SD	
Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limi	t Units	Analysis Date	Flag
Benzene	< 0.00199	0.0996	0.0635	64	0.0974	97	70-130	42	35	mg/kg	05.24.18 20:15	XF
Toluene	< 0.00199	0.0996	0.0624	63	0.0947	95	70-130	41	35	mg/kg	05.24.18 20:15	XF
Ethylbenzene	< 0.00199	0.0996	0.0542	54	0.0949	95	70-130	55	35	mg/kg	05.24.18 20:15	XF
m,p-Xylenes	< 0.00398	0.199	0.133	67	0.198	99	70-130	39	35	mg/kg	05.24.18 20:15	XF
o-Xylene	< 0.00199	0.0996	0.0670	67	0.101	101	70-130	40	35	mg/kg	05.24.18 20:15	XF
Surrogate				1S Rec	MS Flag	MSD %Re		-	Limits	Units	Analysis Date	
1,4-Difluorobenzene			ç	94		96		7	70-130	%	05.24.18 20:15	
4-Bromofluorobenzene			8	32		121		7	70-130	%	05.24.18 20:15	

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

LABORATORIES		CHA	Page L of	Page 1 of 1	YGO				
Setting the Standard since 1990 Stafford, Texas (281-240-4200)	San	San Antonio, Texas (210-509-3334)	-509-3334)		Phoenix	Phoenix, Arizona (480-355-0900)	(0000)		
Dallas Texas (214-902-0300)	Midi	Midland, Texas (432-704-5251)	-5251)		Venno Duoto #	2	Variation of the		
					-	Analytical Information		1.000	Matrix Codes
Client / Reporting Information		Project In	Project Information					Vacuum	in ecces
Company Name / Branch: COG Operating, LLC	Proje	Project Name/Number: Gun	Gunner 16 State SWD #001					W = Water	later
Company Address: 2407 Pecos Ave. Artesia NM 88210	Proje	Project Location:	-		M)			GW =	GW = Ground Water
m	Phone No: 575-703-6475 Invoic	Lea County, NM Invoice To: COG Operating, LLC	nty, NM		3015			P = Pr	P = Product SW = Surface water
oncho.com; rhask	-64/5	Attn: Robert McNeill	ng, LLC		PA8	300)		SK=S	SW = Surface water SL = Sludge
Project Contact: Sheldon Hitchcock	BOA	Midland Tx, 79701	Ave. 9701					WI = Wipe	OW =Ocean/Sea Water WI = Wipe
Samplers's Name: Sheldon Hitchcock					-	-		W=WW	WW= Waste Water
	Coll	Collection	Nu	Number of preserved bottles	TEN			A = Air	ir ir
No. Field ID / Point of Collection	Sample Depth Date	te Time Martix	# of HCI	Acetate 1NO3 12SO4 18OH 18HSO4	леон	CHLORI		Eigh Opp	
1 Row Bttm-1 Dit'	5	7:36	-	+ +	X	-			
0++m-2		-11	-		XX	×			
ROL BHM-	-	7:50 s	-1		XX				
ROW	NA	7:00 S	-		XX	1			
5 ROV SW-1		5 2012 s	1		/ X /	~ >			
		7110 s	1		X	×			
7 Rov 50-3		2112 s	1		× ×	×			
B ROU SW-4		7:20 s	1		XX	×			
100		7:25 s	5 1			XX			
10 ROWSH-6	5	7:55 s	1		XX	X.			
Turnaround Time (	1		Data Deliverable Information	ormation			Notes:		
X Same Day TAT	5 Day TAT	Level II Std QC	Std QC	Level IV (Fu	Level IV (Full Data Pkg /raw data)				
Next Day EMERGENCY	7 Day TAT	Level III	Level III Std QC+ Forms	TRRP Level IV	N				
2 Day EMERGENCY	Contract TAT	Level 3	Level 3 (CLP Forms)	UST/RG -411	11				
3 Day EMERGENCY		TRRP Checklist	hecklist						
TAT Starts Day received by Lab, if received by 5:00 pm	ceived by 5:00 pm						FED-EX / UPS: Tracking #		
Relinquished by Sampler: A	SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY	MENTED BELOW EACH	TIME SAMPLES CHANG	E POSSESSION, INCLUE	ING COURIER DELIVER		14		S/ 121
1 Sully Rear	5/23 /3	10 1 Neceived By:	Brynd	2 2	Philles	5/23 /S	-20 2 Receiped L	and c	0/23/18/1019
Relinquished by: *	Date Time:	Received By:		Relinquished By:	By:	Date Time:	Received By:		
Relinquished by:	Date Time:	Received By:		Custody Seal #		Preserved where applicable	cable On Ice	Gooler Temp. Them	The mo Corr. Factor

Page 31 of 32



## XENCO Laboratories Prelogin/Nonconformance Report- Sample Log-In



Client: COG Operating LLC Acceptable Temperature Range: 0 - 6 degC Air and Metal samples Acceptable Range: Ambient Date/ Time Received: 05/24/2018 10:21:31 AM Temperature Measuring device used : R8 Work Order #: 587061 Comments Sample Receipt Checklist #1 \*Temperature of cooler(s)? 1.8 #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 THP was recevied in bulk container #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:

Brianna Teel

Date: 05/24/2018

Checklist reviewed by:

Jession VRAMER

Jessica Kramer

Date: 05/24/2018



Project Id:Contact:Sheldon HitchcockProject Location:Lea County, NM

Certificate of Analysis Summary 587063

COG Operating LLC, Artesia, NM Project Name: Gunner 16 State SWD #001



Date Received in Lab:Thu May-24-18 10:19 amReport Date:25-MAY-18Project Manager:Jessica Kramer

	Lab Id:	587063-0	01	587063-0	02		
	Field Id:	Row AH-1	1 0'	Row AH-1 1' I	Refasal		
Analysis Requested	Depth:	0- ft		1- ft			
	Matrix:	SOIL		SOIL			
	Sampled:	May-17-18 (	09:00	May-17-18 (	09:15		
BTEX by EPA 8021B	Extracted:	May-24-18 1	17:00	May-24-18	7:00		
	Analyzed:	May-25-18 (	01:23	May-25-18 (	01:42		
	Units/RL:	mg/kg	RL	mg/kg	RL		
Benzene		< 0.00202	0.00202	< 0.00200	0.00200		
Toluene		< 0.00202	0.00202	< 0.00200	0.00200		
Ethylbenzene		< 0.00202	0.00202	< 0.00200	0.00200		
m,p-Xylenes		< 0.00403	0.00403	< 0.00401	0.00401		
o-Xylene		< 0.00202	0.00202	< 0.00200	0.00200		
Total Xylenes		< 0.00202	0.00202	< 0.00200	0.00200		
Total BTEX		< 0.00202	0.00202	< 0.00200	0.00200		
Chloride by EPA 300	Extracted:	May-24-18 1	17:30	May-24-18	7:30		
	Analyzed:	May-24-18 2	21:39	May-24-18 2	21:45		
	Units/RL:	mg/kg	RL	mg/kg	RL		
Chloride		12400	250	93.6	4.99		
TPH By SW8015 Mod	Extracted:	May-24-18 1	11:00	May-24-18	1:00		
	Analyzed:	May-24-18 2	23:12	May-24-18 2	23:39		
	Units/RL:	mg/kg	RL	mg/kg	RL		
Gasoline Range Hydrocarbons (GRO)		<15.0	15.0	<15.0	15.0		
Diesel Range Organics (DRO)		<15.0	15.0	<15.0	15.0		
Oil Range Hydrocarbons (ORO)		<15.0	15.0	<15.0	15.0		
Total TPH		<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

fession kenner

Jessica Kramer Project Assistant

# Analytical Report 587063

for COG Operating LLC

Project Manager: Sheldon Hitchcock Gunner 16 State SWD #001

#### 25-MAY-18

Collected By: Client





#### 1211 W. Florida Ave, Midland TX 79701

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)







Project Manager: **Sheldon Hitchcock COG Operating LLC** 2407 Pecos Avenue Artesia, NM 88210

Reference: XENCO Report No(s): 587063 Gunner 16 State SWD #001 Project Address: Lea County, NM

#### Sheldon Hitchcock:

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) 587063. 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. 587063 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,

Jessica Vramer

Jessica Kramer Project Assistant

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 587063



## COG Operating LLC, Artesia, NM

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
Row AH-1 0'	S	05-17-18 09:00	0 ft	587063-001
Row AH-1 1' Refasal	S	05-17-18 09:15	1 ft	587063-002



## CASE NARRATIVE

#### Client Name: COG Operating LLC Project Name: Gunner 16 State SWD #001

Project ID: Work Order Number(s): 587063 Report Date:25-MAY-18Date Received:05/24/2018

#### Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments: Batch: LBA-3051416 BTEX by EPA 8021B Soil samples were not received in Terracore kits and therefore were prepared by method 5030.





# COG Operating LLC, Artesia, NM

Sample Id: Row AH-1 0'		Matrix:	Soil		Date Received:05.2	24.18 10.1	9
Lab Sample Id: 587063-001		Date Collect	ted: 05.17.18 09.00		Sample Depth: 0 ft		
Analytical Method: Chloride	by EPA 300				Prep Method: E30	00P	
Tech: SCM					% Moisture:		
Analyst: SCM		Date Prep:	05.24.18 17.30		Basis: Wet	t Weight	
Seq Number: 3051347							
Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	12400	250	mg/kg	05.24.18 21.39		50

Analytical Method: TPH By SW801	5 Mod				F	Prep Method: TX	1005P	
Tech: ARM					9	6 Moisture:		
Analyst: ARM		Date Pre	p: 05.24.	18 11.00	E	Basis: We	t Weight	
Seq Number: 3051431								
Parameter	Cas Number	Result	RL		Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0		mg/kg	05.24.18 23.12	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0		mg/kg	05.24.18 23.12	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0		mg/kg	05.24.18 23.12	U	1
Total TPH	PHC635	<15.0	15.0		mg/kg	05.24.18 23.12	U	1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane		111-85-3	98	%	70-135	05.24.18 23.12		
o-Terphenyl		84-15-1	95	%	70-135	05.24.18 23.12		





# COG Operating LLC, Artesia, NM

Sample Id:         Row AH-1 0'           Lab Sample Id:         587063-001	Matrix: Soil Date Collected: 05.17.18 09.00	Date Received:05.24.18 10.19 Sample Depth: 0 ft
Analytical Method:BTEX by EPA 8021BTech:ALJAnalyst:ALJSeq Number:3051416	Date Prep: 05.24.18 17.00	Prep Method: SW5030B % Moisture: Basis: Wet Weight

Parameter	Cas Number	Result	RL		Units	Analysis Date	Flag	Dil
Benzene	71-43-2	< 0.00202	0.00202		mg/kg	05.25.18 01.23	U	1
Toluene	108-88-3	< 0.00202	0.00202		mg/kg	05.25.18 01.23	U	1
Ethylbenzene	100-41-4	< 0.00202	0.00202		mg/kg	05.25.18 01.23	U	1
m,p-Xylenes	179601-23-1	< 0.00403	0.00403		mg/kg	05.25.18 01.23	U	1
o-Xylene	95-47-6	< 0.00202	0.00202		mg/kg	05.25.18 01.23	U	1
Total Xylenes	1330-20-7	< 0.00202	0.00202		mg/kg	05.25.18 01.23	U	1
Total BTEX		< 0.00202	0.00202		mg/kg	05.25.18 01.23	U	1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene		540-36-3	88	%	70-130	05.25.18 01.23		
4-Bromofluorobenzene		460-00-4	111	%	70-130	05.25.18 01.23		





# COG Operating LLC, Artesia, NM

Sample Id:Row AH-1Lab Sample Id:587063-002		Matrix: Date Collecte	Soil ed: 05.17.18 09.15		Received:05.24 ple Depth: 1 ft	4.18 10.19
Analytical Method: Chlorid Tech: SCM	de by EPA 300			•	Method: E300 loisture:	)P
Analyst: SCM Seg Number: 3051347		Date Prep:	05.24.18 17.30	Basis	s: Wet	Weight
Parameter	Cas Number	Result I	RL	Units A	Analysis Date	Flag Dil

rarameter	Cas Number	Kesult	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	93.6	4.99	mg/kg	05.24.18 21.45		1

Analytical Method: TPH By SW801	5 Mod				F	Prep Method: TX	1005P	
Tech: ARM					9	6 Moisture:		
Analyst: ARM		Date Pre	p: 05.24.	18 11.00	E	Basis: We	t Weight	
Seq Number: 3051431								
Parameter	Cas Number	Result	RL		Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0		mg/kg	05.24.18 23.39	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0		mg/kg	05.24.18 23.39	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0		mg/kg	05.24.18 23.39	U	1
Total TPH	PHC635	<15.0	15.0		mg/kg	05.24.18 23.39	U	1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane		111-85-3	83	%	70-135	05.24.18 23.39		
o-Terphenyl		84-15-1	76	%	70-135	05.24.18 23.39		





# COG Operating LLC, Artesia, NM

Sample Id:Row AH-1 1' RefasalLab Sample Id:587063-002	Matrix: Soil Date Collected: 05.17.18 09.15	Date Received:05.24.18 10.19 Sample Depth: 1 ft
Analytical Method: BTEX by EPA 8021B Tech: ALJ		Prep Method: SW5030B % Moisture:
Analyst: ALJ Seq Number: 3051416	Date Prep: 05.24.18 17.00	Basis: Wet Weight

Parameter	Cas Number	Result	RL		Units	Analysis Date	Flag	Dil
Benzene	71-43-2	< 0.00200	0.00200		mg/kg	05.25.18 01.42	U	1
Toluene	108-88-3	< 0.00200	0.00200		mg/kg	05.25.18 01.42	U	1
Ethylbenzene	100-41-4	< 0.00200	0.00200		mg/kg	05.25.18 01.42	U	1
m,p-Xylenes	179601-23-1	< 0.00401	0.00401		mg/kg	05.25.18 01.42	U	1
o-Xylene	95-47-6	< 0.00200	0.00200		mg/kg	05.25.18 01.42	U	1
Total Xylenes	1330-20-7	< 0.00200	0.00200		mg/kg	05.25.18 01.42	U	1
Total BTEX		< 0.00200	0.00200		mg/kg	05.25.18 01.42	U	1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene		540-36-3	114	%	70-130	05.25.18 01.42		
4-Bromofluorobenzene		460-00-4	99	%	70-130	05.25.18 01.42		



# **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 LimitSDLSample Detection LimitLOD Limit of Detection
- PQL Practical Quantitation Limit MQL Method Quantitation Limit LOQ Limit of Quantitation
- DL Method Detection Limit
- NC Non-Calculable

SMP Clie	ent Sample	BLK	Method Blank	
BKS/LCS	Blank Spike/Laboratory Control Sample	BKSD/LCSD	Blank Spike Duplicate/Labor	ratory 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 587063

#### **COG Operating LLC**

Gunner 16 State SWD #001

Analytical Method:	Chloride by EPA 3	00						Pre	ep Metho	d: E30	OP	
Seq Number:	3051347			Matrix:	Solid				Date Pre	ep: 05.2	4.18	
MB Sample Id:	7655442-1-BLK		LCS Sar	nple Id:	7655442-1	I-BKS		LCSE	Sample	Id: 7655	5442-1-BSD	
Parameter	MB	Spike	LCS	LCS	LCSD	LCSD	Limits	%RPD F	RPD Limi	t Units	Analysis	Flag
	Result	Amount	Result	%Rec	Result	%Rec					Date	8

Analytical Method:	Chloride by EPA 30	)0						Pr	ep Metho	d: E30	00P	
Seq Number:	3051347			Matrix:	Soil				Date Pre	p: 05.	24.18	
Parent Sample Id:	587061-004		MS Sar	nple Id:	587061-00	)4 S		MSI	O Sample	Id: 587	061-004 SD	
Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD I	RPD Limi	t Units	Analysis Date	Flag
Chloride			748	96	730	88	90-110		20	mg/kg	05.24.18 20:34	

Analytical Method:	Chloride by EPA 3	00						Pı	ep Meth	od: E30	0P	
Seq Number:	3051347			Matrix:	Soil				Date Pr	ep: 05.2	24.18	
Parent Sample Id:	587133-002		MS Sar	nple Id:	587133-00	02 S		MS	D Sample	e Id: 587	133-002 SD	
Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Lim	it Units	Analysis Date	Flag

Analytical Method:	TPH By S	W8015 M	lod						I	Prep Method	l: TX1	005P	
Seq Number:	3051431				Matrix:	Solid				Date Prep	p: 05.2	4.18	
MB Sample Id:	7655483-1	-BLK		LCS Sar	nple Id:	7655483-	1-BKS		LCS	SD Sample	Id: 765	5483-1-BSD	
Parameter		MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarb	ons (GRO)	<15.0	1000	977	98	1030	103	70-135	5	20	mg/kg	05.24.18 12:13	
Diesel Range Organics	(DRO)	<15.0	1000	1050	105	1130	113	70-135	7	20	mg/kg	05.24.18 12:13	
Surrogate		MB %Rec	MB Flag		CS Rec	LCS Flag	LCSI %Re			Limits	Units	Analysis Date	
1-Chlorooctane		98		1	09		123		7	70-135	%	05.24.18 12:13	
o-Terphenyl		100		1	01		109		7	70-135	%	05.24.18 12:13	

[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



### **COG Operating LLC**

Gunner 16 State SWD #001

Analytical Method:	TPH By S	W8015 M	lod						]	Prep Method	l: TX	005P	
Seq Number:	3051431				Matrix:	Soil				Date Prep	p: 05.2	4.18	
Parent Sample Id:	586753-00	)1		MS Sar	nple Id:	586753-00	01 S		Μ	SD Sample	ld: 586	753-001 SD	
Parameter		Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPI	ORPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarb	ons (GRO)	<15.0	998	979	98	989	99	70-135	1	20	mg/kg	05.24.18 13:35	
Diesel Range Organics	(DRO)	<15.0	998	1030	103	1040	104	70-135	1	20	mg/kg	05.24.18 13:35	
Surrogate					AS Rec	MS Flag	MSD %Re		-	Limits	Units	Analysis Date	
1-Chlorooctane				1	08		108		-	70-135	%	05.24.18 13:35	
o-Terphenyl				Ģ	<del>9</del> 7		97		-	70-135	%	05.24.18 13:35	

<b>Analytical Method:</b> Seq Number: MB Sample Id:	<b>BTEX by EPA 802</b> 3051416 7655458-1-BLK	1B	LCS San	Matrix: nple Id:	Solid 7655458-	1-BKS			Prep Method Date Prep SD Sample 1	p: 05.2	5030B 4.18 5458-1-BSD	
Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	< 0.00200	0.0998	0.0986	99	0.0901	90	70-130	9	35	mg/kg	05.24.18 19:38	
Toluene	< 0.00200	0.0998	0.0940	94	0.0885	89	70-130	6	35	mg/kg	05.24.18 19:38	
Ethylbenzene	< 0.00200	0.0998	0.100	100	0.0914	91	70-130	9	35	mg/kg	05.24.18 19:38	
m,p-Xylenes	< 0.00399	0.200	0.211	106	0.192	96	70-130	9	35	mg/kg	05.24.18 19:38	
o-Xylene	< 0.00200	0.0998	0.106	106	0.0955	96	70-130	10	35	mg/kg	05.24.18 19:38	
Surrogate	MB %Rec	MB Flag			LCS Flag	LCSD %Rec			Limits	Units	Analysis Date	
1,4-Difluorobenzene	86		1	01		89		7	0-130	%	05.24.18 19:38	
4-Bromofluorobenzene	108		1	02		88		7	/0-130	%	05.24.18 19:38	

Analytical Method: Seq Number: Parent Sample Id:	<b>BTEX by EPA 802</b> 3051416 587060-001	1B	MS San	Matrix: nple Id:	Soil 587060-00	01 S			Prep Metho Date Pre SD Sample	p: 05.2	5030B 4.18 060-001 SD	
Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	< 0.00199	0.0996	0.0635	64	0.0974	97	70-130	42	35	mg/kg	05.24.18 20:15	XF
Toluene	< 0.00199	0.0996	0.0624	63	0.0947	95	70-130	41	35	mg/kg	05.24.18 20:15	XF
Ethylbenzene	< 0.00199	0.0996	0.0542	54	0.0949	95	70-130	55	35	mg/kg	05.24.18 20:15	XF
m,p-Xylenes	< 0.00398	0.199	0.133	67	0.198	99	70-130	39	35	mg/kg	05.24.18 20:15	XF
o-Xylene	< 0.00199	0.0996	0.0670	67	0.101	101	70-130	40	35	mg/kg	05.24.18 20:15	XF
Surrogate				1S Rec	MS Flag	MSD %Re		-	Limits	Units	Analysis Date	
1,4-Difluorobenzene			ç	94		96		7	0-130	%	05.24.18 20:15	
4-Bromofluorobenzene			8	32		121		7	0-130	%	05.24.18 20:15	

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

Phoenix Arizona (	
A manual fuman i	Phoenix, Arizona (480-355-0900)
Xenco Duote #	Konco lab# COTO 0
Anal	Analytical Information O O O O O O O O O O O O O O O O O O O
	W = Water S = Soil/Sed/Solid
5M)	GW =Ground Water DW = Drinking Water
	SW = Surface water SL = Sludge
1B)	OW =Ocean/Sea Water WI = Wipe
802	0 = Oil WW= Waste Water
EPA	A = Air
<sup>меон</sup> ТРН ЕХ ВТЕХ (I	Field Comments
XXX	
	Notes:
Level IV (Full Data Pkg /raw data)	
TRRP Level IV	
UST / RG -411	
	FED-EX / UPS: Tracking #
Date	
2 / / / Date Time:	Time: Recount BY: A CAR O LON /
	4 A A A A A A A A A A A A A A A A A A A
Clinit Reporting Information         Prove Name:         Note:         Prove Name:         Note:         Prove Name:         Note:         Collection:         Number of prove Name:         Note:         Simple         Number of prove Name:           Number of prove Name:         Number of prove Name:         Number of prove Name:         Number of prove Name:           Number of prove Name:         Number of prove Name:         Number of prove Name:           Number of prove Name:         Number of prove Name:         Number of prove Name:           Number of prove Name:         Number of prove Name:         Number of prove Name:         Number of prove Name:	Preserver Date Date Date Date Date Date Date Date



## XENCO Laboratories Prelogin/Nonconformance Report- Sample Log-In



Client: COG Operating LLC Acceptable Temperature Range: 0 - 6 degC Air and Metal samples Acceptable Range: Ambient Date/ Time Received: 05/24/2018 10:19:00 AM Temperature Measuring device used : R8 Work Order #: 587063 Comments Sample Receipt Checklist 1.8 #1 \*Temperature of cooler(s)? #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)? 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:

Brianna Teel

Date: 05/24/2018

Checklist reviewed by:

fession VRAMER

Jessica Kramer

Date: 05/24/2018



Project Id:Contact:Sheldon HitchcockProject Location:Lea Co. NM

Certificate of Analysis Summary 587370

COG Operating LLC, Artesia, NM Project Name: Gunner 16 st SWD #1



Date Received in Lab:Tue May-29-18 08:09 amReport Date:30-MAY-18Project Manager:Jessica Kramer

	Lab Id:	587370-001	587370-002		
Analysis Requested	Field Id:	BH-1/BH-2/3 3.5'	BH-2/3 / BH-5/6 3.5"		
	Depth:	3.5 ft	3.5 ft		
	Matrix:	SOIL	SOIL		
	Sampled:	May-25-18 12:00	May-25-18 12:05		
Chloride by EPA 300	Extracted:	May-29-18 14:00	May-29-18 14:00		1
	Analyzed:	May-29-18 20:46	May-29-18 20:51		
	Units/RL:	mg/kg RL	mg/kg RL		
Chloride 163		163 4.99	439 4.97		

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.%

fession kramer

Jessica Kramer Project Assistant
# Analytical Report 587370

for COG Operating LLC

**Project Manager: Sheldon Hitchcock** 

Gunner 16 st SWD #1

#### 30-MAY-18

Collected By: Client





#### 1211 W. Florida Ave, Midland TX 79701

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)



30-MAY-18



Project Manager: **Sheldon Hitchcock COG Operating LLC** 2407 Pecos Avenue Artesia, NM 88210

Reference: XENCO Report No(s): **587370** Gunner 16 st SWD #1 Project Address: Lea Co. NM

#### Sheldon Hitchcock:

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) 587370. 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. 587370 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,

Jessica Vramer

Jessica Kramer Project Assistant

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

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# Sample Cross Reference 587370



#### COG Operating LLC, Artesia, NM

Gunner 16 st SWD #1

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
BH-1/BH-2/3 3.5'	S	05-25-18 12:00	- 3.5 ft	587370-001
BH-2/3 / BH-5/6 3.5"	S	05-25-18 12:05	- 3.5 ft	587370-002



#### CASE NARRATIVE

Client Name: COG Operating LLC Project Name: Gunner 16 st SWD #1

Project ID: Work Order Number(s): 587370 
 Report Date:
 30-MAY-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 587370**



#### COG Operating LLC, Artesia, NM

Gunner 16 st SWD #1

Sample Id:         BH-1/BH-2           Lab Sample Id:         587370-001		Matrix: Date Collecte	Soil ed: 05.25.18 12.00		Date Received:05 Sample Depth: 3.		1
Analytical Method: Chlorid Tech: SCM Analyst: SCM	le by EPA 300	Date Prep:	05.29.18 14.00	9	Prep Method: E3 % Moisture: Basis: W	800P et Weight	
Seq Number: 3051658		Date Trep.	05.29.10 14.00	L	<b>Jusis.</b> (7	et weight	
Parameter	Cas Number	Result F	8L	Units	Analysis Date	Flag	Dil

163

16887-00-6

4.99

05.29.18 20.46

mg/kg

1



# **Certificate of Analytical Results 587370**



#### COG Operating LLC, Artesia, NM

Gunner 16 st SWD #1

Sample Id: Lab Sample Id	<b>BH-2/3 / BH-5/6 3.5''</b> l: 587370-002		Matrix: Date Collect	Soil ed: 05.25.18 12.05		Date Received Sample Depth			
Analytical Me Tech:	thod: Chloride by EPA 3 SCM	00				Prep Method: % Moisture:	E300	0P	
Analyst:	SCM		Date Prep:	05.29.18 14.00		Basis:	Wet	Weight	
Seq Number:	3051658								
Parameter		Cas Number	Result	RL	Units	Analysis D	ate	Flag	Dil

439

Chloride

16887-00-6

4.97

05.29.18 20.51

mg/kg

1



# **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 LimitSDLSample Detection LimitLOD Limit of Detection
- PQL Practical Quantitation Limit MQL Method Quantitation Limit LOQ Limit of Quantitation
- DL Method Detection Limit
- NC Non-Calculable

SMP Clie	ent Sample	BLK	Method Blank	
BKS/LCS	S Blank Spike/Laboratory Control Sample	BKSD/LCSD	Blank Spike Duplicate/Labor	ratory 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 587370

#### **COG Operating LLC**

Gunner 16 st SWD #1

Analytical Method:	Chloride by EPA 3	00						Pı	ep Meth	od: E30	00P
Seq Number:	3051658			Matrix:	Solid				Date Pr	ep: 05.	29.18
MB Sample Id:	7655591-1-BLK		LCS Sar	nple Id:	7655591-	1-BKS		LCS	D Sampl	e Id: 765	5591-1-BSD
Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Lim	it Units	Analysis Date
Chloride	< 5.00	250	267	107	262	105	90-110	2	20	mg/kg	05.29.18 18:28

Analytical Method:	Chloride by EPA 30	00						Pr	ep Metho	od: E30	00P	
Seq Number:	3051658			Matrix:	Soil				Date Pre	ep: 05.2	29.18	
Parent Sample Id:	587245-009		MS Sar	nple Id:	587245-00	)9 S		MSI	O Sample	Id: 587	245-009 SD	
Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limi	t Units	Analysis Date	Flag
Chloride	19.9	248	278	104	279	104	90-110	0	20	mg/kg	05.29.18 18:44	

Analytical Method:	Chloride by EPA 3	00						P	rep Metho	od: E30	)P	
Seq Number:	3051658			Matrix:	Soil				Date Pre	ep: 05.2	9.18	
Parent Sample Id:	587245-019		MS Sar	nple Id:	587245-01	19 S		MS	D Sample	e Id: 5872	245-019 SD	
Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Lim	it Units	Analysis Date	Flag
Chloride	36.0	250	278	97	280	98	90-110	1	20	mg/kg	05.29.18 19:58	

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 Flag

6	
(	
LABORATORIES	XIIZOO

# CHAIN OF CUSTODY

Revision 2016.1

Dallas, TX (214) 902-0300 Lubbock, TX (806) 794-1296	06) 794-1296		ian Antonio, w	San Antonio, TX (210) 509-3334 www.xenco.com	3334 n	Se	rvice Center - Baton Xenco Quote #	Baton Rouge Duote #	Service Center - Baton Rouge, LA (832) 712-8143 Xenco Quote # Xenc	8143 Xenco Job #	Con Serv	ICe Center- H	Service Center-Hobbs, NM (575) 392-7550
Client / Reporting Information			miert Inform	nation .			_	Analy	Analytical Information	_			Matrix Codes
Company Name / Branch: COG OPENAtika		Project Name/Number:	lumber: G-UNA	Sunner	16 St 5	St SIND #		90			_	S =	W = Water S = Soil/Sed/Solid
		Project Location:	Ce. N	NM				4 30				DV P =	GW = Ground Water DW = Drinking Water P = Product SW = Surface Water
Shitch wal Condits, con	Inv	Invoice To: COG		Ť	Mentin	ł		EP,				WI SI	SL - Sludge OW = Ocean/Sea Water WI = Wipe
H-		Number:						S				200	WW = Waste Water
lein	C	r o Mulliosi,					1	de				3	A - AIF
		lection		~	dumbar of pr	seawood hottlag		ri	-				
No. Field ID / Point of Collection	Sample	Contection			H/Zn late 03 04		IE ,	hlo					
, RHV/ BH-2/3 35	D.5 5/	5/25/17 17 00	5	T zamoo	A H	N	N					Field	Field Comments
/ B#-5/6	-	12'05		-			1	\.					
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10													
Turnaround Time ( Business days)			Da	Data Deliverable Information	nformation				Notes:				
Same Day TAT			Level II Std QC	ac		Level IV (Full Data Pkg /raw data)	ta Pkg /raw da	ta)					
Next Day EMERGENCY			Level III Std QC+ Forms	QC+ Forms		TRRP Level IV							
2 Day EMERGENCY     Contract TAT	T		Level 3 (CLP Forms)	Forms)		UST / RG -411							
3 Day EMERGENCY			Level II Rep	Level II Report with TRRP checklist	P checklist								
TAT Starts Day received by Lab, if received by 5:00 pm	5:00 pm								FED-EX / UF	FED-EX / UPS: Tracking #			
	SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY	JMENTED BELO	W EACH TIME	SAMPLES CH	ANGE POSSES	SION, INCLUDIN	IG COURIER DE	LIVERY		n	A	2	1 1
Relinquished by Sampley: Additional Strength Str	Date Time: 5/15/16/1 Date Time:	1:20 1 Recei	Received By:	312	Celoy Re	Relinquished By:	mpt	6 6	1530	Received By:	XW	6	Tan
Relinquished by:	Date Time:	Recei	3 Received By:		C1	4 Custody Seal #	-	Preserved wh	Preserved where applicable	4 On	On Ice Cooler	Trenp. T	ho. Corr. Factor

Final 1.000



#### XENCO Laboratories Prelogin/Nonconformance Report- Sample Log-In



Client: COG Operating LLC Acceptable Temperature Range: 0 - 6 degC Air and Metal samples Acceptable Range: Ambient Date/ Time Received: 05/29/2018 08:09:51 AM Temperature Measuring device used : R8 Work Order #: 587370 Comments Sample Receipt Checklist 2.4 #1 \*Temperature of cooler(s)? #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)? 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:

Brianna Teel

Date: 05/29/2018

Checklist reviewed by:

Jession VRAMER

Jessica Kramer

Date: 05/29/2018



Sheldon Hitchcock

Lea Co. NM

**Contact:** 

**Project Location:** 

Certificate of Analysis Summary 587369

COG Operating LLC, Artesia, NM Project Name: Gunner 16 st SWD #1



Date Received in Lab:Tue May-29-18 08:02 amReport Date:30-MAY-18Project Manager:Jessica Kramer

	Lab Id:	587369-001	587369-002		
Analysis Requested	Field Id:	ROW SW-1	P- SW-1		
Anulysis Kequesieu	Depth:				
	Matrix:	SOIL	SOIL		
	Sampled:	May-25-18 13:00	May-25-18 13:30		
Chloride by EPA 300	Extracted:	May-29-18 14:00	May-29-18 14:00		
	Analyzed:	May-29-18 20:35	May-29-18 20:40		
	Units/RL:	mg/kg RL	mg/kg RL		
Chloride		47.8 4.93	20.6 4.93		

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

fession kenner

Jessica Kramer Project Assistant

# **Analytical Report 587369**

for COG Operating LLC

**Project Manager: Sheldon Hitchcock** 

Gunner 16 st SWD #1

#### 30-MAY-18

Collected By: Client





#### 1211 W. Florida Ave, Midland TX 79701

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)



30-MAY-18



Project Manager: **Sheldon Hitchcock COG Operating LLC** 2407 Pecos Avenue Artesia, NM 88210

Reference: XENCO Report No(s): **587369 Gunner 16 st SWD #1** Project Address: Lea Co. NM

#### Sheldon Hitchcock:

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) 587369. 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. 587369 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,

Jessica Vramer

Jessica Kramer Project Assistant

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# Sample Cross Reference 587369



#### COG Operating LLC, Artesia, NM

Gunner 16 st SWD #1

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
ROW SW-1	S	05-25-18 13:00		587369-001
P- SW-1	S	05-25-18 13:30		587369-002



#### CASE NARRATIVE

Client Name: COG Operating LLC Project Name: Gunner 16 st SWD #1

Project ID: Work Order Number(s): 587369 
 Report Date:
 30-MAY-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 587369**



#### COG Operating LLC, Artesia, NM

Gunner 16 st SWD #1

Sample Id:	ROW SW-1		Matrix:	Soil		Date Received	1:05.29.18 08	.02
Lab Sample Id	d: 587369-001		Date Collect	ted: 05.25.18 13.00				
Analytical Me	ethod: Chloride by EPA 3	300				Prep Method:	E300P	
Tech:	SCM					% Moisture:		
Analyst:	SCM		Date Prep:	05.29.18 14.00		Basis:	Wet Weight	
Seq Number:	3051658							
Parameter		Cas Number	Result	RL	Units	Analysis D	ate Flag	Dil

16887-00-6 **47.8** 

4.93

05.29.18 20.35

mg/kg

1



# **Certificate of Analytical Results 587369**



#### COG Operating LLC, Artesia, NM

Gunner 16 st SWD #1

Sample Id: Lab Sample I	<b>P- SW-1</b> d: 587369-002		Matrix: Date Colle	Soil cted: 05.25.18 13.30	]	Date Received:05	.29.18 08.0	2
Analytical M	ethod: Chloride by EPA	300			]	Prep Method: E3	00P	
Tech:	SCM					% Moisture:		
Analyst:	SCM		Date Prep:	05.29.18 14.00	]	Basis: We	et Weight	
Seq Number:	3051658							
Parameter		Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride		16887-00-6	20.6	4.93	mg/kg	05.29.18 20.40		1



# **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 LimitSDLSample Detection LimitLOD Limit of Detection
- PQL Practical Quantitation Limit MQL Method Quantitation Limit LOQ Limit of Quantitation
- DL Method Detection Limit
- NC Non-Calculable

SMP Clie	ent Sample	BLK	Method Blank	
BKS/LCS	S Blank Spike/Laboratory Control Sample	BKSD/LCSD	Blank Spike Duplicate/Labor	ratory 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 587369

#### **COG Operating LLC**

Gunner 16 st SWD #1

Analytical Method:	Chloride by EPA 3	00						Pı	ep Meth	od: E30	00P
Seq Number:	3051658			Matrix:	Solid				Date Pr	ep: 05.	29.18
MB Sample Id:	7655591-1-BLK		LCS Sar	nple Id:	7655591-	1-BKS		LCS	D Sampl	e Id: 765	5591-1-BSD
Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Lim	it Units	Analysis Date
Chloride	< 5.00	250	267	107	262	105	90-110	2	20	mg/kg	05.29.18 18:28

Analytical Method:	Chloride by EPA 3	00						Pr	ep Metho	od: E30	0P	
Seq Number:	3051658			Matrix:	Soil				Date Pre	ep: 05.2	9.18	
Parent Sample Id:	587245-009		MS Sar	nple Id:	587245-00	09 S		MS	D Sample	e Id: 587	245-009 SD	
Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Lim	it Units	Analysis Date	Flag
Chloride	19.9	248	278	104	279	104	90-110	0	20	mg/kg	05.29.18 18:44	

Analytical Method:	Chloride by EPA 30	00						Pı	ep Metho	od: E30	0P	
Seq Number:	3051658			Matrix:	Soil				Date Pro	ep: 05.2	9.18	
Parent Sample Id:	587245-019		MS Sar	nple Id:	587245-01	19 S		MS	D Sample	e Id: 5872	245-019 SD	
Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Lim	it Units	Analysis Date	Flag
Chloride	36.0	250	278	97	280	98	90-110	1	20	mg/kg	05.29.18 19:58	

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 Flag

6	
0	
LA	X
BOF	Π
RAT	Ζ
DR	0
E	0

# CHAIN OF CUSTODY

Revision 2016.1

	San Antonio, TX (210) 509-3334	Midland, TX (432) 704-5440	Page 1 Of 1
V	Service Center - Bato	Phoenix, AZ (480) 355	

Dallas, TX (214) 902-0300	Lubbock, TX (806) 794-1296		San Anto	San Antonio, TX (210) 509-3334 www.xenco.com	509-3334 o.com		Service Ce	Service Center - Baton Rouge, LA (832) 712-8143 Xenco Quote # Xenco	ouge, LA (832)	712-8143 Xenco Job #	5	Service	Center- Hobbs, NM (575) 392-7550
									Analytical Information	mation		-	Matrix Codes
Client / Reporting Information			Project I	Project Information						_	_		
Company Name / Branch: COG	of crafing, LLC	Project Na	Project Name/Number:	Sunna	16	StSW0#	4	00					W = Water S = Soil/Sed/Solid
Company Address:		Project Location:	0,1	VM				+ 30					GW = Ground Water DW = Drinking Water P = Product SW = Surface Water
Email: Phone No. Concluster Com	Phone No:	Invoice To:		cNeill				EPI					SL - Sludge OW = Ocean/Sea Water WI = Wipe
Project Contact: 5 West & an H	Hich cock	PO Number:	1	OP crosting	5			5			_		WW = Waste Water
2	Hitchcock							de				_	
141-		Collection		-	Number	Number of preserved bottles	ottles	on		-	-		
No. Field ID / Point of Collection			Time Ma	# of bottles	HCI NaOH/Zn Acetate HNO3	H2SO4 NaOH NaHSO4	MEOH NONE	Chlo					Field Comments
ROUSW-L	NA	E/25/17	~	-				1					
2 P-5V-1	N/A	5/25/17	-	1 5			/	/					
ω													
4													
57 0													
7													
8								_					
9													
10 Turnaround Time / Business days)				Data Deliver	Data Deliverable Information	-				Notes:		-	
Same Day TAT	5 Day TAT		Level	Level II Std QC		Level IV (F	Level IV (Full Data Pkg /raw data	aw data)					
Next Day EMERGENCY	7 Day TAT		Level I	Level III Std QC+ Forms	ms 🗌	TRRP Level IV	VIIa						
2 Day EMERGENCY	Contract TAT		Level 3	Level 3 (CLP Forms)		UST / RG -411	411						
3 Day EMERGENCY			Level	Level II Report with TRRP checklist	TRRP check	dist							
TAT Starts Day received by Lab, if received by 5:00 pm	b, if received by 5:00 pm								FED-	FED-EX / UPS: Tracking #	icking #		
Relinquishedby Sampler:	Stastill 20 1 Samoth P. Eller Reinquished By:	stig/1:20	Received By	A the	Keller x	Relinquished By:	ad By:	Da	Date Time:	32 n	M M	N V O	0101 00 5
Relinquished by:	Date Time:		Received By:			Relinquished By:	of By: 0	24	Date Time:	Received	ed By:		1.1.0
Relinquished by:	Date Time:	me:	Received By:			Custody Seal #	al#	Preserve	Preserved where applicable		On Ice	Copier Temp	mp. The ho Gorr. Factor

Final 1.000



#### XENCO Laboratories Prelogin/Nonconformance Report- Sample Log-In



Client: COG Operating LLC Acceptable Temperature Range: 0 - 6 degC Air and Metal samples Acceptable Range: Ambient Date/ Time Received: 05/29/2018 08:02:11 AM Temperature Measuring device used : R8 Work Order #: 587369 Comments Sample Receipt Checklist 2.4 #1 \*Temperature of cooler(s)? #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)? 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:

Brianna Teel

Date: 05/29/2018

Checklist reviewed by:

fession VRAMER

Jessica Kramer

Date: 05/29/2018



**Contact:** 

**Project Location:** 

Sheldon Hitchcock

Lea Co. NM

Certificate of Analysis Summary 587889

COG Operating LLC, Artesia, NM Project Name: Gunner 16 st SWD #1



Date Received in Lab:Fri Jun-01-18 01:15 pmReport Date:04-JUN-18Project Manager:Jessica Kramer

		507000.0	01	507000 0	02	507000.0	02	507000 0	0.4		
	Lab Id:	587889-0	01	587889-0	02	587889-0	03	587889-0	04		
Analysis Requested	Field Id:	P-Bttm-6	2'	P-SW-1	3	P-SW-1	4	P-SW-1	5		
Anaiysis Kequesieu	Depth:	2 ft									
	Matrix:	SOIL		SOIL		SOIL		SOIL			
	Sampled:	May-31-18	13:00	May-31-18	13:10	May-31-18	13:15	May-31-18	13:20		
Chloride by EPA 300	Extracted:	Jun-01-18 1	5:30	Jun-01-18 1	5:30	Jun-02-18 1	0:00	Jun-02-18 1	0:00		
	Analyzed:	Jun-02-18 1	2:32	Jun-01-18 2	1:24	Jun-02-18 1	3:37	Jun-02-18 1	3:59		
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL		
Chloride		203	5.00	494	5.00	574	5.00	457	4.95		

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

lession beamer

Jessica Kramer Project Assistant

# **Analytical Report 587889**

for COG Operating LLC

**Project Manager: Sheldon Hitchcock** 

Gunner 16 st SWD #1

#### 04-JUN-18

Collected By: Client





#### 1211 W. Florida Ave, Midland TX 79701

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)



04-JUN-18



Project Manager: **Sheldon Hitchcock COG Operating LLC** 2407 Pecos Avenue Artesia, NM 88210

Reference: XENCO Report No(s): **587889** Gunner 16 st SWD #1 Project Address: Lea Co. NM

#### Sheldon Hitchcock:

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) 587889. 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. 587889 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,

fession bramer

Jessica Kramer Project Assistant

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 587889



#### COG Operating LLC, Artesia, NM

Gunner 16 st SWD #1

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
P-Bttm-6 2'	S	05-31-18 13:00	- 2 ft	587889-001
P-SW-13	S	05-31-18 13:10	ft	587889-002
P-SW-14	S	05-31-18 13:15	ft	587889-003
P-SW-15	S	05-31-18 13:20	ft	587889-004



Client Name: COG Operating LLC Project Name: Gunner 16 st SWD #1

Project ID: Work Order Number(s): 587889 Report Date: 04-JUN-18 Date Received: 06/01/2018

#### Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

#### Analytical non conformances and comments:

Batch: LBA-3052139 Inorganic Anions by EPA 300

Lab Sample ID 587889-002 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride recovered above QC limits in the Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 587889-001, -002.

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



# **Certificate of Analytical Results 587889**



#### COG Operating LLC, Artesia, NM

Gunner 16 st SWD #1

Sample Id:         P-Bttm-6 2'           Lab Sample Id:         587889-001		Matrix: Date Collecte	Soil ed: 05.31.18 13.00		Date Received Sample Depth	1:06.01.18 13.1 :2 ft	5
Analytical Method: Chloride by EPA 3 Tech: SCM Analyst: SCM	600	Date Prep:	06.01.18 15.30		Prep Method: % Moisture: Basis:	E300P Wet Weight	
Seq Number: 3052139							
Parameter	Cas Number	Result ]	RL	Units	Analysis D	ate Flag	Dil

203

16887-00-6

5.00

mg/kg 06.02.18 12.32

1

Page 6 of 15



# **Certificate of Analytical Results 587889**



#### COG Operating LLC, Artesia, NM

Gunner 16 st SWD #1

Sample Id: Lab Sample Id	<b>P-SW-13</b> d: 587889-002		Matrix: Date Colle	Soil cted: 05.31.18 13.10		Date Received:06	.01.18 13.1	5
Analytical Me	ethod: Chloride by EPA	300				Prep Method: E3	800P	
Tech:	SCM					% Moisture:		
Analyst:	SCM		Date Prep:	06.01.18 15.30		Basis: W	et Weight	
Seq Number:	3052139							
Parameter		Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride		16887-00-6	494	5.00	mg/kg	06.01.18 21.24		1



# **Certificate of Analytical Results 587889**



#### COG Operating LLC, Artesia, NM

Gunner 16 st SWD #1

Sample Id: Lab Sample I	<b>P-SW-14</b> d: 587889-003		Matrix: Date Colle	Soil cted: 05.31.18 13.15		Date Received:06.	01.18 13.1	5
Analytical Me	ethod: Chloride by EPA	A 300				Prep Method: E30	00P	
Tech:	SCM					% Moisture:		
Analyst:	SCM		Date Prep:	06.02.18 10.00		Basis: We	t Weight	
Seq Number:	3052147							
Parameter		Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride		16887-00-6	574	5.00	mg/kg	06.02.18 13.37		1



# **Certificate of Analytical Results 587889**



#### COG Operating LLC, Artesia, NM

Gunner 16 st SWD #1

Sample Id:P-SW-15Lab Sample Id:587889-004		Matrix: Date Colle	Soil cted: 05.31.18 13.20		Date Received:06.0	01.18 13.1	5
Analytical Method: Chloride by EPA Tech: SCM	300				Prep Method: E30 % Moisture:	00P	
Analyst: SCM Seg Number: 3052147		Date Prep:	06.02.18 10.00			t Weight	
Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	457	4.95	mg/kg	06.02.18 13.59		1



# **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 LimitSDLSample Detection LimitLOD Limit of Detection
- PQL Practical Quantitation Limit MQL Method Quantitation Limit LOQ Limit of Quantitation
- DL Method Detection Limit
- NC Non-Calculable

SMP Clie	ent Sample	BLK	Method Blank	
BKS/LCS	Blank Spike/Laboratory Control Sample	BKSD/LCSD	Blank Spike Duplicate/Labor	ratory 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 587889

#### **COG Operating LLC**

Gunner 16 st SWD #1

Analytical Method:	Chloride by EPA 30	0						Pro	ep Metho	d: E30	0P	
Seq Number:	3052139			Matrix:	Solid				Date Pre	p: 06.0	1.18	
MB Sample Id:	7655885-1-BLK		LCS Sar	nple Id:	7655885-	1-BKS		LCSI	Sample	Id: 765	5885-1-BSD	
Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD I	RPD Limi	t Units	Analysis Date	Flag
Chloride	<5.00	250	275	110	274	110	90-110	0	20	mg/kg	06.02.18 12:21	

Analytical Method:	Chloride by EPA 3	00						Pr	ep Metho	od: E30	00P	
Seq Number:	3052147			Matrix:	Solid				Date Pro	ep: 06.	02.18	
MB Sample Id:	7655887-1-BLK		LCS Sar	nple Id:	7655887-	1-BKS		LCS	D Sample	e Id: 765	55887-1-BSD	
Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Lim	it Units	Analysis Date	Flag
Chloride	<5.00	250	275	110	275	110	90-110	0	20	mg/kg	06.02.18 13:26	

Analytical Method:	Chloride by EPA 3	00						P	rep Metho	od: E30	0P	
Seq Number:	3052139			Matrix:	Soil				Date Pre	ep: 06.0	01.18	
Parent Sample Id:	587889-001		MS Sar	nple Id:	587889-00	01 S		MS	D Sample	e Id: 587	889-001 SD	
Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Lim	it Units	Analysis Date	Flag
Chloride	203	250	471	107	481	111	90-110	2	20	mg/kg	06.02.18 12:38	Х

Analytical Method:	Chloride by EPA 30	)0						Pı	ep Meth	od: E30	OP	
Seq Number:	3052139			Matrix:	Soil				Date Pr	ep: 06.0	1.18	
Parent Sample Id:	587889-002		MS Sar	nple Id:	587889-00	02 S		MS	D Sample	e Id: 5878	389-002 SD	
Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Lim	it Units	Analysis Date	Flag
Chloride	494	250	741	99	742	99	90-110	0	20	mg/kg	06.01.18 21:30	

Analytical Method:	Chloride by EPA 30	)0						Р	rep Meth	od: E30	OP	
Seq Number:	3052147			Matrix:	Soil				Date Pr	ep: 06.0	2.18	
Parent Sample Id:	587889-003		MS Sar	nple Id:	587889-00	)3 S		MS	D Sample	e Id: 587	389-003 SD	
Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Lim	it Units	Analysis Date	Flag
Chloride	574	250	807	93	813	96	90-110	1	20	mg/kg	06.02.18 13:42	

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



**QC Summary** 587889

#### **COG Operating LLC**

Gunner 16 st SWD #1

Analytical Method:	Chloride by EPA 30	)0						Pro	ep Metho	d: E30	)P	
Seq Number:	3052147			Matrix:	Soil				Date Pre	ep: 06.0	2.18	
Parent Sample Id:	587936-001		MS Sar	nple Id:	587936-00	01 S		MSE	Sample	Id: 5879	936-001 SD	
Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD I	RPD Limi	t Units	Analysis Date	Flag
Chloride	54.9	247	329	111	348	119	90-110	6	20	mg/kg	06.02.18 14:58	Х

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

Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

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

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

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Statford,Texas (281-240-4200)	Setting the Standard since 1990	XENCO

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Midland, Texas (432-704-5251) San Antonio, Texas (210-509-3334)

Phoenix, Arizona (480-355-0900)

3 (5) + + + + + + + + + + + + + + + + + + +	-				YOW	www.xenso.com	(ADDI)						-		Analytic	Analytical Information	ation			
<b>Client / Reporting Information</b>				Project	Project Information	tion						-	-	-	_	_	-			
Company Name / Branch: COG Operating, LLC		Projuci	Project Name/Number:		Ganna	her	5	5+		SWD #	-	_	_	_			_	-		
Company Address: 2407 Pecos Ave, Artesia NM 88210		Project	Project Location:	8	NM	100	,				f	1514)	2101)							
Email: <u>sthilchcock@concho.com</u> Phone No: 575.703 dneet2@concho.com; cgray@concho.com; rhaskell@concho.com	Phone No: 575-703-6475 m; rhaskell@concho.com	Invoice To:	2	COG Operating, LLC Attn: Robert McNeill Ann W Illnois Ave	t McNeill	- 0					-	04901	PA801					-		
Project Contact: Sheldon Hitchcock		Po at	1	Midland Tx, 79701	79701								-		- 21			-		
Samplers's Name: Sheldon Hitchcock		PO NUMBER	nber:									ine	-					-		
		Colla	-	1	-	,						ENI	_	-		_	_			
	1	Collection	otion		_	1	Num	Number of preserved bottles	preserv	red bot	lles	175		-		_	-			
No. Field ID / Point of Collection	Collection Sample	7				# al	10.5	NO3	2SO4 aOH	aHSO4	EOH	ONE	STEX (E	HLOR		_				-
1 P-B+m-6 2	2	5		~	-	-	P	+	-	-	2		-	-		_	+	-		
2 0-5W-13	MA	1.1	-	20	0	-			-			1	-		N	_	-	+		1
3 P-52 -14			1	1:12	ŝ	3			-			1	-				-	+		
31-MS-4 +		-		2:20	w	-			-			7	-	1			-	-		
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7			-		60	-			-			-	-	-			-	+		
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10			1.1.1	_	so.	1			-			-	-				-	-		
Turnaround Time ( Business days)					Data	Data Deliverable Information	ble inforr	nation				-	-			No	Notes:			
Same Day TAT	5 Day TAT			Lavel	Lavel II Std QC	, a			Level IV (Full Data Pkg /rav	V (Full	Data P	kg /rav	w data)							
Next Day EMERGENCY	7 Day TAT			Level	Leval III Std QC+ Forms	C+ Form	\$		TRRP Level IV	Level	<									
2 Day EMERGENCY	Contract TAT		п	Level	Level 3 (CLP Forms)	orms)			UST / RG -411	RG -41	1									
3 Day EMERGENCY			П	TRRP	TRRP Checklist	ß														
TAT Starts Day received by Lab, if received by 5:00 pm	ab, if received by 5:00 pm		2						1			4				FED-EX / UPS: Trucking #	I-UPS:	Truck	# Bu	
Dollars Jakad Is. Country	SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURLER F	BE DOCUN	ENTED BI	ELOW EAC	H TIME S	AMPLES 0	CHANGE	POSSES	SION, IP	VCLUDI	NG COI		ELIVERY	Ŷ			-	5	1	
Relinquished by:	Date Time:	11 8 11	11:24 Re Re	Received By:	100	Cell	lipt	10.7	Relinguished By:	ished	BY:				Date Time: 5/3/ Date Time:	15.	Re Re	Received By:	BY	A
Relinguished by:	Date Time:	met	200	Received By:	-			0.4	Custody Seal #	y Seal	#		P	eserve	d where	Preserved where applicable	ole 4		Onlee	Cee /

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Setting the Standard since 1990 Statford, Texas (281-240-4200)

Dallas Texas (214-902-0300)

CHAIN OF CUSTODY

San Antonio, Texas (210-509-3334)

Phoenix, Arizona (480-355-0900)

		WWW		WW	www.xerica.com	am				Xauco	Xauco Quote #			Xeno	Xenco Job #	2	1	0	1 Mar
											_	Analyti	Analytical Information	nation		1	6	T	R
Client / Reporting Information			Proje	Project Information	tion							-		-	_	-			Middly Codes
Company Name / Branch: COG Operating, LLC		Projeci Name/Number:		- Ca MI		2	-	1.0	+		_	_		-	_				W = Water
Company Address: 2407 Pecca Ave. Artesia NM 88210		Project Location:	5	N/ M	1		DEVIZ	U NOV 4	4	iM)		-		_					S = Soil/Sed/Solid GW = Ground Water DW = Drinking Water
Email: <u>shitchcock@concho.com</u> Phone No: 576-703 dneel2@concho.com, cgray@concho.com; rhaskell@concho.com	Phone No: 575-703-6476 sl@concho.com	Invoice To:	COG Ope Attn: Robs	Attn: Robert McNeil	- 13					PA801		00)		_		_			P = Product SW = Surface water
Project Contact: Sheldon Hitchcock		i.	600 W. Illnois Ave. Midland Tx, 79701	nois Ave. x, 79701						(EF		A 31		_					OW =Ocean/Sea Water
Samplers's Name: Sheldon Hitchcock		PO Number:								DED	-	(EP	_	_	_	-			VVI = Wipe
	ľ	Collection		-	s.	A				END	-	ES		_					WW= Waste Water
No. Field ID / Point of Collection		CONCORDIN				Numbe	Number of preserved bottles	erved bo	liles	XTE		RID		-					A = Air
	Sample	Date	Time	Malox No		aOH/Zn cetate	NO3 2504	aOH aHSO4	EOH	PHE	TEX	HLO	-	-					
1 P-B++m-6, 2	1.1	0	8	-	-	A	-	-	-	1	-	10		+	-			F	Field Comments
2 P-SW-13	MA	-	1:10	w	-			-			-	1		+					
3 P-5V-14		_	:15	ŝ	-			-	1				-	+					
\$ P-2V-15	-	1	22:	ŝ	-			-	~			1		1	+	+			
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7				S	-	-		-		1	-			+					
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Turnaround Time ( Business days)				Data	Data Deliverable Information	Informatic	Ĭ	-	F		+	t	No	Notes:	-				
Same Day TAT 5 Day TAT	7		Leve	Level II Std QC		Π		I IV (Full	Level IV (Full Data Pkg /raw	(raw data)	a)								
Next Day EMERGENCY			Leve	Level III Std QC+ Forms	+ Forms		TRR	TRRP Level IV											
2 Day EMERGENCY Contract TAT	TAT	_	Leve	Level 3 (CLP Forms)	orms)		UST	UST / RG -411	Ī										
3 Day EMERGENCY		-	TRR	TRRP Checklist	3														
TAT Starts Day received by Lab, if received by 5:00 pm	y 5:00 pm							1					PED-EX	UPS: Tr	FED-EX / UPS: Tracking #				
Relinquished by Sampler:	SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY Date Time: Received By: A A D Delitorute but By:	OCUMENTED	BELOW EAG	CH TIME SA	MPLES CH	ANGE POS	SESSION,	INCLUBI	IG COURIE	RDELIV	4101				21	- 0	0		
war	5/3//19 Date Time:	11:24	Received By:	Ser 1	Cllyn	M	Relipo	Relinguished By:	and and	1		Date Time: 5/3/ Date Time:	15:3	70 2 Received	Received By	RA	C	0	18 13:15
Relinquished by: 5	Relinquished by:     Date Time:     Received By:     A       5     5     6     6		Received By;	Y			Custo	4 Custody Seal #			reserve	Preserved where applicable	pplicabl	4	no.	Onles	Cooler	Domp.	Thermo. Corr. Factor



#### XENCO Laboratories Prelogin/Nonconformance Report- Sample Log-In



Client: COG Operating LLC Acceptable Temperature Range: 0 - 6 degC Air and Metal samples Acceptable Range: Ambient Date/ Time Received: 06/01/2018 01:15:00 PM Temperature Measuring device used : R8 Work Order #: 587889 Comments Sample Receipt Checklist 3.5 #1 \*Temperature of cooler(s)? #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:

Katie Lowe

Date: 06/01/2018

Checklist reviewed by:

fession knomen

Jessica Kramer

Date: 06/01/2018

Page 15 of 15


**Contact:** 

**Project Location:** 

Sheldon Hitchcock

Lea Co. NM

Certificate of Analysis Summary 588639

COG Operating LLC, Artesia, NM Project Name: Gunner 16 St SWD #1



Date Received in Lab:Fri Jun-08-18 10:09 amReport Date:11-JUN-18Project Manager:Jessica Kramer

	Lab Id:	588639-0	01	588639-0	02	588639-0	03	588639-0	04	588639-0	05	588639-006	
Analysis Progressed	Field Id:	L-Bttm-4	3'	L-Bttm-5	3'	L-SW-7		L-SW-8	3	L-SW-9	9	L-SW-1	0
Analysis Requested	Depth:	3- ft		3- ft									
	Matrix:	SOIL	SOIL		SOIL		SOIL			SOIL		SOIL	
	Sampled:	Jun-06-18 0	Jun-06-18 07:30		Jun-06-18 07:40		07:45	Jun-06-18 (	07:50	Jun-06-18 (	07:55	Jun-06-18 08:00	
Chloride by EPA 300	Extracted:	Jun-08-18 1	Jun-08-18 15:15		Jun-08-18 15:15		Jun-08-18 15:15		5:15	Jun-08-18 15:15		Jun-08-18 1	5:15
	Analyzed:	Jun-09-18 (	Jun-09-18 00:15		0:32	Jun-09-18 0	0:37	Jun-09-18 0	0:42	Jun-09-18 0	0:48	Jun-09-18 0	1:04
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		47.6	4.93	73.0	4.97	152	4.98	464	4.96	75.3	4.97	53.1	4.97

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

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Jessica Kramer Project Assistant

# **Analytical Report 588639**

# for COG Operating LLC

**Project Manager: Sheldon Hitchcock** 

Gunner 16 St SWD #1

#### 11-JUN-18

Collected By: Client





#### 1211 W. Florida Ave, Midland TX 79701

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: **Sheldon Hitchcock COG Operating LLC** 2407 Pecos Avenue Artesia, NM 88210

Reference: XENCO Report No(s): **588639** Gunner 16 St SWD #1 Project Address: Lea Co. NM

#### Sheldon Hitchcock:

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) 588639. 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. 588639 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,

fession kramer

Jessica Kramer Project Assistant

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 588639



#### COG Operating LLC, Artesia, NM

Gunner 16 St SWD #1

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
L-Bttm-4 3'	S	06-06-18 07:30	3 ft	588639-001
L-Bttm-5 3'	S	06-06-18 07:40	3 ft	588639-002
L-SW-7	S	06-06-18 07:45	N/A	588639-003
L-SW-8	S	06-06-18 07:50	N/A	588639-004
L-SW-9	S	06-06-18 07:55	N/A	588639-005
L-SW-10	S	06-06-18 08:00	N/A	588639-006



Client Name: COG Operating LLC Project Name: Gunner 16 St SWD #1

Project ID: Work Order Number(s): 588639 Report Date:11-JUN-18Date Received:06/08/2018

#### Sample receipt non conformances and comments:

None

#### Sample receipt non conformances and comments per sample:

None

#### Analytical non conformances and comments:

Batch: LBA-3052933 Inorganic Anions by EPA 300

Lab Sample ID 588640-005 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride recovered above QC limits in the Matrix Spike and Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 588639-001, -002, -003, -004, -005, -006.

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





#### COG Operating LLC, Artesia, NM

Gunner 16 St SWD #1

Sample Id:         L-Bttm-4 3'           Lab Sample Id:         588639-001	Matrix: Soil Date Collected: 06.06.18 07.30				Date Received:06.08.18 10.09 Sample Depth: 3 ft				
Analytical Method:Chloride by EPA 3Tech:OJSAnalyst:SCMSeq Number:3052933	300	Date Prep:	06.08.18 15.15		Prep Method: % Moisture: Basis:	E300P Wet Weight			
Parameter	Cas Number	Result 1	RL	Units	Analysis D	ate Flag	Dil		

Chloride

16887-00-6 **47.6** 

4.93

06.09.18 00.15

mg/kg





#### COG Operating LLC, Artesia, NM

Gunner 16 St SWD #1

Sample Id: L-Btth Lab Sample Id: 58863		Matrix: Soil Date Collected: 06.06.18 07.40				Date Received:06.08.18 10.09 Sample Depth: 3 ft			
Analytical Method: C Tech: OJS Analyst: SCM Seg Number: 305293		Date Prep:	06.08.18 15.15		Prep Method: % Moisture: Basis:	E300P Wet Weight			
Parameter	Cas Number	Result I	RL.	Units	Analysis Da	ite Flag	Dil		

Chloride

16887-00-6 **73.0** 

4.97

mg/kg 06.09.18 00.32





#### COG Operating LLC, Artesia, NM

Gunner 16 St SWD #1

Sample Id: L-SW-7 Lab Sample Id: 588639-003		Matrix: Date Collec	Soil cted: 06.06.18 07.45		Date Received:06.08.18 10.09			
Analytical Method: Chloride by EP	A 300				Prep Method: E3	00P		
Tech: OJS					% Moisture:			
Analyst: SCM		Date Prep:	06.08.18 15.15		Basis: We	et Weight		
Seq Number: 3052933								
Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil	
Chloride	16887-00-6	152	4.98	mg/kg	06.09.18 00.37		1	





#### COG Operating LLC, Artesia, NM

Gunner 16 St SWD #1

Sample Id: <b>L-SW-8</b> Lab Sample Id: 588639-004		Matrix: Date Colle	Soil cted: 06.06.18 07.50		Date Received:06.08.18 10.09			
Analytical Method: Chloride by EPA	300				Prep Method: E3	00P		
Tech: OJS Analyst: SCM		Date Prep:	06.08.18 15.15		% Moisture: Basis: W	et Weight		
Seq Number: 3052933								
Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil	
Chloride	16887-00-6	464	4.96	mg/kg	06.09.18 00.42		1	





#### COG Operating LLC, Artesia, NM

Gunner 16 St SWD #1

Sample Id:	L-SW-9		Matrix:	Soil	Date Received:06.08.18 10.09				
Lab Sample Id	588639-005		Date Collec	ted: 06.06.18 07.55					
Analytical Me	thod: Chloride by EPA 3	00				Prep Method:	E300P		
Tech:	OJS					% Moisture:			
Analyst:	SCM		Date Prep:	06.08.18 15.15		Basis:	Wet Weight		
Seq Number:	3052933								
Parameter		Cas Number	Result	RL	Units	Analysis Da	ate Flag	Dil	

16887-00-6 **75.3** 

4.97

06.09.18 00.48

mg/kg





#### COG Operating LLC, Artesia, NM

Gunner 16 St SWD #1

Sample Id: L-SW-10 Lab Sample Id: 588639-006		Matrix: Date Colle	Soil cted: 06.06.18 08.00	]	Date Received:06.08.18 10.09			
Analytical Method: Chloride b	y EPA 300				Prep Method: E3 % Moisture:	00P		
Tech: OJS Analyst: SCM		Date Prep:	06.08.18 15.15			et Weight		
Seq Number: 3052933								
Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil	
Chloride	16887-00-6	53.1	4.97	mg/kg	06.09.18 01.04		1	



# **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 LimitSDLSample Detection LimitLOD Limit of Detection
- PQL Practical Quantitation Limit MQL Method Quantitation Limit LOQ Limit of Quantitation
- DL Method Detection Limit
- NC Non-Calculable

SMP Clie	ent Sample	BLK	Method Blank	
BKS/LCS	S Blank Spike/Laboratory Control Sample	BKSD/LCSD	Blank Spike Duplicate/Labor	ratory 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 588639

#### **COG Operating LLC**

Gunner 16 St SWD #1

Analytical Method:	Chloride by EPA 3	00						Pr	ep Metho	d: E30	0P
Seq Number:	3052933		Matrix: Solid					Date Prep: 06.08.18			
MB Sample Id:	7656302-1-BLK	LCS Sample Id: 7656302-1-BKS					LCSD Sample Id: 7656302-1-BSD				
Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limi	t Units	Analysis Date
Chloride	<5.00	250	270	108	267	107	90-110	1	20	mg/kg	06.09.18 00:05

Analytical Method:	Chloride by EPA 3	00						Prep Method	l: E300	OP	
Seq Number:	3052933			Matrix:	Soil			Date Prep	p: 06.0	8.18	
Parent Sample Id:	588639-001 MS Sample Id:				588639-001 S MSD Sample Id:				ld: 5886	588639-001 SD	
<b>D</b>	Parent	Spike	MS	MC	1.000		<b>T</b> · · · ·		<b>T</b> T <b>1</b> /		
Parameter	Result	Amount	Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD RPD Limit	Units	Analysis Date	Flag

Analytical Method:	Chloride by EPA 30	00						P	ep Metho	od: E30	0P	
Seq Number:	3052933			Matrix:	Soil				Date Pre	ep: 06.0	08.18	
Parent Sample Id:	588640-005		MS Sar	nple Id:	588640-00	)5 S		MS	D Sample	e Id: 588	640-005 SD	
Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Lim	it Units	Analysis Date	Flag
Chloride		248	583	104	584	104	90-110	0	20	mg/kg	06.09.18 01:36	

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 Flag

Stafford, Texas (281-240-4200)	Setting the Standard since 1990	XENCO
		uU

# 

	Collection			Phone No: 575-703-6475 m; rhaskell@concho.com								
ų	Sample Depth			03-6475 m								
6/1/10 7: 30	Date	Collection	PO Number:	Invoice To:		Project Location:	Project Name/Number:				Midland,	San Anto
アシン	Time	1		COG Operating, LLC Attn: Robert McNeill 600 W. Illnois Ave. Midland Tx, 79701	Lea			Proj			Midland, Texas (432-704-5251)	San Antonio, Texas (210-509-3334)
S	Matrix			erating, l ert McN nois Av x, 7970	Co		54	Project Information		14	-704-52	(210-50
1	# of bottles			<sup>4</sup> eili	0	-	Nhe	mation		www.xenco.com	51)	9-3334
	нсі	7			2		3	Ĩ		enco.		E
	NaOH/Zn Acetate	Number of preserved bottles			M	Ì	Granner 16 St.SVD #			com		
	HNO3	er of					42					
	H2SO4	prese				1	12					
	NaOH	aved					3					
_	NaHSO4	bott					#					
	MEOH	es	01				-					
1	NONE		1.1		-		_	1		×		-
	TPH E	XTEN	NDE	D (EPA80	15M	)				Xenco Quote #		hoe
	BTEX (	EPA	802	1B)						Quote		nix, A
	CHLOP	RIDE	S (E	PA 300)					Þ	**		Phoenix, Arizona (480-355-0900)
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			WWW	www.xenco.com		Velico Muole #			Velico 200 #	V IT X	
							Analyti	Analytical Information	-		Matrix Codes
Client / Reporting Information		Pr	Project Information	ň		-	_	_	_		
Company Name / Branch: COG Operating, LLC	P	Project Name/Number:	Gunher	or the	# 042.45				_		W = Water S = Soil/Sed/Solid
Company Address: 2407 Pecos Ave. Artesia NM 88210	q	Project Location:	A 1 .D	3	1.00	5M)					GW =Ground Water DW = Drinking Water
Email: sthilch.cock@concho.com dneel2@concho.com; cgray@concho.com; rhaskell@concho.com	-6475	Invoice To: COG O Attn: Ro	COG Operating, LLC Attn: Robert McNeill			_					SW = Surface water SL = Sludge
Project Contact: Sheldon Hitchcock		1.1	Midland Tx, 79701				-				WI = Wipe
Samplers's Name: Sheldon Hitchcock		ro number.					-				0 = Oil WW= Waste Water
		Collection		Numbe	Number of preserved bottles	TEN					A = Air
No. Field ID / Point of Collection	Sample	Date Time	# of Matrix bottles	HCI NaOH/Zn Acetate	1NO3 12SO4 NaOH NaHSO4		BTEX (E				Field Comments
1 L- B++m-4 3'	3, 6	2	s	•	•	1	-				
2 L-B++m-6 3'	3	7:40	s 1				/				
3 L-SV-7	A/N	2:45	s 1			1	1				
4 L-5W-8		7:50	s 1			1	1				
5 L-5W-9		71,65	s -			1	1				
6 L-5V-10	-	8:00	S 1			/					
7			s 1								
œ			s 1								
9			s 1								
10			s 1								
Turnaround Time (Business days)		-	Data D	Data Deliverable Information	n			Notes:			
Same Day TAT 5 Day TAT	TAT		Level II Std QC		Level IV (Full Data Pkg /raw	ita Pkg /raw data)	5	7			
Next Day EMERGENCY	AT		Level III Std QC+ Forms	- Forms	TRRP Level IV						
2 Day EMERGENCY     Contract TAT	ct TAT		Level 3 (CLP Forms)	ms)	UST/RG -411						
3 Day EMERGENCY			TRRP Checklist								
TAT Starts Day received by Lab, if received by 5:00 pm	1 by 5:00 pm							FED-EX / UPS: Tracking #	Tracking #		
Relinquished by Sampler:	SAMPLE CUSTODY TIME SAMPLES CHANGE POSSESSION, INCLUDING COURTER DEI	UIL Received By:	eived By:	Ella MA	Relinquished By:	COURIER DELIVERY	Date Time:		cover By:	1110	(0 G 1 A 10
-	Date Time:	Rec	d By:		Relinquished By:		Date Time:		Received By:	-	A DIDIA
Relinquished by:	Date Time:	Received By:	id By:		Custody Seal #	P	Preserved where applicable		On Ice	Gooler Temp.	2. Thermo. Corr. Factor



#### XENCO Laboratories Prelogin/Nonconformance Report- Sample Log-In



Client: COG Operating LLC Acceptable Temperature Range: 0 - 6 degC Air and Metal samples Acceptable Range: Ambient Date/ Time Received: 06/08/2018 10:09:23 AM Temperature Measuring device used : R8 Work Order #: 588639 Comments Sample Receipt Checklist 4.2 #1 \*Temperature of cooler(s)? #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)? 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:

Brianna Teel

Date: 06/08/2018

Checklist reviewed by:

fession knomen

Jessica Kramer

Date: 06/08/2018



 Project Id:

 Contact:
 Sheldon Hitchcock

 Project Location:

# Certificate of Analysis Summary 589043

COG Operating LLC, Artesia, NM Project Name: Gunner 16 st #1 SWD



Date Received in Lab:Wed Jun-13-18 10:41 amReport Date:23-AUG-18Project Manager:Jessica Kramer

	Lab Id:	589043-0	01	589043-0	02	589043-0	03	589043-0	04	589043-0	005	589043-0	06
Analysis Requested	Field Id:	L-Bttm-6	3'	L-Bttm-7	3'	L-SW-1	1	L-SW-1	2	L-SW-1	3	L-SW-14	4
Analysis Kequesieu	Depth:	3- ft		3- ft									
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Jun-12-18	1:00	Jun-12-18 1	1:05	Jun-12-18 1	1:10	Jun-12-18 1	1:15	Jun-12-18	1:20	Jun-12-18 1	1:25
Chloride by EPA 300	Extracted:	Jun-14-18 (	08:30	Jun-14-18 0	8:30	Jun-14-18 (	8:30	Jun-14-18 0	8:30	Jun-14-18 (	08:30	Jun-14-18 0	8:30
	Analyzed:	Jun-14-18	12:40	Jun-14-18 1	2:56	Jun-14-18 1	3:02	Jun-14-18 1	3:07	Jun-14-18 1	3:13	Jun-14-18 1	3:29
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		7.35	4.93	81.9	4.99	162	4.90	165	4.91	174	4.95	<4.94	4.94

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

fession kenner

Jessica Kramer Project Assistant



 Project Id:

 Contact:
 Sheldon Hitchcock

 Project Location:

# Certificate of Analysis Summary 589043

COG Operating LLC, Artesia, NM Project Name: Gunner 16 st #1 SWD



Date Received in Lab:Wed Jun-13-18 10:41 amReport Date:23-AUG-18Project Manager:Jessica Kramer

	Lab Id:	589043-007			
Analysis Requested	Field Id:	L-SW-15			
Analysis Kequesieu	Depth:				
	Matrix:	SOIL			
	Sampled:	Jun-12-18 11:30			
Chloride by EPA 300	Extracted:	Jun-14-18 08:30	ŕ	Î	
	Analyzed:	Jun-14-18 13:34			
	Units/RL:	mg/kg RL			
Chloride		65.5 5.00			

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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fession kenner

Jessica Kramer Project Assistant

# Analytical Report 589043

# for COG Operating LLC

**Project Manager: Sheldon Hitchcock** 

Gunner 16 st #1 SWD

#### 23-AUG-18

Collected By: Client





#### 1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab Code: TX00122): Texas (T104704215-18-27), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054) Oklahoma (2017-142)

> Xenco-Dallas (EPA Lab Code: TX01468): Texas (T104704295-18-17), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-18-13) Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-18-17) Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-18-16) Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-18-4) 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)



23-AUG-18



Project Manager: **Sheldon Hitchcock COG Operating LLC** 2407 Pecos Avenue Artesia, NM 88210

Reference: XENCO Report No(s): **589043 Gunner 16 st #1 SWD** Project Address:

#### Sheldon Hitchcock:

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) 589043. 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. 589043 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,

Jession KRAMER

Jessica Kramer Project Assistant

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



# Sample Cross Reference 589043



#### COG Operating LLC, Artesia, NM

Gunner 16 st #1 SWD

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
L-Bttm-6 3'	S	06-12-18 11:00	3 ft	589043-001
L-Bttm-7 3'	S	06-12-18 11:05	3 ft	589043-002
L-SW-11	S	06-12-18 11:10	N/A	589043-003
L-SW-12	S	06-12-18 11:15	N/A	589043-004
L-SW-13	S	06-12-18 11:20	N/A	589043-005
L-SW-14	S	06-12-18 11:25	N/A	589043-006
L-SW-15	S	06-12-18 11:30	N/A	589043-007



#### CASE NARRATIVE

Client Name: COG Operating LLC Project Name: Gunner 16 st #1 SWD

Project ID: Work Order Number(s): 589043 
 Report Date:
 23-AUG-18

 Date Received:
 06/13/2018

#### Sample receipt non conformances and comments:

New Version generated, corrected sample 003. removed depth. JKR 08/23/18

Sample receipt non conformances and comments per sample:

None





#### COG Operating LLC, Artesia, NM

Gunner 16 st #1 SWD

Sample Id:         L-Bttm-6 3'           Lab Sample Id:         589043-001		Matrix: Date Collect	Soil ed: 06.12.18 11.00		Date Received Sample Depth		-1
Analytical Method: Chloride by EPA : Tech: SCM	300				Prep Method: % Moisture:		
Analyst: SCM Seq Number: 3053433		Date Prep:	06.14.18 08.30		Basis:	Wet Weight	
Parameter	Cas Number	Result	RL	Units	Analysis Da	ate Flag	Dil

16887-00-6 **7.35** 

4.93

06.14.18 12.40

mg/kg





#### COG Operating LLC, Artesia, NM

Gunner 16 st #1 SWD

Sample Id:         L-Bttm-7 3'           Lab Sample Id:         589043-002		Matrix: Date Collecte	Soil ed: 06.12.18 11.05		Date Received: Sample Depth:	:06.13.18 10.41 3 ft	
Analytical Method: Chloride by EPA Tech: SCM	300				Prep Method: % Moisture:		
Analyst: SCM Seq Number: 3053433		Date Prep:	06.14.18 08.30		Basis:	Wet Weight	
Parameter	Cas Number	Result I	RL	Units	Analysis Da	te Flag	Dil

16887-00-6 **81.9** 

4.99

mg/kg

06.14.18 12.56





#### COG Operating LLC, Artesia, NM

Gunner 16 st #1 SWD

Sample Id: Lab Sample Id	<b>L-SW-11</b> d: 589043-003		Matrix: Date Collec	Soil cted: 06.12.18 11.10		Date Received:06.	13.18 10.4	1
•	ethod: Chloride by EPA	300				Prep Method: E3	00P	
Tech: Analyst:	SCM SCM		Date Prep:	06.14.18 08.30		% Moisture: Basis: We	et Weight	
Seq Number:	3053433							
Parameter		Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride		16887-00-6	162	4.90	mg/kg	06.14.18 13.02		1





#### COG Operating LLC, Artesia, NM

Gunner 16 st #1 SWD

Sample Id: Lab Sample I	<b>L-SW-12</b> d: 589043-004		Matrix: Date Colle	Soil cted: 06.12.18 11.15		Date Received:06	.13.18 10.4	1
Analytical Me	ethod: Chloride by EPA	. 300				Prep Method: E3	800P	
Tech:	SCM					% Moisture:		
Analyst:	SCM		Date Prep:	06.14.18 08.30		Basis: W	et Weight	
Seq Number:	3053433							
Parameter		Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride		16887-00-6	165	4.91	mg/kg	06.14.18 13.07		1





#### COG Operating LLC, Artesia, NM

Gunner 16 st #1 SWD

Sample Id: Lab Sample Id	<b>L-SW-13</b> d: 589043-005		Matrix: Date Collec	Soil ted: 06.12.18 11.20		Date Received	1:06.13.18 10.4	41
Analytical Me Tech:	ethod: Chloride by EPA 3	800				Prep Method: % Moisture:	E300P	
Analyst: Seq Number:	SCM		Date Prep:	06.14.18 08.30		Basis:	Wet Weight	
Parameter		Cas Number	Result	RL	Units	Analysis Da	ate Flag	Dil

16887-00-6 174

4.95

06.14.18 13.13

mg/kg





#### COG Operating LLC, Artesia, NM

Gunner 16 st #1 SWD

Sample Id: L-SW-14 Lab Sample Id: 589043-006		Matrix: Date Collecte	Soil ed: 06.12.18 11.25		Date Received:	:06.13.18 10.41	
Analytical Method: Chloride by EPA 3 Tech: SCM Analyst: SCM	300	Date Prep:	06.14.18 08.30		Prep Method: % Moisture: Basis:	E300P Wet Weight	
Seq Number: 3053433		L.					
Parameter	Cas Number	Result F	RL	Units	Analysis Da	te Flag	Dil

16887-00-6

<4.94 4.94

mg/kg

06.14.18 13.29

U

1

Page 12 of 18





1

#### COG Operating LLC, Artesia, NM

Gunner 16 st #1 SWD

Sample Id: L-SW Lab Sample Id: 58904		Matrix: Date Collect	Soil eed: 06.12.18 11.30	Ι	Date Received:06	13.18 10.41	
Analytical Method:OTech:SCMAnalyst:SCMSeq Number:30534	,	Date Prep:	06.14.18 08.30	9	Prep Method: E3 6 Moisture: Basis: Wo	00P et Weight	
Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil

65.5

16887-00-6

5.00

06.14.18 13.34

mg/kg

Page 13 of 18



# **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 LimitSDLSample Detection LimitLOD Limit of Detection
- PQL Practical Quantitation Limit MQL Method Quantitation Limit LOQ Limit of Quantitation
- DL Method Detection Limit
- NC Non-Calculable

SMP Clie	ent Sample	BLK	Method Blank	
BKS/LCS	Blank Spike/Laboratory Control Sample	BKSD/LCSD	Blank Spike Duplicate/Labor	ratory 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** 589043

#### **COG Operating LLC**

Gunner 16 st #1 SWD

Analytical Method:	Chloride by EPA 3	00						Pr	ep Method	l: E30	0P	
Seq Number:	3053433			Matrix:	Solid				Date Prep	p: 06.1	4.18	
MB Sample Id:	7656636-1-BLK		LCS Sar	nple Id:	7656636-	I-BKS		LCSI	Sample	Id: 765	6636-1-BSD	
Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD I	RPD Limit	Units	Analysis Date	Flag
Chloride	< 5.00	250	257	103	257	103	90-110	0	20	mg/kg	06.14.18 12:29	

Analytical Method:	Chloride by EPA 30	)0						Pro	ep Metho	d: E30	OP	
Seq Number:	3053433			Matrix:	Soil				Date Pre	p: 06.1	4.18	
Parent Sample Id:	589043-001		MS Sar	nple Id:	589043-00	01 S		MSE	O Sample	Id: 5890	)43-001 SD	
Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD I	RPD Limi	t Units	Analysis Date	Flag
Chloride	7.35	247	270	106	264	104	90-110	2	20	mg/kg	06.14.18 12:46	

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

Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

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

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

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RAT	7
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S	U

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			Analytical Information	Matrix Codes
Client / Reporting Information		Project Information		
Company Name / Branch: COG Artsia	Proj	Project Name/Number: C-U.M. Ker 16.5+ #1.5 Wh	20	W = Water S = Soil/Sed/Solid
Company Address:	Proj	1		GW = Ground Water DW = Drinking Water P = Product
Email: Phone No:	Invo	Invoice To:	PA	SL - Sludge
Sthitch cock & Concho, con				O = OII
Project Contact: Shallen Hitch coch	PO	PO Number:	3	WW = Waste Water A = Air
Samplers's Name: Sholdon Hitch co a			Ida	
• •	3	Collection Number of preserved bottles		
No. Field ID / Point of Collection	Sample Depth D.	Time Matrix bottles $\frac{1}{2}$	NONE Chlo	Field Comments
1 L-B++m-6 3'	4	11:00		
2 L- BHM-7 3		-	/ / /	
L-5	NA	11:10	/ /	
F -	-	11:45		
5 L-SW-13		11:26	/ /	
6 L-SW-14		((525	/ /	
F,	-	00311	1	
8				
D				
9 10				
Turnaround Time (Business days)		Data Deliverable Information	Notes:	
Same Day TAT		Level II Std QC	Level IV (Full Data Pkg /raw data)	
Next Day EMERGENCY		Level III Std QC+ Forms TRRP Level IV		
2 Day EMERGENCY		Level 3 (CLP Forms) UST / RG -411		
3 Day EMERGENCY		Level II Report with TRRP checklist		
TAT Starts Day received by Lab, if received by 5:00 pm	5:00 pm	$\sim$	FED-EX / UPS: Tracking #	
	ODY MUST BE DOCU	TIME SAMPLES CHANGE POS	-	>
1 Shandayan Marin	U 12 18	15: 01 Million and By:	JULY 10/12/18 15:30	Received by: CJAMUR 6/13/18/04
Relinquished by:		Received By:	Dete Time	V VI I I

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. 1.60 Themo, Corr. Factor 1.6

Relinquished by:

Date Time:

Received By:

Custody Seal #

Preserved where applicable

Onlice

Cooler Temp.

4

Revision 2016.1

Final 1.002



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#### XENCO Laboratories Prelogin/Nonconformance Report- Sample Log-In



Client: COG Operating LLC Acceptable Temperature Range: 0 - 6 degC Air and Metal samples Acceptable Range: Ambient Date/ Time Received: 06/13/2018 10:41:00 AM Temperature Measuring device used : R8 Work Order #: 589043 Comments Sample Receipt Checklist 1.6 #1 \*Temperature of cooler(s)? #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)? 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:

Brianna Teel

Date: 06/13/2018

Checklist reviewed by:

fession kramer

Jessica Kramer

Date: 06/13/2018