



3/15/21

Oil Conservation Division, District II
811 S. First St.
Artesia, NM 88210

Re: Closure Report
High Brass 002H (6.13.20)
Tracking#: NRM2017851403
GPS: 32.1795, -104.1009
Unit Letter D, Section 33, Township 24 South, Range 28 East
Eddy County, New Mexico

To Whom it May Concern,

COG Operating, LLC (COG) is pleased to submit the following closure report in response to a release that occurred on June 13, 2020 at the High Brass 002H, located in Unit Letter D, Section 33, Township 24 South, Range 28 East Eddy County, New Mexico. The spill site coordinates are 32.1795, -104.1009.

BACKGROUND

The release was discovered on June 13, 2020. An initial C-141 was submitted and accepted by the New Mexico Oil Conservation Division (NMOCD). The release was caused by a connection failure on a flow line. The release occurred in the pasture. A vacuum truck was dispatched to remove all freestanding fluids. Approximately one hundred and thirty-eight (138) barrels of produced water was released. The initial C-141 and final C-141 are attached in Appendix A.

GROUNDWATER AND REGULATORY

A search of a groundwater database maintained by The New Mexico Office of the State Engineer (NMOSE) was conducted to determine the average depth to groundwater within a one (1) Mile radius of the Release Site and identify any registered water wells within a 1/2 Mile of the Release Site. Four NMOSE POD locations were found within one mile of the release. The depth to groundwater was estimated to be approximately seventy-five to ninety feet below surface. No wells were found within a 1/2 mile of the release site.

A borehole was drilled within a 1/2 mile of the release to a depth of fifty-five (55) feet below surface and open for 72 hrs. After 72 hours, the borehole was gauged for presence of groundwater and no water was present. (Drilling log and map of location in Appendix B).

A risk-based evaluation and site determinations were performed in accordance to the New Mexico Oil Conservation Division (NMOCD) Rule (Title 19 Chapter 15 Part 29) for releases on oil and gas development and production in New Mexico (effective August 14, 2018). According to the site characterization evaluation, the affected area has high potential for cave and karst, and no other receptors (water wells, playas, water course, lake beds or ordinance boundaries) were located within each specific boundaries or distance from the site. The delineation and closure criteria are listed below:

General Site Characterization and Groundwater:

Site Characterization	Average Groundwater Depth (ft.)	Water well within ½ Mile
High Karst	51ft -100 ft	Borehole drilled

Delineation and Closure Criteria:

Remedial Action Levels (RALs)	
Chlorides	600 mg/kg
TPH (GRO and DRO and MRO)	100 mg/kg
GRO+DRO	100 mg/kg
Benzene	10 mg/kg
Total BTEX	50 mg/kg

NMOCD CORRESPONDENCE

This remediation was performed at risk. The High Brass release is located where natural chlorides are possible in the area. Based on the location, COG installed a total of 8 background trenches (BG1 through BG8) at the site. The background chloride concentrations were detected, but not consistent in the area and appears to be natural occurring for the area (Table 1). Cristina Eads with the NMOCD agreed with the findings for the background chlorides.

Based on the background findings, COG proposed to install a liner in the main excavation and two-track road areas. However, NMOCD requested additional excavation in the area of BH-2 (two-track area) to remove an additional 6 feet of impacted material from the excavation bottom. Also, requested additional sample points in the pipeline area and two-track area (4' excavation area). Once the requested activities were complete, the excavation could be then backfilled the open excavation for closure of the site. The email correspondences are shown in Appendix B (NMOCD Correspondence).

REMEDIAL ACTIONS

- The Main Excavation was excavated to a depth approximately 4.0' below surface. Three (3) boreholes (BH-1, BH-2 and BH-3) were installed in the main excavation bottom. The bottom excavation was not sampled every 200 sq. ft per NMOCD Cristina Eads (Jan.11, 2021 email (Appendix B) citing the data collected would be sufficient to meet closure criteria. Site and sample maps are attached. Table 2 shows the sample depths and analytical results.
- The Two-Track area was excavated to depths of 4.0' below surface. Two (2) boreholes (BH-1 and BH-2) were installed in the excavation bottom. As requested by NMOCD, the area of BH-2 was excavated to a depth of 10.0' below surface to remove the elevated chlorides. The area was sampled every 200 sq. ft per NMOCD guidelines for the bottom and sidewalls, with the exception of BH-2 bottom. Site and sample maps are attached. Table 2 shows the sample depths and analytical results.
- Pipeline Area - The impacted area was excavated to a depth of approximately 1' to 2' below surface. All bottom and sidewalls were all below NMOCD closure criteria (NMAC 19.15.29.12(E) Table I) and NMAC 19.15.29.13(D)(1).
- All the excavated material was hauled to an NMOCD approved solid waste disposal facility.
- The site was backfilled with clean "like" material.
- The analytical data shown in Table 1 show that the release area meets NMOCD closure criteria (NMAC 19.15.29.12(E) Table I) and NMAC 19.15.29.13(D)(1), with exception of the Main Excavation and the Two Track (BH-2) areas. NMOCD approved capping these areas for proper closure of the site.

CONFIRMATION SAMPLING AND BACKFILLING

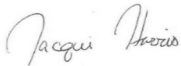
Composite samples were collected every 200 square feet on all of the sidewalls and bottom excavations for the Pipeline and Two-Track (BH-2) areas. Once completed, the excavated area was backfilled with non-contaminated material with concentrations below 600 mg/kg of chlorides.

CLOSURE REQUEST

COG Operating, LLC respectfully requests that the New Mexico Oil Conservation Division grant closure approval for the High Brass 002H that occurred on June 13, 2020 (Tracking # NRM2017851403).

Should you have any questions or concerns on the closure report, please do not hesitate to contact me.

Sincerely,



Jacqui Harris
Senior HSE Coordinator
Jharris2@concho.com

Maps

COG Operating LLC.

High Brass 002
32.179536 -104.100918
Eddy County, NM
Figure 2 Confirmation Bottomhole Samples

Legend

- 1' Excavation
- 10' Excavation
- 2' Excavation
- 4' Excavation
- Background Sample Points
- Bore Hole Sample Points
- Crestwood
- DCP
- Excavation ID
- Sample Points

BG8

BG4

PL BH 1 1'

BG5

PL BH 2 1'

BG3

2 Track BH 2 CS-1 BH 2 10'

CS-2 BH 2 10'

2 Track

Pipeline

BG2

2 Track BH 1

PL BH 3 1'

2 Track BH 3

BG6

2 Track BH 4

Main BH 3

Main BH 2

Main BH 1

BG1

Google Earth

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400 ft

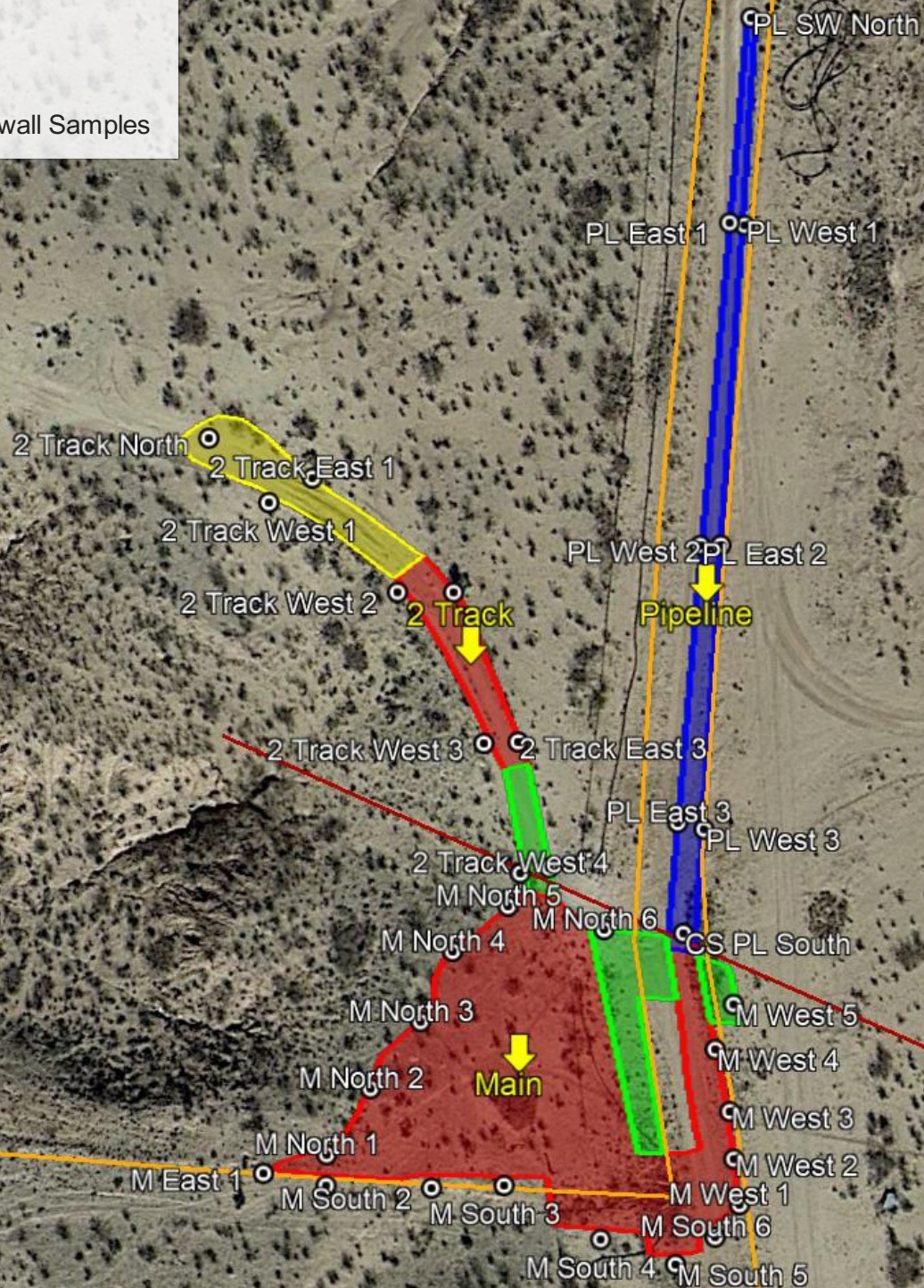


COG Operating LLC.

High Brass 002
32.179536 -104.100918
Eddy County, NM
Figure 2 Confirmation Sidewall Samples

Legend

- 1' Excavation
- 10' Excavation
- 2' Excavation
- 4' Excavation
- Bore Hole Sample Points
- Crestwood
- DCP
- Excavation ID
- Sample Points



Google Earth

200 ft

Table of Analytical Data

Table 1
SUMMARY OF ANALYTICAL RESULTS
COG Operating
High Brass 002H (6-13-20)
Eddy County, NM

Sample ID	Depth (ft)	Date Sampled	Chloride (mg/kg)
Background Samples			
Background 1 (trench)	1	9/23/2020	<9.94
	2	9/23/2020	<10.0
	3	9/23/2020	24.4
	4	9/23/2020	186
	5	9/23/2020	535
	6	9/23/2020	696
	7	9/23/2020	776
	8	9/23/2020	624
	9	9/23/2020	699
	10	9/23/2020	762
Background 2 (trench)	1	9/24/2020	<9.92
	2	9/24/2020	<9.98
	3	9/24/2020	16.5
	4	9/24/2020	<10.1
	5	9/24/2020	<10.1
	6	9/24/2020	14.6
	7	9/24/2020	29.7
	8	9/24/2020	62.4
	9	9/24/2020	55.2
	10	9/24/2020	22.1
Background 3 (trench)	1	10/5/2020	5.92
	2	10/5/2020	80.3
	3	10/5/2020	909
	4	10/5/2020	1,420
	5	10/5/2020	1,480
	6	10/5/2020	1,440
	7	10/5/2020	1,420
	8	10/5/2020	1,360
	9	10/5/2020	970
	10	10/5/2020	1,160

Table 1
SUMMARY OF ANALYTICAL RESULTS
COG Operating
High Brass 002H (6-13-20)
Eddy County, NM

Sample ID	Depth (ft)	Date Sampled	Chloride (mg/kg)
Background 4 (trench)	1	10/5/2020	5.27
	2	10/5/2020	<5.04
	3	10/5/2020	60.9
	4	10/5/2020	276
	5	10/5/2020	544
	6	10/5/2020	698
	7	10/5/2020	645
	8	10/5/2020	780
	9	10/5/2020	716
	10	10/5/2020	759
Background 5 (trench)	1	10/5/2020	115
	2	10/5/2020	6.08
	3	10/5/2020	336
	4	10/5/2020	515
	5	10/5/2020	540
	6	10/5/2020	637
	7	10/5/2020	631
	8	10/5/2020	1,010
	9	10/5/2020	952
	10	10/5/2020	862
Background 6 (trench)	1	10/7/2020	30.1
	2	10/7/2020	282
	3	10/7/2020	369
	4	10/7/2020	427
	5	10/7/2020	416
	6	10/7/2020	366
	7	10/7/2020	367
	8	10/7/2020	433
	9	10/7/2020	367
	10	10/7/2020	383

Table 1
SUMMARY OF ANALYTICAL RESULTS
COG Operating
High Brass 002H (6-13-20)
Eddy County, NM

Sample ID	Depth (ft)	Date Sampled	Chloride (mg/kg)
Background 7 (trench)	1	10/29/2020	15.2
	2	10/29/2020	11.5
	3	10/29/2020	11.9
	4	10/29/2020	16.9
	5	10/29/2020	27.2
	6	10/29/2020	46.8
	7	10/29/2020	46.8
	8	10/29/2020	95.8
	9	10/29/2020	179
	10	10/29/2020	157
	12	10/29/2020	186
	14	10/29/2020	210
Background 8 (trench)	1	10/29/2020	762
	2	10/29/2020	1,200
	3	10/29/2020	1,410
	4	10/29/2020	1,400
	5	10/29/2020	1,280
	6	10/29/2020	1,340
	7	10/29/2020	1,370
	8	10/29/2020	1,210
	9	10/29/2020	1,110
	10	10/29/2020	1,180
	12	10/29/2020	1,080
	14	10/29/2020	933
	16	10/29/2020	684
	18	10/29/2020	619
Background 8 (Borehole)	14-15	12/10/2020	621
	19-20	12/10/2020	793
	24-25	12/10/2020	450
	29-30	12/10/2020	175
	39-40	12/10/2020	59.9
	49-50	12/10/2020	42.7

Table 2
COG Operating LLC.
High Brass 002H (6.13.20)- Sidewall Analytical Data
Eddy County, New Mexico

	Sample ID	Sample Date	Soil Status		TPH (mg/kg)						Benzene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)	
			In-Situ	Removed	GRO	DRO	MRO	Total	GRO	DRO				Total
Average Depth to Groundwater (ft) - 51'-100' High Karst														
NMOCD RAL Limits (mg/kg)					-	-	-	100	-	-	100	10	50	600
Pipeline	Pipeline-SW- North	10/14/2020	X		<49.9	<49.9	<49.9	<49.9	<49.9	<49.9	<49.9	<0.00200	<0.00200	66.8
	Pipeline-SW-East 1	10/14/2020	X		<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<0.00201	<0.00201	56.6
	Pipeline-SW-East 2	10/14/2020	X		<49.9	<49.9	<49.9	<49.9	<49.9	<49.9	<49.9	0.0208	0.227	60.6
	Pipeline-SW-East 3	10/14/2020	X		<49.9	<49.9	<49.9	<49.9	<49.9	<49.9	<49.9	<0.00200	<0.00200	59.3
	Pipeline-SW-West 1	10/14/2020	X		<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<0.00200	<0.00200	55.4
	Pipeline-SW-West 2	10/14/2020	X		<49.9	<49.9	<49.9	<49.9	<49.9	<49.9	<49.9	<0.00202	<0.00202	53.9
	Pipeline-SW-West 3	10/14/2020	X		<49.8	<49.8	<49.8	<49.8	<49.8	<49.8	<49.8	<0.00198	<0.00198	59.2
2 Track	2 Track -SW-North	11/11/2020	X		<50.0	62.5	<50.0	62.5	<50.0	62.5	62.5	<0.00202	<0.00202	14.3
	2 Track -SW-East 1	11/11/2020	X		<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<0.00200	<0.00200	10.7
	2 Track- SW-East 2	11/11/2020	X		<49.9	<49.9	<49.9	<49.9	<49.9	<49.9	<49.9	<0.00201	<0.00201	8.61
	2 Track- SW -East 3	11/11/2020	X		<50.0	64.0	<50.0	64.0	<50.0	64.0	64.0	<0.00198	<0.00198	9.04
	2 Track- SW- East 4	11/11/2020	X		<49.8	<49.8	<49.8	<49.8	<49.8	<49.8	<49.8	<0.00200	<0.00200	10.8
	2 Track -SW -West 1	11/11/2020	X		<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<0.00199	<0.00199	5.04
	2 Track -SW- West 2	11/11/2020	X		<49.9	59.3	<49.9	59.3	<49.9	59.3	59.3	<0.00201	<0.00201	<5.03
	2 Track -SW -West 3	11/11/2020	X		<50.0	55.5	<50.0	55.5	<50.0	55.5	55.5	<0.00200	<0.00200	<5.02
Main	2 Track -SW- West 4	11/11/2020	X		<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<0.00199	<0.00199	<5.05
	M-SW-North 1	10/6/2020	X		<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<0.00200	<0.00200	447
	M-SW-North 2	10/6/2020	X		<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<0.00198	<0.00198	511
	M-SW- North 3	10/6/2020	X		<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<0.00198	<0.00198	465
	M-SW-North 4	10/6/2020	X		<49.9	<49.9	<49.9	<49.9	<49.9	<49.9	<49.9	<0.00199	<0.00199	471
	M- SW-North 5	10/6/2020	X		<49.8	<49.8	<49.8	<49.8	<49.8	<49.8	<49.8	<0.00200	<0.00200	467
	M-SW-North 6	10/6/2020	X		<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<0.00200	<0.00200	493
	M-SW-South 1	9/30/2020	X		<50.1	<50.1	<50.1	<50.1	<50.1	<50.1	<50.1	<0.00198	<0.00198	22.3
	M-SW- South 2	11/11/2020	X		<49.9	<49.9	<49.9	<49.9	<49.9	<49.9	<49.9	<0.00199	<0.00199	20.4
	M-SW-South 3	10/21/2020	X		<49.9	<49.9	<49.9	<49.9	<49.9	<49.9	<49.9	<0.00199	<0.00199	12.6
	M -SW-South 4	10/6/2020	X		<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<0.00202	<0.00202	566
	M-SW- South 5	10/6/2020	X		<49.9	<49.9	<49.9	<49.9	<49.9	<49.9	<49.9	<0.00202	<0.00202	454
	M-SW-South 6	10/6/2020	X		<49.8	<49.8	<49.8	<49.8	<49.8	<49.8	<49.8	<0.00200	<0.00200	439
	M-SW- East 1	10/13/2020	X		<49.9	<49.9	<49.9	<49.9	<49.9	<49.9	<49.9	<0.00201	<0.00201	45.0
	M-SW-West -1	9/30/2020	X		<49.9	<49.9	<49.9	<49.9	<49.9	<49.9	<49.9	<0.00200	<0.00200	38.4
	M-SW-West -2	9/30/2020	X		<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<0.00200	<0.00200	88.4
	M-SW-West -3	10/21/2020	X		<50.3	<50.3	<50.3	<50.3	<50.3	<50.3	<50.3	<0.00200	<0.00200	14.9
	M-SW-West -4	10/7/2020	X		<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<0.00202	<0.00202	236
M-SW-West -5	10/7/2020	X		<49.9	<49.9	<49.9	<49.9	<49.9	<49.9	<49.9	<0.00200	<0.00200	53.7	

Table 2
COG Operating LLC.
High Brass 002H (6.13.20)- Bottomhole Analytical Data
Eddy County, New Mexico

	Sample ID	Sample Date	Excavation Bottom (ft)	Soil Status		TPH (mg/kg)							Benzene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)	
				In-Situ	Removed	GRO	DRO	MRO	Total	GRO	DRO	Total				
	Average Depth to Groundwater (ft) - 51'-100' High Karst															
	NMOCD RAL Limits (mg/kg)					-	-	-	100	-	-	100	10	50	600	
Pipeline	Pipeline-Bottom Hole 1 1'	10/14/2020	1.0	X		<49.9	<49.9	<49.9	<49.9	<49.9	<49.9	<49.9	<0.00199	<0.00199	63.5	
	Pipeline-Bottom Hole 2 1'	10/14/2020		X		<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<0.00200	<0.00200	57.2	
	Pipeline-Bottom Hole 3 1'	10/14/2020		X		<49.9	<49.9	<49.9	<49.9	<49.9	<49.9	<49.9	<0.00200	<0.00200	62.0	
2 Track	2 Track Bottom Hole 1-2'	11/11/2020	2.0	X		<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<0.00200	<0.00200	<5.01	
	2 Track Bottom Hole 2-2'	11/11/2020		X		<49.9	68.6	<49.9	68.6	<49.9	68.6	68.6	<0.00202	<0.00202	<4.97	
	2 Track Bottom Hole 3-2'	11/11/2020		X		<49.9	62.2	<49.9	62.2	<49.9	62.2	62.2	<0.00200	<0.00200	<5.00	
	2 Track Bottom Hole 4-2'	11/11/2020		X		<49.8	60.4	<49.8	60.4	<49.8	60.4	60.4	<0.00198	<0.00198	<5.00	
Main	Main Bore Hole-1 0-1'	12/9/2020	4.0		X	-	-	-	-	-	-	-	-	-	5950	
	Main Bore Hole-1 3'-4'	12/9/2020			X	-	-	-	-	-	-	-	-	-	2400	
	Main Bore Hole-1 5'-6'	12/9/2020		X		-	-	-	-	-	-	-	-	-	838	
	Main Bore Hole-1 7'-8'	12/9/2020		X		-	-	-	-	-	-	-	-	-	555	
	Main Bore Hole-1 9'-10'	12/9/2020		X		-	-	-	-	-	-	-	-	-	659	
	Main Bore Hole-1 14'-15'	12/9/2020		X		-	-	-	-	-	-	-	-	-	490	
	Main Bore Hole-1 19'-20'	12/9/2020		X		-	-	-	-	-	-	-	-	-	471	
	Main Bore Hole-1 24'-25'	12/9/2020		X		-	-	-	-	-	-	-	-	-	471	
	Main Bore Hole-1 29'-30'	12/9/2020		X		-	-	-	-	-	-	-	-	-	345	
	Main Bore Hole-2 0-1'	12/9/2020	4.0		X	-	-	-	-	-	-	-	-	-	1540	
	Main Bore Hole-2 3'-4'	12/9/2020			X	-	-	-	-	-	-	-	-	-	1060	
	Main Bore Hole-2 5'-6'	12/9/2020		X		-	-	-	-	-	-	-	-	-	1530	
	Main Bore Hole-2 7'-8'	12/9/2020		X		-	-	-	-	-	-	-	-	-	1110	
	Main Bore Hole-2 9'-10'	12/9/2020		X		-	-	-	-	-	-	-	-	-	1480	
	Main Bore Hole-2 14'-15'	12/9/2020		X		-	-	-	-	-	-	-	-	-	853	
	Main Bore Hole-2 19'-20'	12/9/2020		X		-	-	-	-	-	-	-	-	-	766	
	Main Bore Hole-2 24'-25'	12/9/2020		X		-	-	-	-	-	-	-	-	-	539	
	Main Bore Hole-2 29'-30'	12/9/2020		X		-	-	-	-	-	-	-	-	-	353	
	Main Bore Hole-3 0-1'	12/10/2020	4.0		X	-	-	-	-	-	-	-	-	-	1480	
	Main Bore Hole-3 3'-4'	12/10/2020			X	-	-	-	-	-	-	-	-	-	1920	
	Main Bore Hole-3 5'-6'	12/10/2020		X		-	-	-	-	-	-	-	-	-	1320	
	Main Bore Hole-3 7'-8'	12/10/2020		X		-	-	-	-	-	-	-	-	-	1350	
	Main Bore Hole-3 9'-10'	12/10/2020		X		-	-	-	-	-	-	-	-	-	1230	
	Main Bore Hole-3 14'-15'	12/10/2020		X		-	-	-	-	-	-	-	-	-	1220	
	Main Bore Hole-3 19'-20'	12/10/2020		X		-	-	-	-	-	-	-	-	-	738	
	Main Bore Hole-3 24'-25'	12/10/2020		X		-	-	-	-	-	-	-	-	-	650	
	Main Bore Hole-3 29'-30'	12/10/2020		X		-	-	-	-	-	-	-	-	-	472	

Table 2
COG Operating LLC.
High Brass 002H (6.13.20)- Confirmation Sample Analytical Data
Eddy County, New Mexico

	Confirmation Samples Requested by NMOCD													
	Sample ID	Sample Date	Soil Status		TPH (mg/kg)						Benzene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)	
			In-Situ	Removed	GRO	DRO	MRO	Total	GRO	DRO				Total
Pipeline	CS Pipeline (South)	2/3/2021	X		<49.9	<49.9	<49.9	<49.9	<49.9	<49.9	<49.9	<0.00201	<0.00201	<4.96
2 Track	CS-1 Bore Hole 2-10'	2/3/2021	X		<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<0.00200	<0.00200	46.6
	CS-2 Bore Hole 2-10'	2/3/2021	X		<49.9	<49.9	<49.9	<49.9	<49.9	<49.9	<49.9	<0.00200	<0.00200	8.97

Photos Main Area

Facing East from M East 1



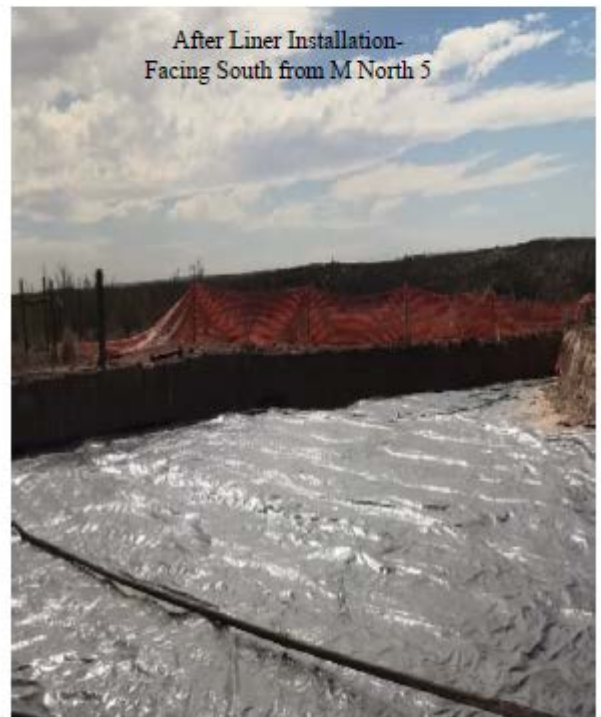
Facing North East from M South 2



After Liner Installation-
Facing Northeast from M North 1



After Liner Installation-
Facing South from M North 5



Photos

2 Track Area



Photos Pipeline Area



Appendix A

C-141

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural
Resources Department

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 24, 2018
Submit to appropriate OCD District office

Incident ID	
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party	OGRID
Contact Name	Contact Telephone
Contact email	Incident # (assigned by OCD)
Contact mailing address	

Location of Release Source

Latitude _____ Longitude _____
(NAD 83 in decimal degrees to 5 decimal places)

Site Name	Site Type
Date Release Discovered	API# (if applicable)

Unit Letter	Section	Township	Range	County

Surface Owner: ☐ State ☐ Federal ☐ Tribal ☐ Private (Name: _____)

Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

☐ Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
☐ Produced Water	Volume Released (bbls)	Volume Recovered (bbls)
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☐ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)
Cause of Release		

Incident ID	
District RP	
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC? ☐ Yes ☐ No	If YES, for what reason(s) does the responsible party consider this a major release?
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?	

Initial Response

The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury

☐ The source of the release has been stopped.	
☐ The impacted area has been secured to protect human health and the environment.	
☐ Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.	
☐ All free liquids and recoverable materials have been removed and managed appropriately.	
If all the actions described above have <u>not</u> been undertaken, explain why:	
Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.	
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.	
Printed Name: _____	Title: _____
Signature: <u>Patricia Zapanta</u>	Date: _____
email: _____	Telephone: _____
<u>OCD Only</u>	
Received by: _____	Date: _____

Incident ID	
District RP	
Facility ID	
Application ID	

Site Assessment/Characterization

This information must be provided to the appropriate district office no later than 90 days after the release discovery date.

What is the shallowest depth to groundwater beneath the area affected by the release?	_____ (ft bgs)
Did this release impact groundwater or surface water?	☐ Yes ☐ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	☐ Yes ☐ No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	☐ Yes ☐ No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	☐ Yes ☐ No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	☐ Yes ☐ No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	☐ Yes ☐ No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ☐ No
Are the lateral extents of the release within 300 feet of a wetland?	☐ Yes ☐ No
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ☐ No
Are the lateral extents of the release overlying an unstable area such as karst geology?	☐ Yes ☐ No
Are the lateral extents of the release within a 100-year floodplain?	☐ Yes ☐ No
Did the release impact areas not on an exploration, development, production, or storage site?	☐ Yes ☐ No

Attach a comprehensive report (electronic submittals in .pdf format are preferred) demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined. Refer to 19.15.29.11 NMAC for specifics.

Characterization Report Checklist: Each of the following items must be included in the report.

- ☐ Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
- ☐ Field data
- ☐ Data table of soil contaminant concentration data
- ☐ Depth to water determination
- ☐ Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release
- ☐ Boring or excavation logs
- ☐ Photographs including date and GIS information
- ☐ Topographic/Aerial maps
- ☐ Laboratory data including chain of custody

If the site characterization report does not include completed efforts at remediation of the release, the report must include a proposed remediation plan. That plan must include the estimated volume of material to be remediated, the proposed remediation technique, proposed sampling plan and methods, anticipated timelines for beginning and completing the remediation. The closure criteria for a release are contained in Table 1 of 19.15.29.12 NMAC, however, use of the table is modified by site- and release-specific parameters.

State of New Mexico
Oil Conservation Division

Page 4

Incident ID	
District RP	
Facility ID	
Application ID	

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: _____ Title: _____

Signature: Jaqui Herrera Date: _____

email: _____ Telephone: _____

OCD Only

Received by: _____ Date: _____

Incident ID	
District RP	
Facility ID	
Application ID	

Closure

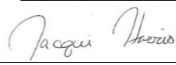
The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.

Closure Report Attachment Checklist: *Each of the following items must be included in the closure report.*

- ☐ A scaled site and sampling diagram as described in 19.15.29.11 NMAC
- ☐ Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)
- ☐ Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)
- ☐ Description of remediation activities

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: _____ Title: _____

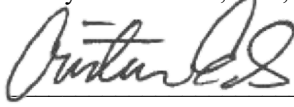
Signature:  _____ Date: _____

email: _____ Telephone: _____

OCD Only

Received by: _____ Date: _____

Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance with any other federal, state, or local laws and/or regulations.

Closure Approved by:  _____ Date: _____

Printed Name: _____ Title: _____

Appendix B

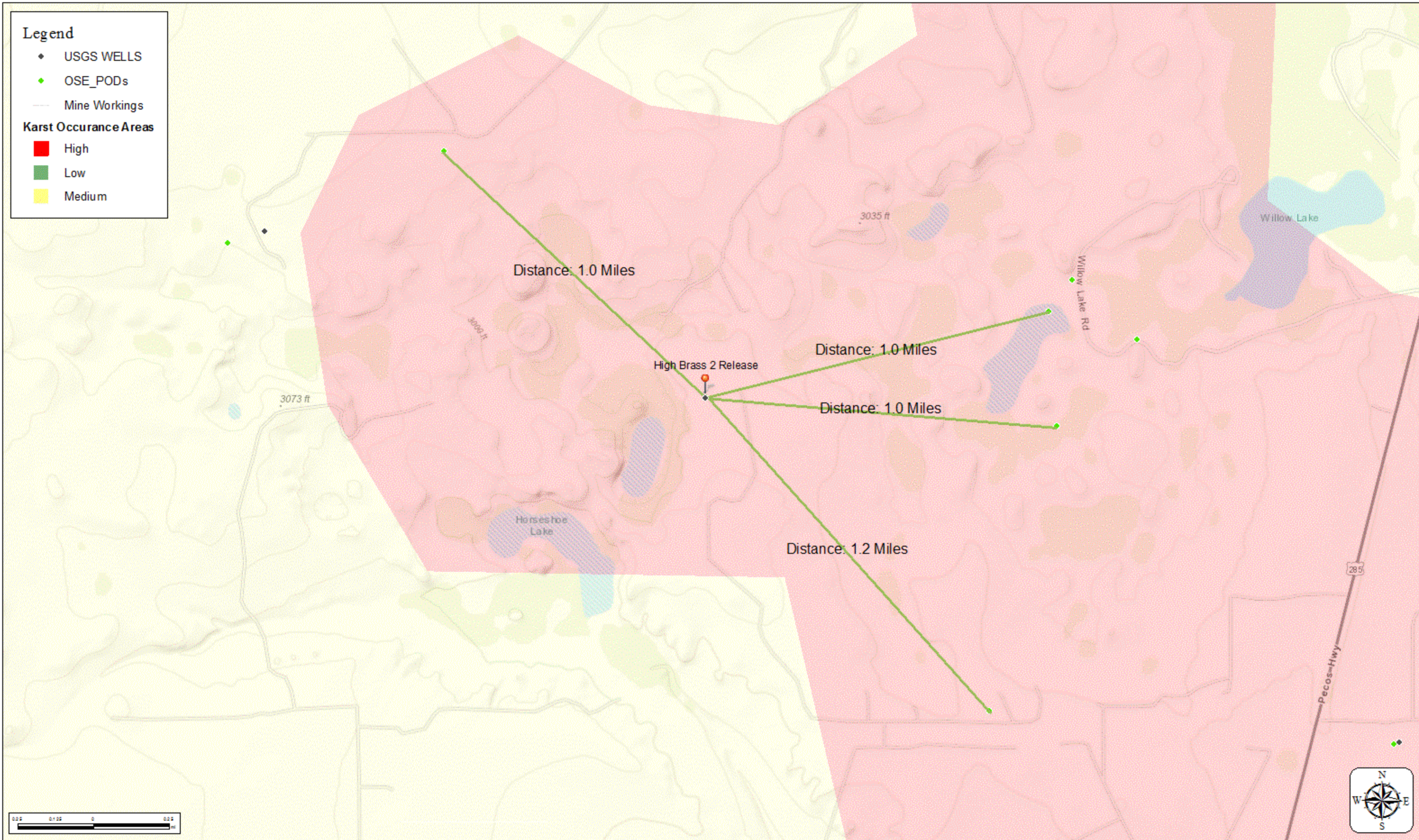
Site Assessment Data

Legend

- ◆ USGS WELLS
- ◆ OSE_PODs
- Mine Workings

Karst Occurance Areas

- High
- Low
- Medium





New Mexico Office of the State Engineer

Water Column/Average Depth to Water

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

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

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

(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

POD Number	POD Sub-Code	basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
C 03989 POD1	CUB	ED		4	2	2	33	24S	28E	586342	3560573	1585	100	70	30
C 03988 POD1	CUB	ED		4	4	4	28	24S	28E	586303	3561087	1594	110	95	15
C 04501 POD1	CUB	ED		3	4	1	29	24S	28E	583580	3561778	1608	80		

Average Depth to Water: **82 feet**

Minimum Depth: **70 feet**

Maximum Depth: **95 feet**

Record Count: 3

UTMNAD83 Radius Search (in meters):

Easting (X): 584760.45

Northing (Y): 3560686.4

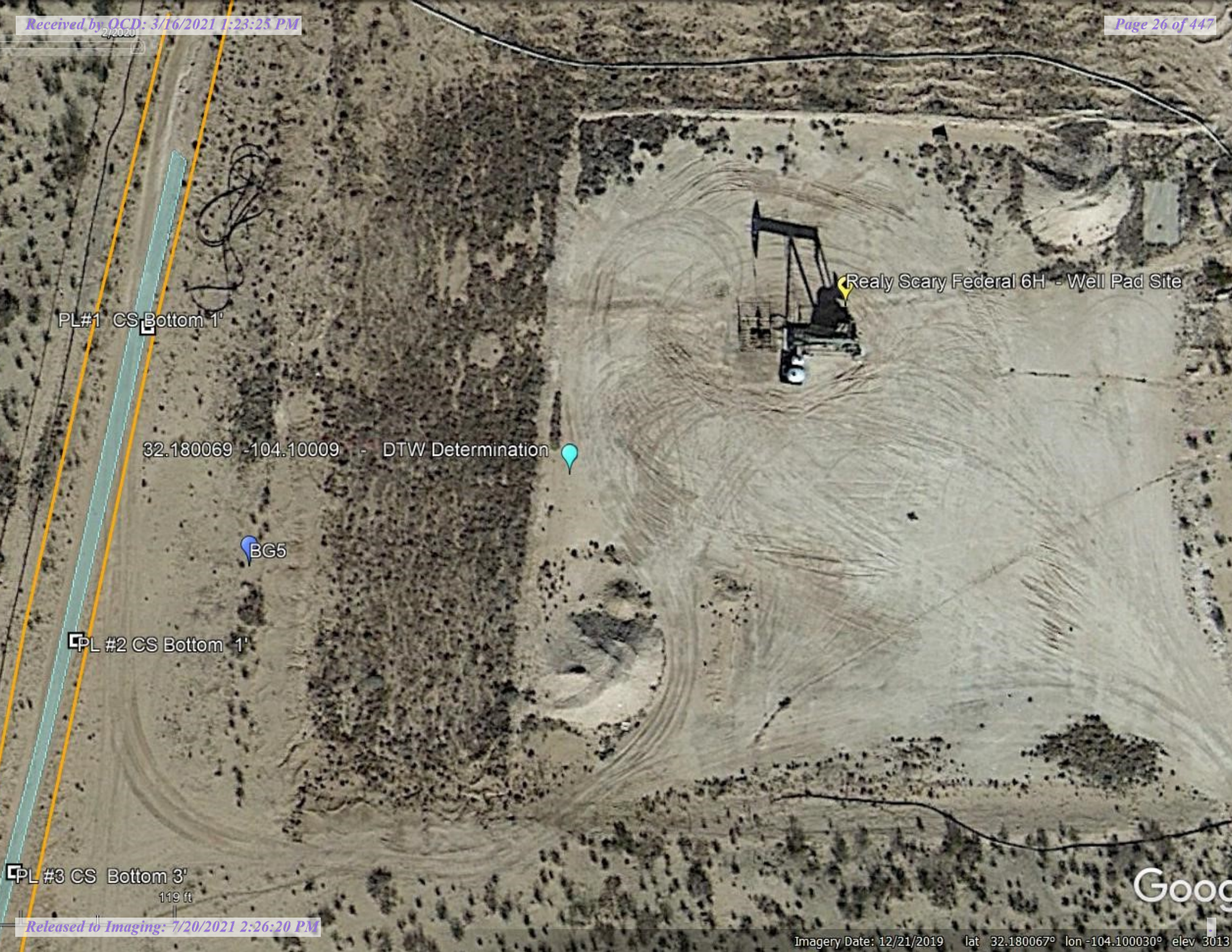
Radius: 1610

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.

3/14/21 3:17 PM

Page 1 of 1

WATER COLUMN/ AVERAGE
DEPTH TO WATER



PL #1 CS Bottom 1'

32.180069 -104.10009 - DTW Determination

BG5

PL #2 CS Bottom 1'

PL #3 CS Bottom 3'

119 ft

TEST HOLES • WATER WELLS

LAMESA, TEXAS 79331

2001 South Hwy. 87

From	To	FORMATION
0	1	Caliche
1	12	Top Soil
12	18	Caliche
18	55	Red Shale
		BH-1
		LOG-Really Scarpy Federal
		6 H-TB
		Plugged w/ Hole Plug
		32.180069, -104.10009

Date 12-9-20 Driller

Lee Searcy

GIBBS PRINTING CO.-LAMESA, TX

National Flood Hazard Layer FIRMMette



104°6'22"W 32°11'1"N



0 250 500 1,000 1,500 2,000 Feet 1:6,000

104°5'45"W 32°10'31"N

Released to Imaging: 7/20/2021 2:26:20 PM

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
GENERAL STRUCTURES		Area of Undetermined Flood Hazard Zone D
		Channel, Culvert, or Storm Sewer
OTHER FEATURES		Levee, Dike, or Floodwall
		20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
MAP PANELS		17.5 Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
		Coastal Transect Baseline
		Profile Baseline
		Hydrographic Feature
		Digital Data Available
		No Digital Data Available
		Unmapped



The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 3/14/2021 at 5:01 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

NMOCD Correspondence

From: [Tavarez, Ike](#)
To: [Harris, Jacqui](#)
Cc: [Grubbs, Robert D](#)
Subject: RE: COG Operating - High Brass 2H (6.13.20) #NRM2017851403 - Background Data Review for Closure
Date: Thursday, March 11, 2021 8:40:36 AM

Jacqui,

Here is the email we received from Cristina approving our recommendation for closure. However, she requested additional soil removal in 2 areas and 2 additional sample points. The liners was a COG decision to install in the bottom, but not recommended by the OCD. Also, she did not require any sampling 200 sq ft in the bottom excavations (main and lease road) and said the borehole data was sufficient for closure. Call me if we need to discuss, thanks

Ike

From: Eads, Cristina, EMNRD [mailto:Cristina.Eads@state.nm.us]
Sent: Friday, January 15, 2021 2:22 PM
To: Ike Tavarez <itavarez@concho.com>
Cc: Robert Grubbs <RGrubbs@concho.com>
Subject: [External] RE: COG Operating - High Brass 2H (6.13.20) #NRM2017851403 - Background Data Review for Closure

**** External email. Use caution. ****

Ike,

The proposed excavation depths and liner placement look good to me, however I would recommend removing at least the top 6 feet in the BH-2 (2 Track) area, and collecting at least one sample from the pipeline area and one sample from the 2 track area where composite samples were collected from a depth of 4', unless you have sample data collected more near the date of release.

Please provide the boring log you mentioned in the remediation plan/closure report.

If you would still like to discuss over the phone, please don't hesitate to call.

Thanks,

Cristina Eads • Environmental Specialist - A
Environmental Bureau
EMNRD - Oil Conservation Division
5200 Oakland Ave, Suite100 | Albuquerque, NM 87113
505.670.5601 | Cristina.Eads@state.nm.us
<http://www.emnrd.state.nm.us/OCD/>

From: Ike Tavarez <itavarez@concho.com>
Sent: Monday, January 11, 2021 1:07 PM

To: Eads, Cristina, EMNRD <Cristina.Eads@state.nm.us>

Cc: Robert Grubbs <RGrubbs@concho.com>

Subject: [EXT] COG Operating - High Brass 2H (6.13.20) #NRM2017851403 - Background Data Review for Closure

Cristina,

As discussed, here is the COG - High Brass 2H site information. The High Brass release is located where natural chlorides are possible in the area. Based on the location, we installed a total of 8 background trenches (BG1 through BG8) at the site. I expanded the background perimeter and installed BG7 and BG8 to stay further away from impacted area and possible historical impact. As shown in the attached table, background chloride concentrations were detected, but not consistent in the area.

In addition, we reviewed the published groundwater information and according to published data the projected depth at the site is approximately 75- 90 feet below surface. COG installed a borehole to a depth of 55' below surface and left open for 72 hours to check the presence of groundwater. No groundwater was encountered in the borehole.

Based on the background concentrations, COG propose to installed a 20 mil liner at 4.0' below surface to cap any remaining impact in the excavations. I have broken out the excavated areas into three (3) areas for review and discussion. Please review the background and delineation data and call me to discuss path forward for the site.

Pipeline Excavation

- No issues shallow impact (1.0') in the this area.

2-Track Area Excavation

- No Issues - Southern portion of the 2-track was shallow (2.0')
- The remaining 2-track area was excavation is approximately 4.0' below surface. Two (2) boreholes (BH-1 and BH-2) were installed in the excavation bottom to assess the area. Based on the results, BH-2 showed chloride concentrations from 0-8' below surface, above the background concentrations.

Main Excavation

- The main area has been excavated to a depth of approximately 4.0' below surface. A total of three (3) boreholes (BH-1, BH-2 and BH-3) were installed in the excavation bottom to assess the area. Majority of the chloride concentrations were comparable to some of the background concentrations.

Ike Tavaréz, PG
Senior HSE Supervisor
COG Operating LLC
600 W Illinois Avenue | Midland, TX 79701
Direct: 432-685-2573 | Main: 432-683-7443

Cell: 432-701-8630

itavarez@concho.com



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Appendix C

Analytical Reports

Certificate of Analysis Summary 674516

COG Operating, LLC, Midland, TX

Project Name: COG - High Brass

Project Id: COG - High Brass

Contact: Ike Tavaréz

Project Location: Eddy County NM

Date Received in Lab: Wed 10.07.2020 11:30

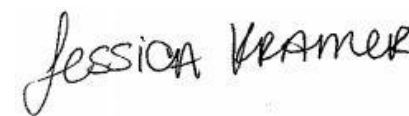
Report Date: 10.28.2020 08:08

Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	674516-006	674516-010				
	Field Id:	Background 1 6'	Background 1 10'				
	Depth:	6 ft	10 ft				
	Matrix:	SOIL	SOIL				
	Sampled:	10.05.2020 00:00	10.05.2020 00:00				
Alkalinity by SM2320B SUB: T104704215-20-38	Extracted:	10.08.2020 12:10	10.08.2020 12:10				
	Analyzed:	10.09.2020 14:33	10.09.2020 14:45				
	Units/RL:	mg/L RL	mg/L RL				
Alkalinity, Total (CaCO ₃)		280 40.0	321 40.0				
Cation-Anion Balance Calculation SUB: T104704215-20-38	Extracted:	10.14.2020 13:23	10.14.2020 13:23				
	Analyzed:	10.14.2020 13:23	10.14.2020 13:23				
	Units/RL:	% RL	% RL				
Cation-Anion Balance		4.10	5.30				
Dissolved Anions by EPA 300 SUB: T104704215-20-38	Extracted:	10.09.2020 14:15	10.09.2020 14:15				
	Analyzed:	10.09.2020 19:47	10.09.2020 20:22				
	Units/RL:	mg/L RL	mg/L RL				
Chloride		453 5.00	472 5.00				
Fluoride		7.05 K 5.00	8.23 K 5.00				
Nitrate as N		1.72 K 1.00	2.25 K 1.00				
Sulfate		4630 D 100	1710 5.00				
Dissolved Metals per ICP by SW846 6010B SUB: T104704215-20-38	Extracted:	10.12.2020 11:00	10.12.2020 11:00				
	Analyzed:	10.12.2020 15:52	10.12.2020 16:25				
	Units/RL:	mg/L RL	mg/L RL				
Boron		<0.500 0.500	<0.500 0.500				
Calcium		1420 D 100	421 2.00				
Magnesium		276 4.00	176 4.00				
Potassium		24.9 5.00	16.3 5.00				
Sodium		268 5.00	325 5.00				

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico



Certificate of Analysis Summary 674516

COG Operating, LLC, Midland, TX

Project Name: COG - High Brass

Project Id: COG - High Brass

Contact: Ike Tavaréz

Project Location: Eddy County NM

Date Received in Lab: Wed 10.07.2020 11:30

Report Date: 10.28.2020 08:08

Project Manager: Jessica Kramer

Analysis Requested	Lab Id: 674516-006 Field Id: Background 1 6' Depth: 6- ft Matrix: SOIL Sampled: 10.05.2020 00:00	Lab Id: 674516-010 Field Id: Background 1 10' Depth: 10- ft Matrix: SOIL Sampled: 10.05.2020 00:00				
Electrical Conductivity (SAR) SUB: T104704215-20-38	Extracted: Analyzed: 10.12.2020 12:42 Units/RL: umhos/cm RL	Extracted: Analyzed: 10.12.2020 12:42 Units/RL: umhos/cm RL				
Conductivity	4040 10.0	4710 10.0				
Percent Moisture by SM2540G SUB: T104704215-20-38	Extracted: Analyzed: 10.08.2020 09:54 Units/RL: % RL	Extracted: Analyzed: 10.08.2020 09:54 Units/RL: % RL				
Percent Moisture	7.74	5.93				
SAR Metals by SW6010C SUB: T104704215-20-38	Extracted: 10.09.2020 16:05 Analyzed: 10.13.2020 19:33 Units/RL: mg/kg RL	Extracted: 10.09.2020 16:05 Analyzed: 10.13.2020 19:38 Units/RL: mg/kg RL				
Calcium	1460 D 21.6	2150 D 21.2				
Magnesium	416 D 43.3	343 D 42.5				
Sodium	372 1.08	425 D 53.1				
SAR Twice Saturated Extraction SUB: T104704215-20-38	Extracted: Analyzed: 10.14.2020 13:11 Units/RL:	Extracted: Analyzed: 10.14.2020 13:11 Units/RL:				
Sodium Adsorption Ratio	2.21	2.25				

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico



Analytical Report 674516

for

COG Operating, LLC

Project Manager: Ike Tavaréz

COG - High Brass

COG - High Brass

10.28.2020

Collected By: Client



**1211 W. Florida Ave
Midland TX 79701**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-38), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2020-014), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-20-26), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-18)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-23)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-21)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-20-8)
Xenco-Tampa: Florida (E87429), North Carolina (483)



10.28.2020

Project Manager: **Ike Tavarez**

COG Operating, LLC

600 W Illinois

Midland, TX 79701

Reference: Eurofins Xenco, LLC Report No(s): **674516**

COG - High Brass

Project Address: Eddy 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 Eurofins Xenco, LLC Report Number(s) 674516. 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 Eurofins Xenco, LLC. 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. 674516 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 Eurofins Xenco, LLC to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

A handwritten signature in black ink that reads "Jessica Kramer".

Jessica Kramer

Project Manager

A Small Business and Minority Company

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

**Sample Cross Reference 674516****COG Operating, LLC, Midland, TX**

COG - High Brass

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
Background 1 6'	S	10.05.2020 00:00	6 ft	674516-006
Background 1 10'	S	10.05.2020 00:00	10 ft	674516-010
Background 1 1'	S	10.05.2020 00:00	1 ft	Not Analyzed
Background 1 2'	S	10.05.2020 00:00	2 ft	Not Analyzed
Background 1 3'	S	10.05.2020 00:00	3 ft	Not Analyzed
Background 1 4'	S	10.05.2020 00:00	4 ft	Not Analyzed
Background 1 5'	S	10.05.2020 00:00	5 ft	Not Analyzed
Background 1 7'	S	10.05.2020 00:00	7 ft	Not Analyzed
Background 1 8'	S	10.05.2020 00:00	8 ft	Not Analyzed
Background 1 9'	S	10.05.2020 00:00	9 ft	Not Analyzed



CASE NARRATIVE

Client Name: COG Operating, LLC

Project Name: COG - High Brass

Project ID: COG - High Brass
Work Order Number(s): 674516

Report Date: 10.28.2020
Date Received: 10.07.2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None



Certificate of Analytical Results 674516

COG Operating, LLC, Midland, TX

COG - High Brass

Sample Id: **Background 1 6'** Matrix: Soil Date Received: 10.07.2020 11:30
 Lab Sample Id: 674516-006 Date Collected: 10.05.2020 00:00 Sample Depth: 6 ft
 Analytical Method: SAR Metals by SW6010C Prep Method: SW3051
 Tech: PJB
 Analyst: DEP Date Prep: 10.09.2020 16:05 % Moisture: 7.74
 Seq Number: 3139650 Basis: Dry Weight
 SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Calcium	7440-70-2	1460	21.6	mg/kg	10.13.2020 19:46	D	50
Magnesium	7439-95-4	416	43.3	mg/kg	10.13.2020 19:46	D	50
Sodium	7440-23-5	372	1.08	mg/kg	10.13.2020 19:33		1

Analytical Method: Electrical Conductivity (SAR)

Tech: KBU
 Analyst: KBU
 Seq Number: 3139429
 % Moisture:
 Basis: Wet Weight
 SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Conductivity	COND	4040	10.0	umhos/cm	10.12.2020 12:42		1

Analytical Method: SAR Twice Saturated Extraction

Tech: DEP
 Analyst: DEP
 Seq Number: 3139651
 % Moisture:
 Basis: Wet Weight
 SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Sodium Adsorption Ratio		2.21			10.14.2020 13:11		1



Certificate of Analytical Results 674516

COG Operating, LLC, Midland, TX

COG - High Brass

Sample Id: **Background 1 6'** Matrix: Soil Date Received: 10.07.2020 11:30
 Lab Sample Id: 674516-006 Date Collected: 10.05.2020 00:00 Sample Depth: 6 ft
 Analytical Method: Alkalinity by SM2320B Prep Method: SM2320P
 Tech: KBU
 Analyst: KBU Date Prep: 10.08.2020 12:10 % Moisture:
 Seq Number: 3139333 SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Alkalinity, Total (CaCO3)	1640192	280	40.0	mg/L	10.09.2020 14:33		1

Analytical Method: Cation-Anion Balance Calculation

Tech: ALA
 Analyst: ALA
 Seq Number: 3139652
 % Moisture:
 SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Cation-Anion Balance	CATANBAL	4.10		%	10.14.2020 13:23		1

Analytical Method: Dissolved Anions by EPA 300

Tech: JYM
 Analyst: JYM Date Prep: 10.09.2020 14:15
 Seq Number: 3139354
 Prep Method: E300P
 % Moisture:
 SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	453	5.00	mg/L	10.09.2020 19:47		1
Fluoride	16984-48-8	7.05	5.00	mg/L	10.09.2020 19:47	K	1
Nitrate as N	14797-55-8	1.72	1.00	mg/L	10.09.2020 19:47	K	1
Sulfate	14808-79-8	4630	100	mg/L	10.12.2020 10:22	D	20

Analytical Method: Dissolved Metals per ICP by SW846 6010B

Tech: MLI
 Analyst: DEP Date Prep: 10.12.2020 11:00
 Seq Number: 3139477
 Prep Method: SW3010A
 % Moisture:
 SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Boron	7440-42-8	<0.500	0.500	mg/L	10.12.2020 15:52	U	1
Calcium	7440-70-2	1420	100	mg/L	10.12.2020 16:13	D	50
Magnesium	7439-95-4	276	4.00	mg/L	10.12.2020 15:52		1
Potassium	7440-09-7	24.9	5.00	mg/L	10.12.2020 15:52		1
Sodium	7440-23-5	268	5.00	mg/L	10.12.2020 15:52		1



Certificate of Analytical Results 674516

COG Operating, LLC, Midland, TX

COG - High Brass

Sample Id: **Background 1 10'** Matrix: Soil Date Received: 10.07.2020 11:30
 Lab Sample Id: 674516-010 Date Collected: 10.05.2020 00:00 Sample Depth: 10 ft
 Analytical Method: SAR Metals by SW6010C Prep Method: SW3051
 Tech: PJB
 Analyst: DEP Date Prep: 10.09.2020 16:05 % Moisture: 5.93
 Seq Number: 3139650 Basis: Dry Weight
 SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Calcium	7440-70-2	2150	21.2	mg/kg	10.13.2020 19:50	D	50
Magnesium	7439-95-4	343	42.5	mg/kg	10.13.2020 19:50	D	50
Sodium	7440-23-5	425	53.1	mg/kg	10.13.2020 19:50	D	50

Analytical Method: Electrical Conductivity (SAR)

Tech: KBU
 Analyst: KBU
 Seq Number: 3139429
 % Moisture:
 Basis: Wet Weight
 SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Conductivity	COND	4710	10.0	umhos/cm	10.12.2020 12:42		1

Analytical Method: SAR Twice Saturated Extraction

Tech: DEP
 Analyst: DEP
 Seq Number: 3139651
 % Moisture:
 Basis: Wet Weight
 SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Sodium Adsorption Ratio		2.25			10.14.2020 13:11		1



Certificate of Analytical Results 674516

COG Operating, LLC, Midland, TX

COG - High Brass

Sample Id: **Background 1 10'** Matrix: Soil Date Received: 10.07.2020 11:30
 Lab Sample Id: 674516-010 Date Collected: 10.05.2020 00:00 Sample Depth: 10 ft
 Analytical Method: Alkalinity by SM2320B Prep Method: SM2320P
 Tech: KBU
 Analyst: KBU Date Prep: 10.08.2020 12:10 % Moisture:
 Seq Number: 3139333 SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Alkalinity, Total (CaCO ₃)	1640192	321	40.0	mg/L	10.09.2020 14:45		1

Analytical Method: Cation-Anion Balance Calculation

Tech: ALA
 Analyst: ALA
 Seq Number: 3139652
 % Moisture:
 SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Cation-Anion Balance	CATANBAL	5.30		%	10.14.2020 13:23		1

Analytical Method: Dissolved Anions by EPA 300

Tech: JYM
 Analyst: JYM Date Prep: 10.09.2020 14:15
 Seq Number: 3139354
 Prep Method: E300P
 % Moisture:
 SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	472	5.00	mg/L	10.09.2020 20:22		1
Fluoride	16984-48-8	8.23	5.00	mg/L	10.09.2020 20:22	K	1
Nitrate as N	14797-55-8	2.25	1.00	mg/L	10.09.2020 20:22	K	1
Sulfate	14808-79-8	1710	5.00	mg/L	10.09.2020 20:22		1

Analytical Method: Dissolved Metals per ICP by SW846 6010B

Tech: MLI
 Analyst: DEP Date Prep: 10.12.2020 11:00
 Seq Number: 3139477
 Prep Method: SW3010A
 % Moisture:
 SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Boron	7440-42-8	<0.500	0.500	mg/L	10.12.2020 16:25	U	1
Calcium	7440-70-2	421	2.00	mg/L	10.12.2020 16:25		1
Magnesium	7439-95-4	176	4.00	mg/L	10.12.2020 16:25		1
Potassium	7440-09-7	16.3	5.00	mg/L	10.12.2020 16:25		1
Sodium	7440-23-5	325	5.00	mg/L	10.12.2020 16:25		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. **ND** Not Detected.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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



COG Operating, LLC

COG - High Brass

Analytical Method: Alkalinity by SM2320B

Seq Number: 3139333

MB Sample Id: 7712857-1-BLK

Matrix: Water

LCS Sample Id: 7712857-1-BKS

Prep Method: SM2320P

Date Prep: 10.08.2020

LCSD Sample Id: 7712857-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Alkalinity, Total (CaCO3)	<4.00	250	258	103	260	104	85-115	1	20	mg/L	10.09.2020 14:19	

Analytical Method: Alkalinity by SM2320B

Seq Number: 3139333

Parent Sample Id: 674516-006

Matrix: Soil

MD Sample Id: 674516-006 D

Prep Method: SM2320P

Date Prep: 10.08.2020

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Alkalinity, Total (CaCO3)	280	265	6	20	mg/L	10.09.2020 14:39	

Analytical Method: Dissolved Anions by EPA 300

Seq Number: 3139354

MB Sample Id: 7712980-1-BLK

Matrix: Water

LCS Sample Id: 7712980-1-BKS

Prep Method: E300P

Date Prep: 10.09.2020

LCSD Sample Id: 7712980-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.500	10.0	10.3	103	10.3	103	90-110	0	20	mg/L	10.09.2020 19:24	
Fluoride	<0.500	10.0	10.5	105	10.5	105	90-110	0	20	mg/L	10.09.2020 19:24	
Nitrate as N	<0.100	10.0	10.2	102	10.2	102	90-110	0	20	mg/L	10.09.2020 19:24	
Sulfate	<0.500	10.0	10.6	106	10.6	106	90-110	0	20	mg/L	10.09.2020 19:24	

Analytical Method: Dissolved Anions by EPA 300

Seq Number: 3139354

Parent Sample Id: 674516-006

Matrix: Soil

MS Sample Id: 674516-006 S

Prep Method: E300P

Date Prep: 10.09.2020

MSD Sample Id: 674516-006 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	453	100	545	92	547	94	90-110	0	20	mg/L	10.09.2020 19:59	
Fluoride	7.05	100	108	101	109	102	90-110	1	20	mg/L	10.09.2020 19:59	
Nitrate as N	1.72	100	103	101	103	101	90-110	0	20	mg/L	10.09.2020 19:59	
Sulfate	4630	2000	6650	101	6650	101	90-110	0	20	mg/L	10.12.2020 10:33	

Analytical Method: Dissolved Anions by EPA 300

Seq Number: 3139354

Parent Sample Id: 674516-010

Matrix: Soil

MS Sample Id: 674516-010 S

Prep Method: E300P

Date Prep: 10.09.2020

MSD Sample Id: 674516-010 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	472	100	567	95	566	94	90-110	0	20	mg/L	10.09.2020 20:33	
Fluoride	8.23	100	112	104	112	104	90-110	0	20	mg/L	10.09.2020 20:33	
Nitrate as N	2.25	100	104	102	104	102	90-110	0	20	mg/L	10.09.2020 20:33	
Sulfate	1710	100	1820	110	1820	110	90-110	0	20	mg/L	10.09.2020 20:33	

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

COG - High Brass

Analytical Method: Percent Moisture by SM2540G

Seq Number: 3139125

Matrix: Solid

MB Sample Id: 3139125-1-BLK

Parameter	MB Result	Units	Analysis Date	Flag
Percent Moisture	0.0200	%	10.08.2020 09:54	

Analytical Method: Percent Moisture by SM2540G

Seq Number: 3139125

Matrix: Soil

Parent Sample Id: 672948-007

MD Sample Id: 672948-007 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Percent Moisture	7.10	6.69	6	10	%	10.08.2020 09:54	

Analytical Method: Percent Moisture by SM2540G

Seq Number: 3139125

Matrix: Soil

Parent Sample Id: 674635-002

MD Sample Id: 674635-002 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Percent Moisture	11.7	11.1	5	10	%	10.08.2020 09:54	

Analytical Method: Dissolved Metals per ICP by SW846 6010B

Seq Number: 3139477

Matrix: Water

MB Sample Id: 7713071-1-BLK

LCS Sample Id: 7713071-1-BKS

Prep Method: SW3010A

Date Prep: 10.12.2020

LCSD Sample Id: 7713071-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Boron	<0.0500	1.00	1.00	100	1.01	101	75-125	1	20	mg/L	10.12.2020 15:43	
Calcium	<0.200	25.0	25.2	101	25.5	102	75-125	1	20	mg/L	10.12.2020 15:43	
Magnesium	<0.400	25.0	25.7	103	25.9	104	75-125	1	20	mg/L	10.12.2020 15:43	
Potassium	<0.500	10.0	10.0	100	10.1	101	75-125	1	20	mg/L	10.12.2020 15:43	
Sodium	<0.500	25.0	24.7	99	25.0	100	75-125	1	20	mg/L	10.12.2020 15:43	

Analytical Method: Dissolved Metals per ICP by SW846 6010B

Seq Number: 3139477

Matrix: Soil

Parent Sample Id: 674516-006

MS Sample Id: 674516-006 S

Prep Method: SW3010A

Date Prep: 10.12.2020

MSD Sample Id: 674516-006 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Boron	<0.500	10.0	10.7	107	10.7	107	75-125	0	20	mg/L	10.12.2020 15:56	
Calcium	1430	250	1720	116	1720	116	75-125	0	20	mg/L	10.12.2020 15:56	
Magnesium	276	250	535	104	535	104	75-125	0	20	mg/L	10.12.2020 15:56	
Potassium	24.9	100	125	100	125	100	75-125	0	20	mg/L	10.12.2020 15:56	
Sodium	268	250	522	102	521	101	75-125	0	20	mg/L	10.12.2020 15:56	

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

COG - High Brass

Analytical Method: SAR Metals by SW6010C

Seq Number: 3139650

Matrix: Solid

Prep Method: SW3051

Date Prep: 10.09.2020

MB Sample Id: 7713012-1-BLK

LCS Sample Id: 7713012-1-BKS

LCSD Sample Id: 7713012-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Calcium	<0.400	50.0	50.6	101	50.7	101	75-125	0	20	mg/kg	10.13.2020 19:21	
Magnesium	<0.800	50.0	50.8	102	50.9	102	75-125	0	20	mg/kg	10.13.2020 19:21	
Sodium	<1.00	50.0	50.1	100	50.3	101	75-125	0	20	mg/kg	10.13.2020 19:21	

Analytical Method: SAR Metals by SW6010C

Seq Number: 3139650

Matrix: Soil

Prep Method: SW3051

Date Prep: 10.09.2020

Parent Sample Id: 674535-008

MD Sample Id: 674535-008 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Calcium	1990	2000	1	20	mg/kg	10.13.2020 21:02	
Magnesium	456	460	1	20	mg/kg	10.13.2020 21:02	
Sodium	686	698	2	20	mg/kg	10.13.2020 21:02	

Analytical Method: Electrical Conductivity (SAR)

Seq Number: 3139429

Matrix: Solid

MB Sample Id: 3139429-1-BLK

LCS Sample Id: 3139429-1-BKS

LCSD Sample Id: 3139429-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Conductivity	<10.0	1410	1420	101	1420	101	80-120	0	20	umhos/cm	10.12.2020 12:42	

Analytical Method: Electrical Conductivity (SAR)

Seq Number: 3139429

Matrix: Soil

Parent Sample Id: 674519-008

MD Sample Id: 674519-008 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Conductivity	3790	3800	0	20	umhos/cm	10.12.2020 12:42	

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



One Concho Center/600/Illinois
Avenue/Midland, Texas
Tel (432) 683-7443

Client Name:		COG		Site Manager:		Ike Tavaraz itavaraz@concho.com Robert Grubbs Jr rgrubbs@concho.com	
Project Name:		High Brass 002H (6-13-20)		Project #:			
Project Location: (county, state)		Eddy County, NM		Invoice to:		COG	
Receiving Laboratory:		Xenco		Sampler Signature:		Robert Grubbs Jr	
Comments:							

LAB # (USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING		MATRIX		PRESERVATIVE METHOD				# CONTAINERS	FILTERED (Y/N)	ANALYSIS REQUEST (Circle or Specify Method No.)	REMARKS
		DATE	TIME	WATER	SOIL	HCL	HNO ₃	ICE					
									YEAR: 2020				
	Background 1 1'	10/5/2020	1:30	X	X					1		TPH TX1005 (Ext to C35)	
	Background 1 2'	10/5/2020		X	X					1		BTEX 8021B	
	Background 1 3'	10/5/2020		X	X					1		TPH 8015M (GRO - DRO - MRO)	
	Background 1 4'	10/5/2020		X	X					1		Chloride	
	Background 1 5'	10/5/2020		X	X					1		1:10 Extract	
	Background 1 6'	10/5/2020		X	X					1			
	Background 1 7'	10/5/2020		X	X					1			
	Background 1 8'	10/5/2020		X	X					1			
	Background 1 9'	10/5/2020		X	X					1			
	Background 1 10'	10/5/2020		X	X					1			

Relinquished by:	Date:	Time:	Relinquished by:	Date:	Time:
Robert Grubbs Jr	10/7/2020	11:30	[Signature]	10/7/2020	11:30
Relinquished by:	Date:	Time:	Relinquished by:	Date:	Time:

LAB USE ONLY		REMARKS	
Sample Temperature		RUSH: Same Day 24 hr 48 hr 72 hr	
		Rush Charges Authorized	
		Special Report Limits or TRRP Report	

ORIGINAL COPY

674516

Inter-Office Shipment

IOS Number : **71504**

Date/Time: 10.07.2020

Created by: Brianna Teel

Please send report to: Jessica Kramer

Lab# From: **Midland**

Delivery Priority:

Address: 1211 W. Florida Ave

Lab# To: **Houston**

Air Bill No.: 771735141498

E-Mail: jessica.kramer@eurofinset.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
674516-006	S	Background 1 6'	10.05.2020 00:00	SM2510B_SAR	Electrical Conductivity (SAR)	10.13.2020	11.02.2020	JKR		
674516-006	S	Background 1 6'	10.05.2020 00:00	SM2540G-MOIST	Percent Moisture by SM2540G	10.13.2020	04.03.2021	JKR	MOIST	
674516-006	W	Background 1 6'	10.05.2020 00:00	E300_DISS	Dissolved Anions by EPA 300	10.13.2020	10.07.2020 00:00	JKR	CL F NO3N SO4	
674516-006	W	Background 1 6'	10.05.2020 00:00	SW6010B_DISS	Dissolved Metals per ICP by SW846 601	10.13.2020	04.03.2021	JKR	CA K MG NA	
674516-006	W	Background 1 6'	10.05.2020 00:00	SM2320B	Alkalinity by SM2320B	10.13.2020	10.19.2020 00:00	JKR	ALK	
674516-006	W	Background 1 6'	10.05.2020 00:00	SM1030E	Cation-Anion Balance Calculation	10.13.2020	11.04.2020	JKR	Cation-Anion Balance	
674516-006	S	Background 1 6'	10.05.2020 00:00	S29B08_Twice	SAR Twice Saturated Extraction	10.13.2020	04.03.2021	JKR		
674516-006	S	Background 1 6'	10.05.2020 00:00	SW6010C_SAR	SAR Metals by SW6010C	10.13.2020	04.03.2021	JKR	CA MG NA	
674516-010	S	Background 1 10'	10.05.2020 00:00	SW6010C_SAR	SAR Metals by SW6010C	10.13.2020	04.03.2021	JKR	CA MG NA	
674516-010	S	Background 1 10'	10.05.2020 00:00	S29B08_Twice	SAR Twice Saturated Extraction	10.13.2020	04.03.2021	JKR		
674516-010	W	Background 1 10'	10.05.2020 00:00	SM1030E	Cation-Anion Balance Calculation	10.13.2020	11.04.2020	JKR	Cation-Anion Balance	
674516-010	S	Background 1 10'	10.05.2020 00:00	SM2540G-MOIST	Percent Moisture by SM2540G	10.13.2020	04.03.2021	JKR	MOIST	
674516-010	W	Background 1 10'	10.05.2020 00:00	SW6010B_DISS	Dissolved Metals per ICP by SW846 601	10.13.2020	04.03.2021	JKR	CA K MG NA	
674516-010	W	Background 1 10'	10.05.2020 00:00	SM2320B	Alkalinity by SM2320B	10.13.2020	10.19.2020 00:00	JKR	ALK	
674516-010	S	Background 1 10'	10.05.2020 00:00	SM2510B_SAR	Electrical Conductivity (SAR)	10.13.2020	11.02.2020	JKR		
674516-010	W	Background 1 10'	10.05.2020 00:00	E300_DISS	Dissolved Anions by EPA 300	10.13.2020	10.07.2020 00:00	JKR	CL F NO3N SO4	

Inter Office Shipment or Sample Comments:

Relinquished By:



Brianna Teel

Date Relinquished: 10.07.2020

Received By:



Hypatia Keys

Date Received: 10.08.2020

Cooler Temperature: 1.3



Inter Office Report- Sample Receipt Checklist

Sent To: Houston

IOS #: 71504

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : hou-203

Sent By: Brianna Teel

Date Sent: 10.07.2020 12.20 PM

Received By: Hypatia Keys

Date Received: 10.08.2020 01.30 PM

Sample Receipt Checklist

Comments

#1 *Temperature of cooler(s)?	1.3
#2 *Shipping container in good condition?	Yes
#3 *Samples received with appropriate temperature?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	N/A
#5 *Custody Seals Signed and dated for Containers/coolers	N/A
#6 *IOS present?	Yes
#7 Any missing/extra samples?	No
#8 IOS agrees with sample label(s)/matrix?	Yes
#9 Sample matrix/ properties agree with IOS?	Yes
#10 Samples in proper container/ bottle?	Yes
#11 Samples properly preserved?	Yes
#12 Sample container(s) intact?	Yes
#13 Sufficient sample amount for indicated test(s)?	Yes
#14 All samples received within hold time?	Yes

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

NonConformance:

Corrective Action Taken:

Nonconformance Documentation

Contact: _____ Contacted by : _____ Date: _____

Checklist reviewed by:

Hypatia Keys

Date: 10.08.2020

Eurofins Xenco, LLC

Prelogin/Nonconformance Report- Sample Log-In

Client: COG Operating, LLC

Date/ Time Received: 10.07.2020 11.30.00 AM

Work Order #: 674516

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : IR8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	.6
#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)?	Yes Xenco Stafford
#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: 10.07.2020

Checklist reviewed by:



Jessica Kramer

Date: 10.07.2020

Certificate of Analysis Summary 674517

COG Operating, LLC, Midland, TX

Project Name: COG - High Brass 002H (6-13-20)

Project Id: COG - High Brass

Contact: Ike Tavaréz

Project Location: Eddy County NM

Date Received in Lab: Wed 10.07.2020 11:30

Report Date: 10.28.2020 08:09

Project Manager: Jessica Kramer

Analysis Requested	Lab Id: 674517-006 Field Id: Background 3 6' Depth: Matrix: SOIL Sampled: 10.05.2020 00:00	Lab Id: 674517-010 Field Id: Background 3 10' Depth: Matrix: SOIL Sampled: 10.05.2020 00:00				
Alkalinity by SM2320B SUB: T104704215-20-38	Extracted: 10.08.2020 12:10 Analyzed: 10.09.2020 14:51 Units/RL: mg/L RL	Extracted: 10.08.2020 12:10 Analyzed: 10.09.2020 14:57 Units/RL: mg/L RL				
Alkalinity, Total (CaCO ₃)	127 40.0	267 40.0				
Cation-Anion Balance Calculation SUB: T104704215-20-38	Extracted: Analyzed: 10.14.2020 13:23 Units/RL: % RL	Extracted: Analyzed: 10.14.2020 13:23 Units/RL: % RL				
Cation-Anion Balance	3.80	6.40				
Dissolved Anions by EPA 300 SUB: T104704215-20-38	Extracted: 10.09.2020 14:15 Analyzed: 10.09.2020 20:57 Units/RL: mg/L RL	Extracted: 10.09.2020 14:15 Analyzed: 10.09.2020 21:32 Units/RL: mg/L RL				
Chloride	1290 5.00	1050 5.00				
Fluoride	9.62 K 5.00	6.82 K 5.00				
Nitrate as N	17.2 K 1.00	2.46 K 1.00				
Sulfate	7090 D 50.0	13700 D 50.0				
Dissolved Metals per ICP by SW846 6010B SUB: T104704215-20-38	Extracted: 10.12.2020 11:00 Analyzed: 10.12.2020 16:34 Units/RL: mg/L RL	Extracted: 10.12.2020 11:00 Analyzed: 10.12.2020 16:38 Units/RL: mg/L RL				
Boron	1.07 0.500	0.579 0.500				
Calcium	1560 D 100	3960 D 100				
Magnesium	670 4.00	567 4.00				
Potassium	102 5.00	74.4 5.00				
Sodium	889 5.00	802 5.00				

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico



Certificate of Analysis Summary 674517

COG Operating, LLC, Midland, TX

Project Name: COG - High Brass 002H (6-13-20)

Project Id: COG - High Brass

Contact: Ike Tavaréz

Project Location: Eddy County NM

Date Received in Lab: Wed 10.07.2020 11:30

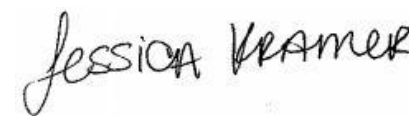
Report Date: 10.28.2020 08:09

Project Manager: Jessica Kramer

Analysis Requested	Lab Id: 674517-006 Field Id: Background 3 6' Depth: Matrix: SOIL Sampled: 10.05.2020 00:00	Lab Id: 674517-010 Field Id: Background 3 10' Depth: Matrix: SOIL Sampled: 10.05.2020 00:00				
Electrical Conductivity (SAR) SUB: T104704215-20-38	Extracted: Analyzed: 10.12.2020 12:42 Units/RL: umhos/cm RL	Extracted: Analyzed: 10.12.2020 12:42 Units/RL: umhos/cm RL				
Conductivity	6110 10.0	5150 10.0				
Percent Moisture by SM2540G SUB: T104704215-20-38	Extracted: Analyzed: 10.08.2020 09:54 Units/RL: % RL	Extracted: Analyzed: 10.08.2020 09:54 Units/RL: % RL				
Percent Moisture	9.78	7.81				
SAR Metals by SW6010C SUB: T104704215-20-38	Extracted: 10.09.2020 16:05 Analyzed: 10.13.2020 20:03 Units/RL: mg/kg RL	Extracted: 10.09.2020 16:05 Analyzed: 10.13.2020 20:07 Units/RL: mg/kg RL				
Calcium	1480 D 22.1	1570 D 21.7				
Magnesium	723 D 44.2	398 D 43.3				
Sodium	1070 D 55.3	812 D 54.2				
SAR Twice Saturated Extraction SUB: T104704215-20-38	Extracted: Analyzed: 10.14.2020 13:11 Units/RL:	Extracted: Analyzed: 10.14.2020 13:11 Units/RL:				
Sodium Adsorption Ratio	5.70	4.74				

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico



Analytical Report 674517

for

COG Operating, LLC

Project Manager: Ike Tavaréz

COG - High Brass 002H (6-13-20)

COG - High Brass

10.28.2020

Collected By: Client



**1211 W. Florida Ave
Midland TX 79701**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-38), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2020-014), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-20-26), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-18)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-23)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-21)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-20-8)
Xenco-Tampa: Florida (E87429), North Carolina (483)



10.28.2020

Project Manager: **Ike Tavaréz**

COG Operating, LLC

600 W Illinois

Midland, TX 79701

Reference: Eurofins Xenco, LLC Report No(s): **674517**

COG - High Brass 002H (6-13-20)

Project Address: Eddy County NM

Ike Tavaréz:

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 Eurofins Xenco, LLC Report Number(s) 674517. 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 Eurofins Xenco, LLC. 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. 674517 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 Eurofins Xenco, LLC to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

A handwritten signature in black ink that reads "Jessica Kramer".

Jessica Kramer

Project Manager

A Small Business and Minority Company

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

**Sample Cross Reference 674517****COG Operating, LLC, Midland, TX**

COG - High Brass 002H (6-13-20)

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
Background 3 6'	S	10.05.2020 00:00		674517-006
Background 3 10'	S	10.05.2020 00:00		674517-010
Background 3 1'	S	10.05.2020 00:00		Not Analyzed
Background 3 2'	S	10.05.2020 00:00		Not Analyzed
Background 3 3'	S	10.05.2020 00:00		Not Analyzed
Background 3 4'	S	10.05.2020 00:00		Not Analyzed
Background 3 5'	S	10.05.2020 00:00		Not Analyzed
Background 3 7'	S	10.05.2020 00:00		Not Analyzed
Background 3 8'	S	10.05.2020 00:00		Not Analyzed
Background 3 9'	S	10.05.2020 00:00		Not Analyzed



CASE NARRATIVE

Client Name: COG Operating, LLC

Project Name: COG - High Brass 002H (6-13-20)

Project ID: COG - High Brass
Work Order Number(s): 674517

Report Date: 10.28.2020
Date Received: 10.07.2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None



Certificate of Analytical Results 674517

COG Operating, LLC, Midland, TX

COG - High Brass 002H (6-13-20)

Sample Id: **Background 3 6'**

Matrix: Soil

Date Received: 10.07.2020 11:30

Lab Sample Id: 674517-006

Date Collected: 10.05.2020 00:00

Analytical Method: SAR Metals by SW6010C

Prep Method: SW3051

Tech: PJB

Analyst: DEP

Date Prep: 10.09.2020 16:05

% Moisture: 9.78

Basis: Dry Weight

Seq Number: 3139650

SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Calcium	7440-70-2	1480	22.1	mg/kg	10.13.2020 20:24	D	50
Magnesium	7439-95-4	723	44.2	mg/kg	10.13.2020 20:24	D	50
Sodium	7440-23-5	1070	55.3	mg/kg	10.13.2020 20:24	D	50

Analytical Method: Electrical Conductivity (SAR)

Tech: KBU

Analyst: KBU

Seq Number: 3139429

% Moisture:

Basis: Wet Weight

SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Conductivity	COND	6110	10.0	umhos/cm	10.12.2020 12:42		1

Analytical Method: SAR Twice Saturated Extraction

Tech: DEP

Analyst: DEP

Seq Number: 3139651

% Moisture:

Basis: Wet Weight

SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Sodium Adsorption Ratio		5.70			10.14.2020 13:11		1



Certificate of Analytical Results 674517

COG Operating, LLC, Midland, TX

COG - High Brass 002H (6-13-20)

Sample Id: **Background 3 6'**

Matrix: Soil

Date Received: 10.07.2020 11:30

Lab Sample Id: 674517-006

Date Collected: 10.05.2020 00:00

Analytical Method: Alkalinity by SM2320B

Prep Method: SM2320P

Tech: KBU

Analyst: KBU

Date Prep: 10.08.2020 12:10

% Moisture:

SUB: T104704215-20-38

Seq Number: 3139333

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Alkalinity, Total (CaCO3)	1640192	127	40.0	mg/L	10.09.2020 14:51		1

Analytical Method: Cation-Anion Balance Calculation

Tech: ALA

Analyst: ALA

% Moisture:

SUB: T104704215-20-38

Seq Number: 3139652

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Cation-Anion Balance	CATANBAL	3.80		%	10.14.2020 13:23		1

Analytical Method: Dissolved Anions by EPA 300

Prep Method: E300P

Tech: JYM

Analyst: JYM

Date Prep: 10.09.2020 14:15

% Moisture:

SUB: T104704215-20-38

Seq Number: 3139354

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1290	5.00	mg/L	10.09.2020 20:57		1
Fluoride	16984-48-8	9.62	5.00	mg/L	10.09.2020 20:57	K	1
Nitrate as N	14797-55-8	17.2	1.00	mg/L	10.09.2020 20:57	K	1
Sulfate	14808-79-8	7090	50.0	mg/L	10.12.2020 10:56	D	10

Analytical Method: Dissolved Metals per ICP by SW846 6010B

Prep Method: SW3010A

Tech: MLI

Analyst: DEP

Date Prep: 10.12.2020 11:00

% Moisture:

SUB: T104704215-20-38

Seq Number: 3139477

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Boron	7440-42-8	1.07	0.500	mg/L	10.12.2020 16:34		1
Calcium	7440-70-2	1560	100	mg/L	10.12.2020 16:55	D	50
Magnesium	7439-95-4	670	4.00	mg/L	10.12.2020 16:34		1
Potassium	7440-09-7	102	5.00	mg/L	10.12.2020 16:34		1
Sodium	7440-23-5	889	5.00	mg/L	10.12.2020 16:34		1



Certificate of Analytical Results 674517

COG Operating, LLC, Midland, TX

COG - High Brass 002H (6-13-20)

Sample Id: **Background 3 10'**

Matrix: Soil

Date Received: 10.07.2020 11:30

Lab Sample Id: 674517-010

Date Collected: 10.05.2020 00:00

Analytical Method: SAR Metals by SW6010C

Prep Method: SW3051

Tech: PJB

Analyst: DEP

Date Prep: 10.09.2020 16:05

% Moisture: 7.81

Basis: Dry Weight

Seq Number: 3139650

SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Calcium	7440-70-2	1570	21.7	mg/kg	10.13.2020 20:28	D	50
Magnesium	7439-95-4	398	43.3	mg/kg	10.13.2020 20:28	D	50
Sodium	7440-23-5	812	54.2	mg/kg	10.13.2020 20:28	D	50

Analytical Method: Electrical Conductivity (SAR)

Tech: KBU

Analyst: KBU

Seq Number: 3139429

% Moisture:

Basis: Wet Weight

SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Conductivity	COND	5150	10.0	umhos/cm	10.12.2020 12:42		1

Analytical Method: SAR Twice Saturated Extraction

Tech: DEP

Analyst: DEP

Seq Number: 3139651

% Moisture:

Basis: Wet Weight

SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Sodium Adsorption Ratio		4.74			10.14.2020 13:11		1



Certificate of Analytical Results 674517

COG Operating, LLC, Midland, TX

COG - High Brass 002H (6-13-20)

Sample Id: **Background 3 10'** Matrix: Soil Date Received: 10.07.2020 11:30
 Lab Sample Id: 674517-010 Date Collected: 10.05.2020 00:00

Analytical Method: Alkalinity by SM2320B Prep Method: SM2320P
 Tech: KBU
 Analyst: KBU Date Prep: 10.08.2020 12:10 % Moisture:
 Seq Number: 3139333 SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Alkalinity, Total (CaCO3)	1640192	267	40.0	mg/L	10.09.2020 14:57		1

Analytical Method: Cation-Anion Balance Calculation

Tech: ALA
 Analyst: ALA % Moisture:
 Seq Number: 3139652 SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Cation-Anion Balance	CATANBAL	6.40		%	10.14.2020 13:23		1

Analytical Method: Dissolved Anions by EPA 300

Tech: JYM Prep Method: E300P
 Analyst: JYM Date Prep: 10.09.2020 14:15 % Moisture:
 Seq Number: 3139354 SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1050	5.00	mg/L	10.09.2020 21:32		1
Fluoride	16984-48-8	6.82	5.00	mg/L	10.09.2020 21:32	K	1
Nitrate as N	14797-55-8	2.46	1.00	mg/L	10.09.2020 21:32	K	1
Sulfate	14808-79-8	13700	50.0	mg/L	10.12.2020 11:08	D	10

Analytical Method: Dissolved Metals per ICP by SW846 6010B

Tech: MLI Prep Method: SW3010A
 Analyst: DEP Date Prep: 10.12.2020 11:00 % Moisture:
 Seq Number: 3139477 SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Boron	7440-42-8	0.579	0.500	mg/L	10.12.2020 16:38		1
Calcium	7440-70-2	3960	100	mg/L	10.14.2020 06:47	D	50
Magnesium	7439-95-4	567	4.00	mg/L	10.12.2020 16:38		1
Potassium	7440-09-7	74.4	5.00	mg/L	10.12.2020 16:38		1
Sodium	7440-23-5	802	5.00	mg/L	10.12.2020 16:38		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. **ND** Not Detected.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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



COG Operating, LLC

COG - High Brass 002H (6-13-20)

Analytical Method: Alkalinity by SM2320B

Seq Number: 3139333

MB Sample Id: 7712857-1-BLK

Matrix: Water

LCS Sample Id: 7712857-1-BKS

Prep Method: SM2320P

Date Prep: 10.08.2020

LCSD Sample Id: 7712857-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Alkalinity, Total (CaCO ₃)	<4.00	250	258	103	260	104	85-115	1	20	mg/L	10.09.2020 14:19	

Analytical Method: Alkalinity by SM2320B

Seq Number: 3139333

Parent Sample Id: 674516-006

Matrix: Soil

MD Sample Id: 674516-006 D

Prep Method: SM2320P

Date Prep: 10.08.2020

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Alkalinity, Total (CaCO ₃)	280	265	6	20	mg/L	10.09.2020 14:39	

Analytical Method: Dissolved Anions by EPA 300

Seq Number: 3139354

MB Sample Id: 7712980-1-BLK

Matrix: Water

LCS Sample Id: 7712980-1-BKS

Prep Method: E300P

Date Prep: 10.09.2020

LCSD Sample Id: 7712980-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.500	10.0	10.3	103	10.3	103	90-110	0	20	mg/L	10.09.2020 19:24	
Fluoride	<0.500	10.0	10.5	105	10.5	105	90-110	0	20	mg/L	10.09.2020 19:24	
Nitrate as N	<0.100	10.0	10.2	102	10.2	102	90-110	0	20	mg/L	10.09.2020 19:24	
Sulfate	<0.500	10.0	10.6	106	10.6	106	90-110	0	20	mg/L	10.09.2020 19:24	

Analytical Method: Dissolved Anions by EPA 300

Seq Number: 3139354

Parent Sample Id: 674516-006

Matrix: Soil

MS Sample Id: 674516-006 S

Prep Method: E300P

Date Prep: 10.09.2020

MSD Sample Id: 674516-006 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	453	100	545	92	547	94	90-110	0	20	mg/L	10.09.2020 19:59	
Fluoride	7.05	100	108	101	109	102	90-110	1	20	mg/L	10.09.2020 19:59	
Nitrate as N	1.72	100	103	101	103	101	90-110	0	20	mg/L	10.09.2020 19:59	

Analytical Method: Dissolved Anions by EPA 300

Seq Number: 3139354

Parent Sample Id: 674516-010

Matrix: Soil

MS Sample Id: 674516-010 S

Prep Method: E300P

Date Prep: 10.09.2020

MSD Sample Id: 674516-010 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	472	100	567	95	566	94	90-110	0	20	mg/L	10.09.2020 20:33	
Fluoride	8.23	100	112	104	112	104	90-110	0	20	mg/L	10.09.2020 20:33	
Nitrate as N	2.25	100	104	102	104	102	90-110	0	20	mg/L	10.09.2020 20:33	
Sulfate	1710	100	1820	110	1820	110	90-110	0	20	mg/L	10.09.2020 20:33	

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

COG - High Brass 002H (6-13-20)

Analytical Method: Percent Moisture by SM2540G

Seq Number: 3139125

Matrix: Solid

MB Sample Id: 3139125-1-BLK

Parameter	MB Result	Units	Analysis Date	Flag
Percent Moisture	0.0200	%	10.08.2020 09:54	

Analytical Method: Percent Moisture by SM2540G

Seq Number: 3139125

Matrix: Soil

Parent Sample Id: 672948-007

MD Sample Id: 672948-007 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Percent Moisture	7.10	6.69	6	10	%	10.08.2020 09:54	

Analytical Method: Percent Moisture by SM2540G

Seq Number: 3139125

Matrix: Soil

Parent Sample Id: 674635-002

MD Sample Id: 674635-002 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Percent Moisture	11.7	11.1	5	10	%	10.08.2020 09:54	

Analytical Method: Dissolved Metals per ICP by SW846 6010B

Seq Number: 3139477

Matrix: Water

MB Sample Id: 7713071-1-BLK

LCS Sample Id: 7713071-1-BKS

Prep Method: SW3010A

Date Prep: 10.12.2020

LCSD Sample Id: 7713071-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Boron	<0.0500	1.00	1.00	100	1.01	101	75-125	1	20	mg/L	10.12.2020 15:43	
Calcium	<0.200	25.0	25.2	101	25.5	102	75-125	1	20	mg/L	10.12.2020 15:43	
Magnesium	<0.400	25.0	25.7	103	25.9	104	75-125	1	20	mg/L	10.12.2020 15:43	
Potassium	<0.500	10.0	10.0	100	10.1	101	75-125	1	20	mg/L	10.12.2020 15:43	
Sodium	<0.500	25.0	24.7	99	25.0	100	75-125	1	20	mg/L	10.12.2020 15:43	

Analytical Method: Dissolved Metals per ICP by SW846 6010B

Seq Number: 3139477

Matrix: Soil

Parent Sample Id: 674516-006

MS Sample Id: 674516-006 S

Prep Method: SW3010A

Date Prep: 10.12.2020

MSD Sample Id: 674516-006 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Boron	<0.500	10.0	10.7	107	10.7	107	75-125	0	20	mg/L	10.12.2020 15:56	
Calcium	1430	250	1720	116	1720	116	75-125	0	20	mg/L	10.12.2020 15:56	
Magnesium	276	250	535	104	535	104	75-125	0	20	mg/L	10.12.2020 15:56	
Potassium	24.9	100	125	100	125	100	75-125	0	20	mg/L	10.12.2020 15:56	
Sodium	268	250	522	102	521	101	75-125	0	20	mg/L	10.12.2020 15:56	

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
COG - High Brass 002H (6-13-20)

Analytical Method: SAR Metals by SW6010C

Seq Number: 3139650

Matrix: Solid

Prep Method: SW3051

Date Prep: 10.09.2020

MB Sample Id: 7713012-1-BLK

LCS Sample Id: 7713012-1-BKS

LCSD Sample Id: 7713012-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Calcium	<0.400	50.0	50.6	101	50.7	101	75-125	0	20	mg/kg	10.13.2020 19:21	
Magnesium	<0.800	50.0	50.8	102	50.9	102	75-125	0	20	mg/kg	10.13.2020 19:21	
Sodium	<1.00	50.0	50.1	100	50.3	101	75-125	0	20	mg/kg	10.13.2020 19:21	

Analytical Method: SAR Metals by SW6010C

Seq Number: 3139650

Matrix: Soil

Prep Method: SW3051

Date Prep: 10.09.2020

Parent Sample Id: 674535-008

MD Sample Id: 674535-008 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Calcium	1990	2000	1	20	mg/kg	10.13.2020 21:02	
Magnesium	456	460	1	20	mg/kg	10.13.2020 21:02	
Sodium	686	698	2	20	mg/kg	10.13.2020 21:02	

Analytical Method: Electrical Conductivity (SAR)

Seq Number: 3139429

Matrix: Solid

MB Sample Id: 3139429-1-BLK

LCS Sample Id: 3139429-1-BKS

LCSD Sample Id: 3139429-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Conductivity	<10.0	1410	1420	101	1420	101	80-120	0	20	umhos/cm	10.12.2020 12:42	

Analytical Method: Electrical Conductivity (SAR)

Seq Number: 3139429

Matrix: Soil

Parent Sample Id: 674519-008

MD Sample Id: 674519-008 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Conductivity	3790	3800	0	20	umhos/cm	10.12.2020 12:42	

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



One Concho Center/600/Illinois
Avenue/Midland, Texas
Tel (432) 683-7443

674517

Client Name:		COG		Site Manager:		Ike Tavaraz itavaraz@concho.com Robert Grubbs Jr rgrubbs@concho.com	
Project Name:		High Brass 002H (6-13-20)		Project #:			
Project Location: (county, state)		Eddy County, NM		Invoice to:		COG	
Receiving Laboratory:		Xenco		Sampler Signature:		Robert Grubbs Jr	
Comments:							

LAB # (USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING		MATRIX		PRESERVATIVE METHOD				# CONTAINERS	FILTERED (Y/N)	TPH TX1005 (Ext to C35)	BTX 8021B	TPH 8015M (GRO - DRO - MRO)	Chloride	1:10 Extract	ANALYSIS REQUEST (Circle or Specify Method No.)	REMARKS	
		DATE	TIME	WATER	SOIL	HCL	HNO ₃	ICE											
									YEAR 2020										TIME
	Background 3 1'	10/5/2020		X				X		1									X
	Background 3 2'	10/5/2020		X				X		1									X
	Background 3 3'	10/5/2020		X				X		1									X
	Background 3 4'	10/5/2020		X				X		1									X
	Background 3 5'	10/5/2020		X				X		1									X
	Background 3 6'	10/5/2020		X				X		1									X
	Background 3 7'	10/5/2020		X				X		1									X
	Background 1 8'	10/5/2020		X				X		1									X
	Background 3 9'	10/5/2020		X				X		1									X
	Background 3 10'	10/5/2020		X				X		1									X

Relinquished by:	Date:	Time:	Relinquished by:	Date:	Time:
Robert Grubbs Jr	10/7/2020	1130	[Signature]	10/7/2020	1130
Relinquished by:	Date:	Time:	Relinquished by:	Date:	Time:
Relinquished by:	Date:	Time:	Relinquished by:	Date:	Time:

LAB USE ONLY		REMARKS	
Sample Temperature		RUSH: Same Day 24 hr 48 hr 72 hr	
		Rush Charges Authorized	
		Special Report Limits or TRRP Report	

(Circle) HAND DELIVERED FEDEX UPS Tracking #:

ORIGINAL COPY

0.1/b.v

Inter-Office Shipment

IOS Number : **71503**

Date/Time: 10.07.2020

Created by: Brianna Teel

Please send report to: Jessica Kramer

Lab# From: **Midland**

Delivery Priority:

Address: 1211 W. Florida Ave

Lab# To: **Houston**

Air Bill No.: 771735141498

E-Mail: jessica.kramer@eurofinset.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
674517-006	S	Background 3 6'	10.05.2020 00:00	SM2510B_SAR	Electrical Conductivity (SAR)	10.13.2020	11.02.2020	JKR		
674517-006	S	Background 3 6'	10.05.2020 00:00	SM2540G-MOIST	Percent Moisture by SM2540G	10.13.2020	04.03.2021	JKR	MOIST	
674517-006	W	Background 3 6'	10.05.2020 00:00	E300_DISS	Dissolved Anions by EPA 300	10.13.2020	10.07.2020 00:00	JKR	CL F NO3N SO4	
674517-006	W	Background 3 6'	10.05.2020 00:00	SW6010B_DISS	Dissolved Metals per ICP by SW846 601	10.13.2020	04.03.2021	JKR	CA K MG NA	
674517-006	W	Background 3 6'	10.05.2020 00:00	SM2320B	Alkalinity by SM2320B	10.13.2020	10.19.2020 00:00	JKR	ALK	
674517-006	W	Background 3 6'	10.05.2020 00:00	SM1030E	Cation-Anion Balance Calculation	10.13.2020	11.04.2020	JKR	Cation-Anion Balance	
674517-006	S	Background 3 6'	10.05.2020 00:00	S29B08_Twice	SAR Twice Saturated Extraction	10.13.2020	04.03.2021	JKR		
674517-006	S	Background 3 6'	10.05.2020 00:00	SW6010C_SAR	SAR Metals by SW6010C	10.13.2020	04.03.2021	JKR	CA MG NA	
674517-010	S	Background 3 10'	10.05.2020 00:00	SW6010C_SAR	SAR Metals by SW6010C	10.13.2020	04.03.2021	JKR	CA MG NA	
674517-010	S	Background 3 10'	10.05.2020 00:00	S29B08_Twice	SAR Twice Saturated Extraction	10.13.2020	04.03.2021	JKR		
674517-010	W	Background 3 10'	10.05.2020 00:00	SM1030E	Cation-Anion Balance Calculation	10.13.2020	11.04.2020	JKR	Cation-Anion Balance	
674517-010	S	Background 3 10'	10.05.2020 00:00	SM2540G-MOIST	Percent Moisture by SM2540G	10.13.2020	04.03.2021	JKR	MOIST	
674517-010	W	Background 3 10'	10.05.2020 00:00	SW6010B_DISS	Dissolved Metals per ICP by SW846 601	10.13.2020	04.03.2021	JKR	CA K MG NA	
674517-010	W	Background 3 10'	10.05.2020 00:00	SM2320B	Alkalinity by SM2320B	10.13.2020	10.19.2020 00:00	JKR	ALK	
674517-010	S	Background 3 10'	10.05.2020 00:00	SM2510B_SAR	Electrical Conductivity (SAR)	10.13.2020	11.02.2020	JKR		
674517-010	W	Background 3 10'	10.05.2020 00:00	E300_DISS	Dissolved Anions by EPA 300	10.13.2020	10.07.2020 00:00	JKR	CL F NO3N SO4	

Inter Office Shipment or Sample Comments:

Relinquished By:



Brianna Teel

Date Relinquished: 10.07.2020

Received By:



Hypatia Keys

Date Received: 10.08.2020

Cooler Temperature: 1.3



Inter Office Report- Sample Receipt Checklist

Sent To: Houston

IOS #: 71503

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : hou-203

Sent By: Brianna Teel

Date Sent: 10.07.2020 12.20 PM

Received By: Hypatia Keys

Date Received: 10.08.2020 01.30 PM

Sample Receipt Checklist

Comments

#1 *Temperature of cooler(s)?	1.3
#2 *Shipping container in good condition?	Yes
#3 *Samples received with appropriate temperature?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	N/A
#5 *Custody Seals Signed and dated for Containers/coolers	N/A
#6 *IOS present?	Yes
#7 Any missing/extra samples?	No
#8 IOS agrees with sample label(s)/matrix?	Yes
#9 Sample matrix/ properties agree with IOS?	Yes
#10 Samples in proper container/ bottle?	Yes
#11 Samples properly preserved?	Yes
#12 Sample container(s) intact?	Yes
#13 Sufficient sample amount for indicated test(s)?	Yes
#14 All samples received within hold time?	Yes

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

NonConformance:

Corrective Action Taken:

Nonconformance Documentation

Contact: _____ Contacted by : _____ Date: _____

Checklist reviewed by:

Hypatia Keys

Date: 10.08.2020

Eurofins Xenco, LLC

Prelogin/Nonconformance Report- Sample Log-In

Client: COG Operating, LLC

Date/ Time Received: 10.07.2020 11.30.00 AM

Work Order #: 674517

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : IR-8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	.6
#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)?	Yes Xenco Stafford
#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: 10.07.2020

Checklist reviewed by:



Jessica Kramer

Date: 10.07.2020

Certificate of Analysis Summary 674519

COG Operating, LLC, Midland, TX

Project Name: COG - High Brass 002H (6-13-20)

Project Id: COG - High Brass

Contact: Ike Tavaréz

Project Location:

Date Received in Lab: Wed 10.07.2020 11:30

Report Date: 10.28.2020 08:07

Project Manager: Jessica Kramer

Analysis Requested	Lab Id: 674519-008 Field Id: Background 5 8' Depth: Matrix: SOIL Sampled: 10.05.2020 00:00					
Alkalinity by SM2320B SUB: T104704215-20-38	Extracted: 10.08.2020 12:10 Analyzed: 10.09.2020 15:32 Units/RL: mg/L RL					
Alkalinity, Total (CaCO3)	120 40.0					
Cation-Anion Balance Calculation SUB: T104704215-20-38	Extracted: Analyzed: 10.14.2020 13:23 Units/RL: % RL					
Cation-Anion Balance	4.60					
Dissolved Anions by EPA 300 SUB: T104704215-20-38	Extracted: 10.09.2020 14:15 Analyzed: 10.09.2020 22:18 Units/RL: mg/L RL					
Chloride	242 5.00					
Fluoride	12.0 K 5.00					
Nitrate as N	2.53 K 1.00					
Sulfate	5440 D 50.0					
Dissolved Metals per ICP by SW846 6010B SUB: T104704215-20-38	Extracted: 10.12.2020 11:00 Analyzed: 10.12.2020 16:29 Units/RL: mg/L RL					
Boron	0.852 0.500					
Calcium	1260 D 100					
Magnesium	434 4.00					
Potassium	19.0 5.00					
Sodium	307 5.00					

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico



Certificate of Analysis Summary 674519

COG Operating, LLC, Midland, TX

Project Name: COG - High Brass 002H (6-13-20)

Project Id: COG - High Brass

Contact: Ike Tavaréz

Project Location:

Date Received in Lab: Wed 10.07.2020 11:30

Report Date: 10.28.2020 08:07

Project Manager: Jessica Kramer

Analysis Requested	Lab Id: 674519-008 Field Id: Background 5 8' Depth: Matrix: SOIL Sampled: 10.05.2020 00:00					
Electrical Conductivity (SAR) SUB: T104704215-20-38	Extracted: Analyzed: 10.12.2020 12:42 Units/RL: umhos/cm RL					
Conductivity	3790 10.0					
Percent Moisture by SM2540G SUB: T104704215-20-38	Extracted: Analyzed: 10.08.2020 09:54 Units/RL: % RL					
Percent Moisture	11.2					
SAR Metals by SW6010C SUB: T104704215-20-38	Extracted: 10.09.2020 16:05 Analyzed: 10.13.2020 19:29 Units/RL: mg/kg RL					
Calcium	1350 D 22.5					
Magnesium	453 4.49					
Sodium	284 5.62					
SAR Twice Saturated Extraction SUB: T104704215-20-38	Extracted: Analyzed: 10.14.2020 13:11 Units/RL:					
Sodium Adsorption Ratio	1.71					

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico



Analytical Report 674519

for

COG Operating, LLC

Project Manager: Ike Tavaréz

COG - High Brass 002H (6-13-20)

COG - High Brass

10.28.2020

Collected By: Client



**1211 W. Florida Ave
Midland TX 79701**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-38), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2020-014), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-20-26), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-18)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-23)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-21)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-20-8)
Xenco-Tampa: Florida (E87429), North Carolina (483)



10.28.2020

Project Manager: **Ike Tavaréz**

COG Operating, LLC

600 W Illinois

Midland, TX 79701

Reference: Eurofins Xenco, LLC Report No(s): **674519**

COG - High Brass 002H (6-13-20)

Project Address:

Ike Tavaréz:

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 Eurofins Xenco, LLC Report Number(s) 674519. 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 Eurofins Xenco, LLC. 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. 674519 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 Eurofins Xenco, LLC to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

A handwritten signature in black ink that reads "Jessica Kramer".

Jessica Kramer

Project Manager

A Small Business and Minority Company

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

**Sample Cross Reference 674519****COG Operating, LLC, Midland, TX**

COG - High Brass 002H (6-13-20)

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
Background 5 8'	S	10.05.2020 00:00		674519-008
Background 5 1'	S	10.05.2020 00:00		Not Analyzed
Background 5 2'	S	10.05.2020 00:00		Not Analyzed
Background 5 3'	S	10.05.2020 00:00		Not Analyzed
Background 5 4'	S	10.05.2020 00:00		Not Analyzed
Background 5 5'	S	10.05.2020 00:00		Not Analyzed
Background 5 6'	S	10.05.2020 00:00		Not Analyzed
Background 5 7'	S	10.05.2020 00:00		Not Analyzed
Background 5 9'	S	10.05.2020 00:00		Not Analyzed
Background 5 10'	S	10.05.2020 00:00		Not Analyzed



CASE NARRATIVE

Client Name: COG Operating, LLC

Project Name: COG - High Brass 002H (6-13-20)

Project ID: COG - High Brass
Work Order Number(s): 674519

Report Date: 10.28.2020
Date Received: 10.07.2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None



Certificate of Analytical Results 674519

COG Operating, LLC, Midland, TX

COG - High Brass 002H (6-13-20)

Sample Id: **Background 5 8'**

Matrix: Soil

Date Received: 10.07.2020 11:30

Lab Sample Id: 674519-008

Date Collected: 10.05.2020 00:00

Analytical Method: SAR Metals by SW6010C

Prep Method: SW3051

Tech: PJB

Analyst: DEP

Date Prep: 10.09.2020 16:05

% Moisture: 11.17

Basis: Dry Weight

Seq Number: 3139650

SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Calcium	7440-70-2	1350	22.5	mg/kg	10.13.2020 19:42	D	50
Magnesium	7439-95-4	453	4.49	mg/kg	10.13.2020 19:29		5
Sodium	7440-23-5	284	5.62	mg/kg	10.13.2020 19:29		5

Analytical Method: Electrical Conductivity (SAR)

Tech: KBU

Analyst: KBU

Seq Number: 3139429

% Moisture:

Basis: Wet Weight

SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Conductivity	COND	3790	10.0	umhos/cm	10.12.2020 12:42		1

Analytical Method: SAR Twice Saturated Extraction

Tech: DEP

Analyst: DEP

Seq Number: 3139651

% Moisture:

Basis: Wet Weight

SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Sodium Adsorption Ratio		1.71			10.14.2020 13:11		1



Certificate of Analytical Results 674519

COG Operating, LLC, Midland, TX

COG - High Brass 002H (6-13-20)

Sample Id: **Background 5 8'**

Matrix: Soil

Date Received: 10.07.2020 11:30

Lab Sample Id: 674519-008

Date Collected: 10.05.2020 00:00

Analytical Method: Alkalinity by SM2320B

Prep Method: SM2320P

Tech: KBU

Analyst: KBU

Date Prep: 10.08.2020 12:10

% Moisture:

SUB: T104704215-20-38

Seq Number: 3139333

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Alkalinity, Total (CaCO3)	1640192	120	40.0	mg/L	10.09.2020 15:32		1

Analytical Method: Cation-Anion Balance Calculation

Tech: ALA

Analyst: ALA

% Moisture:

SUB: T104704215-20-38

Seq Number: 3139652

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Cation-Anion Balance	CATANBAL	4.60		%	10.14.2020 13:23		1

Analytical Method: Dissolved Anions by EPA 300

Prep Method: E300P

Tech: JYM

Analyst: JYM

Date Prep: 10.09.2020 14:15

% Moisture:

SUB: T104704215-20-38

Seq Number: 3139354

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	242	5.00	mg/L	10.09.2020 22:18		1
Fluoride	16984-48-8	12.0	5.00	mg/L	10.09.2020 22:18	K	1
Nitrate as N	14797-55-8	2.53	1.00	mg/L	10.09.2020 22:18	K	1
Sulfate	14808-79-8	5440	50.0	mg/L	10.12.2020 12:18	D	10

Analytical Method: Dissolved Metals per ICP by SW846 6010B

Prep Method: SW3010A

Tech: MLI

Analyst: DEP

Date Prep: 10.12.2020 11:00

% Moisture:

SUB: T104704215-20-38

Seq Number: 3139477

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Boron	7440-42-8	0.852	0.500	mg/L	10.12.2020 16:29		1
Calcium	7440-70-2	1260	100	mg/L	10.12.2020 16:50	D	50
Magnesium	7439-95-4	434	4.00	mg/L	10.12.2020 16:29		1
Potassium	7440-09-7	19.0	5.00	mg/L	10.12.2020 16:29		1
Sodium	7440-23-5	307	5.00	mg/L	10.12.2020 16:29		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. **ND** Not Detected.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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



COG Operating, LLC

COG - High Brass 002H (6-13-20)

Analytical Method: Alkalinity by SM2320B

Seq Number: 3139333

MB Sample Id: 7712857-1-BLK

Matrix: Water

LCS Sample Id: 7712857-1-BKS

Prep Method: SM2320P

Date Prep: 10.08.2020

LCSD Sample Id: 7712857-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Alkalinity, Total (CaCO ₃)	<4.00	250	258	103	260	104	85-115	1	20	mg/L	10.09.2020 14:19	

Analytical Method: Alkalinity by SM2320B

Seq Number: 3139333

Parent Sample Id: 674516-006

Matrix: Soil

MD Sample Id: 674516-006 D

Prep Method: SM2320P

Date Prep: 10.08.2020

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Alkalinity, Total (CaCO ₃)	280	265	6	20	mg/L	10.09.2020 14:39	

Analytical Method: Dissolved Anions by EPA 300

Seq Number: 3139354

MB Sample Id: 7712980-1-BLK

Matrix: Water

LCS Sample Id: 7712980-1-BKS

Prep Method: E300P

Date Prep: 10.09.2020

LCSD Sample Id: 7712980-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.500	10.0	10.3	103	10.3	103	90-110	0	20	mg/L	10.09.2020 19:24	
Fluoride	<0.500	10.0	10.5	105	10.5	105	90-110	0	20	mg/L	10.09.2020 19:24	
Nitrate as N	<0.100	10.0	10.2	102	10.2	102	90-110	0	20	mg/L	10.09.2020 19:24	
Sulfate	<0.500	10.0	10.6	106	10.6	106	90-110	0	20	mg/L	10.09.2020 19:24	

Analytical Method: Dissolved Anions by EPA 300

Seq Number: 3139354

Parent Sample Id: 674516-006

Matrix: Soil

MS Sample Id: 674516-006 S

Prep Method: E300P

Date Prep: 10.09.2020

MSD Sample Id: 674516-006 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	453	100	545	92	547	94	90-110	0	20	mg/L	10.09.2020 19:59	
Fluoride	7.05	100	108	101	109	102	90-110	1	20	mg/L	10.09.2020 19:59	
Nitrate as N	1.72	100	103	101	103	101	90-110	0	20	mg/L	10.09.2020 19:59	

Analytical Method: Dissolved Anions by EPA 300

Seq Number: 3139354

Parent Sample Id: 674516-010

Matrix: Soil

MS Sample Id: 674516-010 S

Prep Method: E300P

Date Prep: 10.09.2020

MSD Sample Id: 674516-010 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	472	100	567	95	566	94	90-110	0	20	mg/L	10.09.2020 20:33	
Fluoride	8.23	100	112	104	112	104	90-110	0	20	mg/L	10.09.2020 20:33	
Nitrate as N	2.25	100	104	102	104	102	90-110	0	20	mg/L	10.09.2020 20:33	
Sulfate	1710	100	1820	110	1820	110	90-110	0	20	mg/L	10.09.2020 20:33	

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

COG - High Brass 002H (6-13-20)

Analytical Method: Percent Moisture by SM2540G

Seq Number: 3139125

Matrix: Solid

MB Sample Id: 3139125-1-BLK

Parameter	MB Result	Units	Analysis Date	Flag
Percent Moisture	0.0200	%	10.08.2020 09:54	

Analytical Method: Percent Moisture by SM2540G

Seq Number: 3139125

Matrix: Soil

Parent Sample Id: 672948-007

MD Sample Id: 672948-007 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Percent Moisture	7.10	6.69	6	10	%	10.08.2020 09:54	

Analytical Method: Percent Moisture by SM2540G

Seq Number: 3139125

Matrix: Soil

Parent Sample Id: 674635-002

MD Sample Id: 674635-002 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Percent Moisture	11.7	11.1	5	10	%	10.08.2020 09:54	

Analytical Method: Dissolved Metals per ICP by SW846 6010B

Seq Number: 3139477

Matrix: Water

MB Sample Id: 7713071-1-BLK

LCS Sample Id: 7713071-1-BKS

Prep Method: SW3010A

Date Prep: 10.12.2020

LCSD Sample Id: 7713071-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Boron	<0.0500	1.00	1.00	100	1.01	101	75-125	1	20	mg/L	10.12.2020 15:43	
Calcium	<0.200	25.0	25.2	101	25.5	102	75-125	1	20	mg/L	10.12.2020 15:43	
Magnesium	<0.400	25.0	25.7	103	25.9	104	75-125	1	20	mg/L	10.12.2020 15:43	
Potassium	<0.500	10.0	10.0	100	10.1	101	75-125	1	20	mg/L	10.12.2020 15:43	
Sodium	<0.500	25.0	24.7	99	25.0	100	75-125	1	20	mg/L	10.12.2020 15:43	

Analytical Method: Dissolved Metals per ICP by SW846 6010B

Seq Number: 3139477

Matrix: Soil

Parent Sample Id: 674516-006

MS Sample Id: 674516-006 S

Prep Method: SW3010A

Date Prep: 10.12.2020

MSD Sample Id: 674516-006 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Boron	<0.500	10.0	10.7	107	10.7	107	75-125	0	20	mg/L	10.12.2020 15:56	
Calcium	1430	250	1720	116	1720	116	75-125	0	20	mg/L	10.12.2020 15:56	
Magnesium	276	250	535	104	535	104	75-125	0	20	mg/L	10.12.2020 15:56	
Potassium	24.9	100	125	100	125	100	75-125	0	20	mg/L	10.12.2020 15:56	
Sodium	268	250	522	102	521	101	75-125	0	20	mg/L	10.12.2020 15:56	

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
COG - High Brass 002H (6-13-20)

Analytical Method: SAR Metals by SW6010C

Seq Number: 3139650

Matrix: Solid

Prep Method: SW3051

Date Prep: 10.09.2020

MB Sample Id: 7713012-1-BLK

LCS Sample Id: 7713012-1-BKS

LCSD Sample Id: 7713012-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Calcium	<0.400	50.0	50.6	101	50.7	101	75-125	0	20	mg/kg	10.13.2020 19:21	
Magnesium	<0.800	50.0	50.8	102	50.9	102	75-125	0	20	mg/kg	10.13.2020 19:21	
Sodium	<1.00	50.0	50.1	100	50.3	101	75-125	0	20	mg/kg	10.13.2020 19:21	

Analytical Method: SAR Metals by SW6010C

Seq Number: 3139650

Matrix: Soil

Prep Method: SW3051

Date Prep: 10.09.2020

Parent Sample Id: 674535-008

MD Sample Id: 674535-008 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Calcium	1990	2000	1	20	mg/kg	10.13.2020 21:02	
Magnesium	456	460	1	20	mg/kg	10.13.2020 21:02	
Sodium	686	698	2	20	mg/kg	10.13.2020 21:02	

Analytical Method: Electrical Conductivity (SAR)

Seq Number: 3139429

Matrix: Solid

MB Sample Id: 3139429-1-BLK

LCS Sample Id: 3139429-1-BKS

LCSD Sample Id: 3139429-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Conductivity	<10.0	1410	1420	101	1420	101	80-120	0	20	umhos/cm	10.12.2020 12:42	

Analytical Method: Electrical Conductivity (SAR)

Seq Number: 3139429

Matrix: Soil

Parent Sample Id: 674519-008

MD Sample Id: 674519-008 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Conductivity	3790	3800	0	20	umhos/cm	10.12.2020 12:42	

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

Analysis Request of Chain of Custody Record

Page 1 of 1



One Concho Center/600/Illinois
Avenue/Midland, Texas
Tel (432) 683-7443

674519

Client Name:		COG		Site Manager:		Ike Tavaraz itavarez@concho.com Robert Grubbs Jr rgrubbs@concho.com	
Project Name:		High Brass 002H (6-13-20)		Project #:			
Project Location: (county, state)		Eddy County, NM		Invoice to:		COG	
Receiving Laboratory:		Xenco		Sampler Signature:		Robert Grubbs Jr	
Comments:							

LAB # (USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING		MATRIX		PRESERVATIVE METHOD				# CONTAINERS	FILTERED (Y/N)	ANALYSIS REQUEST (Circle or Specify Method No.)	REMARKS
		DATE	TIME	WATER	SOIL	HCL	HNO ₃	ICE					
									YEAR: 2020				
	Background 5 1'	10/5/2020		X						1			
	Background 5 2'	10/5/2020		X						1			
	Background 5 3'	10/5/2020		X						1			
	Background 5 4'	10/5/2020		X						1			
	Background 5 5'	10/5/2020		X						1			
	Background 5 6'	10/5/2020		X						1			
	Background 5 7'	10/5/2020		X						1			
	Background 1 8'	10/5/2020		X						1			
	Background 5 9'	10/5/2020		X						1			
	Background 5 10'	10/5/2020		X						1			

Reinquished by:	Date:	Time:	Reinquished by:	Date:	Time:
Robert Grubbs Jr	10/7/2020	11:30	Ike Tavaraz	10/7/2020	11:30
Reinquished by:	Date:	Time:	Reinquished by:	Date:	Time:

LAB USE ONLY	REMARKS
Sample Temperature	
RUSH: Same Day 24 hr 48 hr 72 hr	
Special Report Limits or TRRP Report	

ORIGINAL COPY

(Circle) HAND DELIVERED FEDEX UPS Tracking #:

D-1/0-6

Inter-Office Shipment

IOS Number : **71500**

Date/Time: 10.07.2020

Created by: Brianna Teel

Please send report to: Jessica Kramer

Lab# From: **Midland**

Delivery Priority:

Address: 1211 W. Florida Ave

Lab# To: **Houston**

Air Bill No.: 771735141498

E-Mail: jessica.kramer@eurofinset.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
674519-008	S	Background 5 8'	10.05.2020 00:00	SW6010C_SAR	SAR Metals by SW6010C	10.13.2020	04.03.2021	JKR	CA MG NA	
674519-008	S	Background 5 8'	10.05.2020 00:00	SM2540G-MOIST	Percent Moisture by SM2540G	10.13.2020	04.03.2021	JKR	MOIST	
674519-008	S	Background 5 8'	10.05.2020 00:00	SM2510B_SAR	Electrical Conductivity (SAR)	10.13.2020	11.02.2020	JKR		
674519-008	W	Background 5 8'	10.05.2020 00:00	E300_DISS	Dissolved Anions by EPA 300	10.13.2020	10.07.2020 00:00	JKR	CL F NO3N SO4	
674519-008	S	Background 5 8'	10.05.2020 00:00	S29B08_Twice	SAR Twice Saturated Extraction	10.13.2020	04.03.2021	JKR		
674519-008	W	Background 5 8'	10.05.2020 00:00	SW6010B_DISS	Dissolved Metals per ICP by SW846 601	10.13.2020	04.03.2021	JKR	CA K MG NA	
674519-008	W	Background 5 8'	10.05.2020 00:00	SM2320B	Alkalinity by SM2320B	10.13.2020	10.19.2020 00:00	JKR	ALK	
674519-008	W	Background 5 8'	10.05.2020 00:00	SM1030E	Cation-Anion Balance Calculation	10.13.2020	11.04.2020	JKR	Cation-Anion Balance	

Inter Office Shipment or Sample Comments:

Relinquished By:



Jessica Kramer

Date Relinquished: 10.07.2020

Received By:



Hypatia Keys

Date Received: 10.08.2020

Cooler Temperature: 1.3



Inter Office Report- Sample Receipt Checklist

Sent To: Houston

IOS #: 71500

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : hou-203

Sent By: Brianna Teel

Date Sent: 10.07.2020 12.18 PM

Received By: Hypatia Keys

Date Received: 10.08.2020 01.30 PM

Sample Receipt Checklist

Comments

#1 *Temperature of cooler(s)?	1.3
#2 *Shipping container in good condition?	Yes
#3 *Samples received with appropriate temperature?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	N/A
#5 *Custody Seals Signed and dated for Containers/coolers	N/A
#6 *IOS present?	Yes
#7 Any missing/extra samples?	No
#8 IOS agrees with sample label(s)/matrix?	Yes
#9 Sample matrix/ properties agree with IOS?	Yes
#10 Samples in proper container/ bottle?	Yes
#11 Samples properly preserved?	Yes
#12 Sample container(s) intact?	Yes
#13 Sufficient sample amount for indicated test(s)?	Yes
#14 All samples received within hold time?	Yes

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

NonConformance:

Corrective Action Taken:

Nonconformance Documentation

Contact: _____ Contacted by : _____ Date: _____

Checklist reviewed by:

Hypatia Keys

Date: 10.08.2020

Eurofins Xenco, LLC

Prelogin/Nonconformance Report- Sample Log-In

Client: COG Operating, LLC

Date/ Time Received: 10.07.2020 11.30.00 AM

Work Order #: 674519

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : IR8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	.6
#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)?	Yes Xenco Stafford
#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: 10.07.2020

Checklist reviewed by:



Jessica Kramer

Date: 10.07.2020

Certificate of Analysis Summary 674520

COG Operating, LLC, Midland, TX

Project Name: COG - High Brass 002H (6-13-20)

Project Id: COG - High Brass

Contact: Ike Tavaréz

Project Location: Eddy County NM

Date Received in Lab: Wed 10.07.2020 11:30

Report Date: 10.28.2020 08:08

Project Manager: Jessica Kramer

Analysis Requested	Lab Id: 674520-008 Field Id: Background 4 8' Depth: Matrix: SOIL Sampled: 10.05.2020 00:00					
Alkalinity by SM2320B SUB: T104704215-20-38	Extracted: 10.08.2020 12:10 Analyzed: 10.09.2020 15:38 Units/RL: mg/L RL					
Alkalinity, Total (CaCO ₃)	110 40.0					
Cation-Anion Balance Calculation SUB: T104704215-20-38	Extracted: Analyzed: 10.14.2020 13:23 Units/RL: % RL					
Cation-Anion Balance	4.30					
Dissolved Anions by EPA 300 SUB: T104704215-20-38	Extracted: 10.09.2020 14:15 Analyzed: 10.09.2020 22:30 Units/RL: mg/L RL					
Chloride	685 5.00					
Fluoride	9.80 K 5.00					
Nitrate as N	2.64 K 1.00					
Sulfate	3920 D 50.0					
Dissolved Metals per ICP by SW846 6010B SUB: T104704215-20-38	Extracted: 10.12.2020 11:00 Analyzed: 10.12.2020 19:47 Units/RL: mg/L RL					
Boron	0.744 0.500					
Calcium	769 2.00					
Magnesium	316 4.00					
Potassium	42.2 5.00					
Sodium	692 5.00					

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico



Certificate of Analysis Summary 674520

COG Operating, LLC, Midland, TX

Project Name: COG - High Brass 002H (6-13-20)

Project Id: COG - High Brass

Contact: Ike Tavaréz

Project Location: Eddy County NM

Date Received in Lab: Wed 10.07.2020 11:30

Report Date: 10.28.2020 08:08

Project Manager: Jessica Kramer

Analysis Requested	Lab Id: 674520-008 Field Id: Background 4 8' Depth: Matrix: SOIL Sampled: 10.05.2020 00:00					
Electrical Conductivity (SAR) SUB: T104704215-20-38	Extracted: Analyzed: 10.12.2020 12:42 Units/RL: umhos/cm RL					
Conductivity	4990 10.0					
Percent Moisture by SM2540G SUB: T104704215-20-38	Extracted: Analyzed: 10.08.2020 09:54 Units/RL: % RL					
Percent Moisture	8.92					
SAR Metals by SW6010C SUB: T104704215-20-38	Extracted: 10.09.2020 16:05 Analyzed: 10.13.2020 20:53 Units/RL: mg/kg RL					
Calcium	1420 D 21.9					
Magnesium	492 D 43.9					
Sodium	826 D 54.8					
SAR Twice Saturated Extraction SUB: T104704215-20-38	Extracted: Analyzed: 10.14.2020 13:11 Units/RL:					
Sodium Adsorption Ratio	4.81					

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico



Analytical Report 674520

for

COG Operating, LLC

Project Manager: Ike Tavaréz

COG - High Brass 002H (6-13-20)

COG - High Brass

10.28.2020

Collected By: Client



**1211 W. Florida Ave
Midland TX 79701**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-38), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2020-014), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-20-26), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-18)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-23)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-21)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-20-8)
Xenco-Tampa: Florida (E87429), North Carolina (483)



10.28.2020

Project Manager: **Ike Tavaréz**

COG Operating, LLC

600 W Illinois

Midland, TX 79701

Reference: Eurofins Xenco, LLC Report No(s): **674520**

COG - High Brass 002H (6-13-20)

Project Address: Eddy County NM

Ike Tavaréz:

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 Eurofins Xenco, LLC Report Number(s) 674520. 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 Eurofins Xenco, LLC. 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. 674520 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 Eurofins Xenco, LLC to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

A handwritten signature in black ink that reads "Jessica Kramer".

Jessica Kramer

Project Manager

A Small Business and Minority Company

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

**Sample Cross Reference 674520****COG Operating, LLC, Midland, TX**

COG - High Brass 002H (6-13-20)

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
Background 4 8'	S	10.05.2020 00:00		674520-008
Background 4 1'	S	10.05.2020 00:00		Not Analyzed
Background 4 2'	S	10.05.2020 00:00		Not Analyzed
Background 4 3'	S	10.05.2020 00:00		Not Analyzed
Background 4 4'	S	10.05.2020 00:00		Not Analyzed
Background 4 5'	S	10.05.2020 00:00		Not Analyzed
Background 4 6'	S	10.05.2020 00:00		Not Analyzed
Background 4 7'	S	10.05.2020 00:00		Not Analyzed
Background 4 9'	S	10.05.2020 00:00		Not Analyzed
Background 4 10'	S	10.05.2020 00:00		Not Analyzed



CASE NARRATIVE

Client Name: COG Operating, LLC

Project Name: COG - High Brass 002H (6-13-20)

Project ID: COG - High Brass
Work Order Number(s): 674520

Report Date: 10.28.2020
Date Received: 10.07.2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None



Certificate of Analytical Results 674520

COG Operating, LLC, Midland, TX

COG - High Brass 002H (6-13-20)

Sample Id: **Background 4 8'**

Matrix: Soil

Date Received: 10.07.2020 11:30

Lab Sample Id: 674520-008

Date Collected: 10.05.2020 00:00

Analytical Method: SAR Metals by SW6010C

Prep Method: SW3051

Tech: PJB

Analyst: DEP

Date Prep: 10.09.2020 16:05

% Moisture: 8.92

Basis: Dry Weight

Seq Number: 3139650

SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Calcium	7440-70-2	1420	21.9	mg/kg	10.13.2020 21:06	D	50
Magnesium	7439-95-4	492	43.9	mg/kg	10.13.2020 21:06	D	50
Sodium	7440-23-5	826	54.8	mg/kg	10.13.2020 21:06	D	50

Analytical Method: Electrical Conductivity (SAR)

Tech: KBU

Analyst: KBU

Seq Number: 3139429

% Moisture:

Basis: Wet Weight

SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Conductivity	COND	4990	10.0	umhos/cm	10.12.2020 12:42		1

Analytical Method: SAR Twice Saturated Extraction

Tech: DEP

Analyst: DEP

Seq Number: 3139651

% Moisture:

Basis: Wet Weight

SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Sodium Adsorption Ratio		4.81			10.14.2020 13:11		1



Certificate of Analytical Results 674520

COG Operating, LLC, Midland, TX

COG - High Brass 002H (6-13-20)

Sample Id: **Background 4 8'**

Matrix: Soil

Date Received: 10.07.2020 11:30

Lab Sample Id: 674520-008

Date Collected: 10.05.2020 00:00

Analytical Method: Alkalinity by SM2320B

Prep Method: SM2320P

Tech: KBU

Analyst: KBU

Date Prep: 10.08.2020 12:10

% Moisture:

SUB: T104704215-20-38

Seq Number: 3139333

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Alkalinity, Total (CaCO3)	1640192	110	40.0	mg/L	10.09.2020 15:38		1

Analytical Method: Cation-Anion Balance Calculation

Tech: ALA

Analyst: ALA

% Moisture:

SUB: T104704215-20-38

Seq Number: 3139652

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Cation-Anion Balance	CATANBAL	4.30		%	10.14.2020 13:23		1

Analytical Method: Dissolved Anions by EPA 300

Prep Method: E300P

Tech: JYM

Analyst: JYM

Date Prep: 10.09.2020 14:15

% Moisture:

SUB: T104704215-20-38

Seq Number: 3139354

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	685	5.00	mg/L	10.09.2020 22:30		1
Fluoride	16984-48-8	9.80	5.00	mg/L	10.09.2020 22:30	K	1
Nitrate as N	14797-55-8	2.64	1.00	mg/L	10.09.2020 22:30	K	1
Sulfate	14808-79-8	3920	50.0	mg/L	10.12.2020 12:29	D	10

Analytical Method: Dissolved Metals per ICP by SW846 6010B

Prep Method: SW3010A

Tech: MLI

Analyst: DEP

Date Prep: 10.12.2020 11:00

% Moisture:

SUB: T104704215-20-38

Seq Number: 3139477

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Boron	7440-42-8	0.744	0.500	mg/L	10.12.2020 19:47		1
Calcium	7440-70-2	769	2.00	mg/L	10.12.2020 19:47		1
Magnesium	7439-95-4	316	4.00	mg/L	10.12.2020 19:47		1
Potassium	7440-09-7	42.2	5.00	mg/L	10.12.2020 19:47		1
Sodium	7440-23-5	692	5.00	mg/L	10.12.2020 19:47		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. **ND** Not Detected.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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



COG Operating, LLC

COG - High Brass 002H (6-13-20)

Analytical Method: Alkalinity by SM2320B

Seq Number: 3139333

MB Sample Id: 7712857-1-BLK

Matrix: Water

LCS Sample Id: 7712857-1-BKS

Prep Method: SM2320P

Date Prep: 10.08.2020

LCSD Sample Id: 7712857-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Alkalinity, Total (CaCO3)	<4.00	250	258	103	260	104	85-115	1	20	mg/L	10.09.2020 14:19	

Analytical Method: Alkalinity by SM2320B

Seq Number: 3139333

Parent Sample Id: 674516-006

Matrix: Soil

MD Sample Id: 674516-006 D

Prep Method: SM2320P

Date Prep: 10.08.2020

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Alkalinity, Total (CaCO3)	280	265	6	20	mg/L	10.09.2020 14:39	

Analytical Method: Dissolved Anions by EPA 300

Seq Number: 3139354

MB Sample Id: 7712980-1-BLK

Matrix: Water

LCS Sample Id: 7712980-1-BKS

Prep Method: E300P

Date Prep: 10.09.2020

LCSD Sample Id: 7712980-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.500	10.0	10.3	103	10.3	103	90-110	0	20	mg/L	10.09.2020 19:24	
Fluoride	<0.500	10.0	10.5	105	10.5	105	90-110	0	20	mg/L	10.09.2020 19:24	
Nitrate as N	<0.100	10.0	10.2	102	10.2	102	90-110	0	20	mg/L	10.09.2020 19:24	
Sulfate	<0.500	10.0	10.6	106	10.6	106	90-110	0	20	mg/L	10.09.2020 19:24	

Analytical Method: Dissolved Anions by EPA 300

Seq Number: 3139354

Parent Sample Id: 674516-006

Matrix: Soil

MS Sample Id: 674516-006 S

Prep Method: E300P

Date Prep: 10.09.2020

MSD Sample Id: 674516-006 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	453	100	545	92	547	94	90-110	0	20	mg/L	10.09.2020 19:59	
Fluoride	7.05	100	108	101	109	102	90-110	1	20	mg/L	10.09.2020 19:59	
Nitrate as N	1.72	100	103	101	103	101	90-110	0	20	mg/L	10.09.2020 19:59	

Analytical Method: Dissolved Anions by EPA 300

Seq Number: 3139354

Parent Sample Id: 674516-010

Matrix: Soil

MS Sample Id: 674516-010 S

Prep Method: E300P

Date Prep: 10.09.2020

MSD Sample Id: 674516-010 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	472	100	567	95	566	94	90-110	0	20	mg/L	10.09.2020 20:33	
Fluoride	8.23	100	112	104	112	104	90-110	0	20	mg/L	10.09.2020 20:33	
Nitrate as N	2.25	100	104	102	104	102	90-110	0	20	mg/L	10.09.2020 20:33	
Sulfate	1710	100	1820	110	1820	110	90-110	0	20	mg/L	10.09.2020 20:33	

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

COG - High Brass 002H (6-13-20)

Analytical Method: Percent Moisture by SM2540G

Seq Number: 3139125

Matrix: Solid

MB Sample Id: 3139125-1-BLK

Parameter	MB Result	Units	Analysis Date	Flag
Percent Moisture	0.0200	%	10.08.2020 09:54	

Analytical Method: Percent Moisture by SM2540G

Seq Number: 3139125

Matrix: Soil

Parent Sample Id: 672948-007

MD Sample Id: 672948-007 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Percent Moisture	7.10	6.69	6	10	%	10.08.2020 09:54	

Analytical Method: Percent Moisture by SM2540G

Seq Number: 3139125

Matrix: Soil

Parent Sample Id: 674635-002

MD Sample Id: 674635-002 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Percent Moisture	11.7	11.1	5	10	%	10.08.2020 09:54	

Analytical Method: Dissolved Metals per ICP by SW846 6010B

Seq Number: 3139477

Matrix: Water

MB Sample Id: 7713071-1-BLK

LCS Sample Id: 7713071-1-BKS

Prep Method: SW3010A

Date Prep: 10.12.2020

LCSD Sample Id: 7713071-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Boron	<0.0500	1.00	1.00	100	1.01	101	75-125	1	20	mg/L	10.12.2020 15:43	
Calcium	<0.200	25.0	25.2	101	25.5	102	75-125	1	20	mg/L	10.12.2020 15:43	
Magnesium	<0.400	25.0	25.7	103	25.9	104	75-125	1	20	mg/L	10.12.2020 15:43	
Potassium	<0.500	10.0	10.0	100	10.1	101	75-125	1	20	mg/L	10.12.2020 15:43	
Sodium	<0.500	25.0	24.7	99	25.0	100	75-125	1	20	mg/L	10.12.2020 15:43	

Analytical Method: Dissolved Metals per ICP by SW846 6010B

Seq Number: 3139477

Matrix: Soil

Parent Sample Id: 674516-006

MS Sample Id: 674516-006 S

Prep Method: SW3010A

Date Prep: 10.12.2020

MSD Sample Id: 674516-006 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Boron	<0.500	10.0	10.7	107	10.7	107	75-125	0	20	mg/L	10.12.2020 15:56	
Calcium	1430	250	1720	116	1720	116	75-125	0	20	mg/L	10.12.2020 15:56	
Magnesium	276	250	535	104	535	104	75-125	0	20	mg/L	10.12.2020 15:56	
Potassium	24.9	100	125	100	125	100	75-125	0	20	mg/L	10.12.2020 15:56	
Sodium	268	250	522	102	521	101	75-125	0	20	mg/L	10.12.2020 15:56	

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
COG - High Brass 002H (6-13-20)

Analytical Method: SAR Metals by SW6010C

Seq Number: 3139650

Matrix: Solid

Prep Method: SW3051

Date Prep: 10.09.2020

MB Sample Id: 7713012-1-BLK

LCS Sample Id: 7713012-1-BKS

LCSD Sample Id: 7713012-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Calcium	<0.400	50.0	50.6	101	50.7	101	75-125	0	20	mg/kg	10.13.2020 19:21	
Magnesium	<0.800	50.0	50.8	102	50.9	102	75-125	0	20	mg/kg	10.13.2020 19:21	
Sodium	<1.00	50.0	50.1	100	50.3	101	75-125	0	20	mg/kg	10.13.2020 19:21	

Analytical Method: SAR Metals by SW6010C

Seq Number: 3139650

Matrix: Soil

Prep Method: SW3051

Date Prep: 10.09.2020

Parent Sample Id: 674535-008

MD Sample Id: 674535-008 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Calcium	1990	2000	1	20	mg/kg	10.13.2020 21:02	
Magnesium	456	460	1	20	mg/kg	10.13.2020 21:02	
Sodium	686	698	2	20	mg/kg	10.13.2020 21:02	

Analytical Method: Electrical Conductivity (SAR)

Seq Number: 3139429

Matrix: Solid

MB Sample Id: 3139429-1-BLK

LCS Sample Id: 3139429-1-BKS

LCSD Sample Id: 3139429-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Conductivity	<10.0	1410	1420	101	1420	101	80-120	0	20	umhos/cm	10.12.2020 12:42	

Analytical Method: Electrical Conductivity (SAR)

Seq Number: 3139429

Matrix: Soil

Parent Sample Id: 674519-008

MD Sample Id: 674519-008 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Conductivity	3790	3800	0	20	umhos/cm	10.12.2020 12:42	

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



**One Concho Center/600/Illinois
Avenue/Midland, Texas
Tel (432) 683-7443**

[illegible]

ORIGINAL COPY

$$\frac{0.1}{0.9}$$

Inter-Office Shipment

IOS Number : **71547**

Date/Time: 10.07.2020

Created by: Jessica Kramer

Please send report to: Jessica Kramer

Lab# From: **Midland**

Delivery Priority:

Address: 1211 W. Florida Ave

Lab# To: **Houston**

Air Bill No.: 771735141498

E-Mail: jessica.kramer@eurofinset.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
674520-008	S	Background 4 8'	10.05.2020 00:00	SW6010C_SAR	SAR Metals by SW6010C	10.13.2020	04.03.2021	JKR	CA MG NA	
674520-008	S	Background 4 8'	10.05.2020 00:00	S29B08_Twice	SAR Twice Saturated Extraction	10.13.2020	04.03.2021	JKR		
674520-008	S	Background 4 8'	10.05.2020 00:00	SM2510B_SAR	Electrical Conductivity (SAR)	10.13.2020	11.02.2020	JKR		
674520-008	W	Background 4 8'	10.05.2020 00:00	E300_DISS	Dissolved Anions by EPA 300	10.13.2020	10.07.2020 00:00	JKR	CL F NO3N SO4	
674520-008	S	Background 4 8'	10.05.2020 00:00	SM2540G-MOIST	Percent Moisture by SM2540G	10.13.2020	04.03.2021	JKR	MOIST	
674520-008	W	Background 4 8'	10.05.2020 00:00	SM2320B	Alkalinity by SM2320B	10.13.2020	10.19.2020 00:00	JKR	ALK	
674520-008	W	Background 4 8'	10.05.2020 00:00	SW6010B_DISS	Dissolved Metals per ICP by SW846 601	10.13.2020	04.03.2021	JKR	CA K MG NA	
674520-008	W	Background 4 8'	10.05.2020 00:00	SM1030E	Cation-Anion Balance Calculation	10.13.2020	11.04.2020	JKR	Cation-Anion Balance	

Inter Office Shipment or Sample Comments:

Relinquished By:



Jessica Kramer

Date Relinquished: 10.07.2020

Received By:



Hypatia Keys

Date Received: 10.08.2020

Cooler Temperature: 1.3



Inter Office Report- Sample Receipt Checklist

Sent To: Houston

IOS #: 71547

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : hou-203

Sent By: Jessica Kramer

Date Sent: 10.07.2020 05.09 PM

Received By: Hypatia Keys

Date Received: 10.08.2020 01.30 PM

Sample Receipt Checklist

Comments

#1 *Temperature of cooler(s)?	1.3
#2 *Shipping container in good condition?	Yes
#3 *Samples received with appropriate temperature?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	N/A
#5 *Custody Seals Signed and dated for Containers/coolers	N/A
#6 *IOS present?	Yes
#7 Any missing/extra samples?	No
#8 IOS agrees with sample label(s)/matrix?	Yes
#9 Sample matrix/ properties agree with IOS?	Yes
#10 Samples in proper container/ bottle?	Yes
#11 Samples properly preserved?	Yes
#12 Sample container(s) intact?	Yes
#13 Sufficient sample amount for indicated test(s)?	Yes
#14 All samples received within hold time?	Yes

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

NonConformance:

Corrective Action Taken:

Nonconformance Documentation

Contact: _____ Contacted by : _____ Date: _____

Checklist reviewed by:

Hypatia Keys

Date: 10.08.2020

Eurofins Xenco, LLC

Prelogin/Nonconformance Report- Sample Log-In

Client: COG Operating, LLC

Date/ Time Received: 10.07.2020 11.30.00 AM

Work Order #: 674520

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : IR8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	.6
#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)?	Yes Xenco Stafford
#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: 10.07.2020

Checklist reviewed by:



Jessica Kramer

Date: 10.07.2020

Certificate of Analysis Summary 674535

COG Operating, LLC, Midland, TX

Project Name: COG - High Brass 002H (6-13-20)

Project Id: COG - High Brass

Contact: Ike Tavaréz

Project Location: Eddy County NM

Date Received in Lab: Wed 10.07.2020 12:50

Report Date: 10.28.2020 08:09

Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	674535-008					
	Field Id:	Background 6 8'					
	Depth:						
	Matrix:	SOIL					
	Sampled:	10.07.2020 10:26					
Cation-Anion Balance Calculation SUB: T104704215-20-38	Extracted:						
	Analyzed:	10.14.2020 13:23					
	Units/RL:	% RL					
Cation-Anion Balance		6.10					

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico



Certificate of Analysis Summary 674535

COG Operating, LLC, Midland, TX

Project Name: COG - High Brass 002H (6-13-20)

Project Id: COG - High Brass

Contact: Ike Tavaréz

Project Location: Eddy County NM

Date Received in Lab: Wed 10.07.2020 12:50

Report Date: 10.28.2020 08:09

Project Manager: Jessica Kramer

Analysis Requested	Lab Id: 674535-008 Field Id: Background 6 8' Depth: Matrix: SOIL Sampled: 10.07.2020 10:26					
Alkalinity by SM2320B SUB: T104704215-20-38	Extracted: 10.08.2020 12:10 Analyzed: 10.09.2020 15:44 Units/RL: mg/L RL					
Alkalinity, Total (CaCO ₃)	307 40.0					
Dissolved Anions by EPA 300 SUB: T104704215-20-38	Extracted: 10.09.2020 14:15 Analyzed: 10.09.2020 22:41 Units/RL: mg/L RL					
Chloride	375 5.00					
Fluoride	9.09 K 5.00					
Nitrate as N	2.32 K 1.00					
Sulfate	2350 5.00					
Dissolved Metals per ICP by SW846 6010B SUB: T104704215-20-38	Extracted: 10.12.2020 11:00 Analyzed: 10.12.2020 19:51 Units/RL: mg/L RL					
Boron	1.02 0.500					
Calcium	453 2.00					
Magnesium	172 4.00					
Potassium	9.07 5.00					
Sodium	496 5.00					

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico



Certificate of Analysis Summary 674535

COG Operating, LLC, Midland, TX

Project Name: COG - High Brass 002H (6-13-20)

Project Id: COG - High Brass

Contact: Ike Tavaréz

Project Location: Eddy County NM

Date Received in Lab: Wed 10.07.2020 12:50

Report Date: 10.28.2020 08:09

Project Manager: Jessica Kramer

Analysis Requested	Lab Id: 674535-008 Field Id: Background 6 8' Depth: Matrix: SOIL Sampled: 10.07.2020 10:26					
Electrical Conductivity (SAR) SUB: T104704215-20-38	Extracted: Analyzed: 10.12.2020 12:42 Units/RL: umhos/cm RL					
Conductivity	4680 10.0					
Percent Moisture by SM2540G SUB: T104704215-20-38	Extracted: Analyzed: 10.10.2020 09:43 Units/RL: % RL					
Percent Moisture	10.6					
SAR Twice Saturated Extraction SUB: T104704215-20-38	Extracted: Analyzed: 10.14.2020 13:11 Units/RL:					
Sodium Adsorption Ratio	3.47					

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico



Certificate of Analysis Summary 674535

COG Operating, LLC, Midland, TX

Project Name: COG - High Brass 002H (6-13-20)

Project Id: COG - High Brass

Contact: Ike Tavaréz

Project Location: Eddy County NM

Date Received in Lab: Wed 10.07.2020 12:50

Report Date: 10.28.2020 08:09

Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	674535-008					
	Field Id:	Background 6 8'					
	Depth:						
	Matrix:	SOIL					
	Sampled:	10.07.2020 10:26					
SAR Metals by SW6010C SUB: T104704215-20-38	Extracted:	10.09.2020 16:05					
	Analyzed:	10.13.2020 20:57					
	Units/RL:	mg/kg RL					
Calcium		2020 D	22.3				
Magnesium		456 D	44.6				
Sodium		664 D	55.8				

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico



Analytical Report 674535

for

COG Operating, LLC

Project Manager: Ike Tavaréz

COG - High Brass 002H (6-13-20)

COG - High Brass

10.28.2020

Collected By: Client



**1211 W. Florida Ave
Midland TX 79701**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-38), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2020-014), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-20-26), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-18)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-23)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-21)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-20-8)
Xenco-Tampa: Florida (E87429), North Carolina (483)



10.28.2020

Project Manager: **Ike Tavarez**

COG Operating, LLC

600 W Illinois

Midland, TX 79701

Reference: Eurofins Xenco, LLC Report No(s): **674535**

COG - High Brass 002H (6-13-20)

Project Address: Eddy 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 Eurofins Xenco, LLC Report Number(s) 674535. 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 Eurofins Xenco, LLC. 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. 674535 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 Eurofins Xenco, LLC to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

A handwritten signature in black ink that reads "Jessica Kramer".

Jessica Kramer

Project Manager

A Small Business and Minority Company

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

**Sample Cross Reference 674535****COG Operating, LLC, Midland, TX**

COG - High Brass 002H (6-13-20)

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
Background 6 8'	S	10.07.2020 10:26		674535-008
Background 6 1'	S	10.07.2020 10:26		Not Analyzed
Background 6 2'	S	10.07.2020 10:26		Not Analyzed
Background 6 3'	S	10.07.2020 10:26		Not Analyzed
Background 6 4'	S	10.07.2020 10:26		Not Analyzed
Background 6 5'	S	10.07.2020 10:26		Not Analyzed
Background 6 6'	S	10.07.2020 10:26		Not Analyzed
Background 6 7'	S	10.07.2020 10:26		Not Analyzed
Background 6 9'	S	10.07.2020 10:26		Not Analyzed
Background 6 10'	S	10.07.2020 10:26		Not Analyzed



CASE NARRATIVE

Client Name: COG Operating, LLC

Project Name: COG - High Brass 002H (6-13-20)

Project ID: COG - High Brass
Work Order Number(s): 674535

Report Date: 10.28.2020
Date Received: 10.07.2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None



Certificate of Analytical Results 674535

COG Operating, LLC, Midland, TX

COG - High Brass 002H (6-13-20)

Sample Id: **Background 6 8'**

Matrix: Soil

Date Received: 10.07.2020 12:50

Lab Sample Id: 674535-008

Date Collected: 10.07.2020 10:26

Analytical Method: SAR Metals by SW6010C

Prep Method: SW3051

Tech: PJB

Analyst: DEP

Date Prep: 10.09.2020 16:05

% Moisture: 10.57

Basis: Dry Weight

Seq Number: 3139650

SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Calcium	7440-70-2	2020	22.3	mg/kg	10.13.2020 21:10	D	50
Magnesium	7439-95-4	456	44.6	mg/kg	10.13.2020 21:10	D	50
Sodium	7440-23-5	664	55.8	mg/kg	10.13.2020 21:10	D	50

Analytical Method: Electrical Conductivity (SAR)

Tech: KBU

Analyst: KBU

Seq Number: 3139429

% Moisture:

Basis: Wet Weight

SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Conductivity	COND	4680	10.0	umhos/cm	10.12.2020 12:42		1

Analytical Method: SAR Twice Saturated Extraction

Tech: DEP

Analyst: DEP

Seq Number: 3139651

% Moisture:

Basis: Wet Weight

SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Sodium Adsorption Ratio		3.47			10.14.2020 13:11		1



Certificate of Analytical Results 674535

COG Operating, LLC, Midland, TX

COG - High Brass 002H (6-13-20)

Sample Id: **Background 6 8'**

Matrix: Soil

Date Received: 10.07.2020 12:50

Lab Sample Id: 674535-008

Date Collected: 10.07.2020 10:26

Analytical Method: Alkalinity by SM2320B

Prep Method: SM2320P

Tech: KBU

Analyst: KBU

Date Prep: 10.08.2020 12:10

% Moisture:

SUB: T104704215-20-38

Seq Number: 3139333

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Alkalinity, Total (CaCO3)	1640192	307	40.0	mg/L	10.09.2020 15:44		1

Analytical Method: Cation-Anion Balance Calculation

Tech: ALA

Analyst: ALA

% Moisture:

SUB: T104704215-20-38

Seq Number: 3139652

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Cation-Anion Balance	CATANBAL	6.10		%	10.14.2020 13:23		1

Analytical Method: Dissolved Anions by EPA 300

Prep Method: E300P

Tech: JYM

Analyst: JYM

Date Prep: 10.09.2020 14:15

% Moisture:

SUB: T104704215-20-38

Seq Number: 3139354

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	375	5.00	mg/L	10.09.2020 22:41		1
Fluoride	16984-48-8	9.09	5.00	mg/L	10.09.2020 22:41	K	1
Nitrate as N	14797-55-8	2.32	1.00	mg/L	10.09.2020 22:41	K	1
Sulfate	14808-79-8	2350	5.00	mg/L	10.09.2020 22:41		1

Analytical Method: Dissolved Metals per ICP by SW846 6010B

Prep Method: SW3010A

Tech: MLI

Analyst: DEP

Date Prep: 10.12.2020 11:00

% Moisture:

SUB: T104704215-20-38

Seq Number: 3139477

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Boron	7440-42-8	1.02	0.500	mg/L	10.12.2020 19:51		1
Calcium	7440-70-2	453	2.00	mg/L	10.12.2020 19:51		1
Magnesium	7439-95-4	172	4.00	mg/L	10.12.2020 19:51		1
Potassium	7440-09-7	9.07	5.00	mg/L	10.12.2020 19:51		1
Sodium	7440-23-5	496	5.00	mg/L	10.12.2020 19:51		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. **ND** Not Detected.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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



COG Operating, LLC

COG - High Brass 002H (6-13-20)

Analytical Method: Alkalinity by SM2320B

Seq Number: 3139333

MB Sample Id: 7712857-1-BLK

Matrix: Water

LCS Sample Id: 7712857-1-BKS

Prep Method: SM2320P

Date Prep: 10.08.2020

LCSD Sample Id: 7712857-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Alkalinity, Total (CaCO ₃)	<4.00	250	258	103	260	104	85-115	1	20	mg/L	10.09.2020 14:19	

Analytical Method: Alkalinity by SM2320B

Seq Number: 3139333

Parent Sample Id: 674516-006

Matrix: Soil

MD Sample Id: 674516-006 D

Prep Method: SM2320P

Date Prep: 10.08.2020

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Alkalinity, Total (CaCO ₃)	280	265	6	20	mg/L	10.09.2020 14:39	

Analytical Method: Dissolved Anions by EPA 300

Seq Number: 3139354

MB Sample Id: 7712980-1-BLK

Matrix: Water

LCS Sample Id: 7712980-1-BKS

Prep Method: E300P

Date Prep: 10.09.2020

LCSD Sample Id: 7712980-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.500	10.0	10.3	103	10.3	103	90-110	0	20	mg/L	10.09.2020 19:24	
Fluoride	<0.500	10.0	10.5	105	10.5	105	90-110	0	20	mg/L	10.09.2020 19:24	
Nitrate as N	<0.100	10.0	10.2	102	10.2	102	90-110	0	20	mg/L	10.09.2020 19:24	
Sulfate	<0.500	10.0	10.6	106	10.6	106	90-110	0	20	mg/L	10.09.2020 19:24	

Analytical Method: Dissolved Anions by EPA 300

Seq Number: 3139354

Parent Sample Id: 674516-006

Matrix: Soil

MS Sample Id: 674516-006 S

Prep Method: E300P

Date Prep: 10.09.2020

MSD Sample Id: 674516-006 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	453	100	545	92	547	94	90-110	0	20	mg/L	10.09.2020 19:59	
Fluoride	7.05	100	108	101	109	102	90-110	1	20	mg/L	10.09.2020 19:59	
Nitrate as N	1.72	100	103	101	103	101	90-110	0	20	mg/L	10.09.2020 19:59	
Sulfate	4630	2000	6650	101	6650	101	90-110	0	20	mg/L	10.12.2020 10:33	

Analytical Method: Dissolved Anions by EPA 300

Seq Number: 3139354

Parent Sample Id: 674516-010

Matrix: Soil

MS Sample Id: 674516-010 S

Prep Method: E300P

Date Prep: 10.09.2020

MSD Sample Id: 674516-010 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	472	100	567	95	566	94	90-110	0	20	mg/L	10.09.2020 20:33	
Fluoride	8.23	100	112	104	112	104	90-110	0	20	mg/L	10.09.2020 20:33	
Nitrate as N	2.25	100	104	102	104	102	90-110	0	20	mg/L	10.09.2020 20:33	
Sulfate	1710	100	1820	110	1820	110	90-110	0	20	mg/L	10.09.2020 20:33	

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

COG - High Brass 002H (6-13-20)

Analytical Method: Percent Moisture by SM2540G

Seq Number: 3139335

Matrix: Soil

Parent Sample Id: 674535-008

MD Sample Id: 674535-008 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Percent Moisture	10.6	10.8	2	10	%	10.10.2020 09:43	

Analytical Method: Percent Moisture by SM2540G

Seq Number: 3139335

Matrix: Soil

Parent Sample Id: 674613-010

MD Sample Id: 674613-010 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Percent Moisture	19.2	19.1	1	10	%	10.10.2020 09:43	

Analytical Method: Dissolved Metals per ICP by SW846 6010B

Seq Number: 3139477

Matrix: Water

MB Sample Id: 7713071-1-BLK

LCS Sample Id: 7713071-1-BKS

Prep Method: SW3010A

Date Prep: 10.12.2020

LCSD Sample Id: 7713071-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Boron	<0.0500	1.00	1.00	100	1.01	101	75-125	1	20	mg/L	10.12.2020 15:43	
Calcium	<0.200	25.0	25.2	101	25.5	102	75-125	1	20	mg/L	10.12.2020 15:43	
Magnesium	<0.400	25.0	25.7	103	25.9	104	75-125	1	20	mg/L	10.12.2020 15:43	
Potassium	<0.500	10.0	10.0	100	10.1	101	75-125	1	20	mg/L	10.12.2020 15:43	
Sodium	<0.500	25.0	24.7	99	25.0	100	75-125	1	20	mg/L	10.12.2020 15:43	

Analytical Method: Dissolved Metals per ICP by SW846 6010B

Seq Number: 3139477

Matrix: Soil

Parent Sample Id: 674516-006

MS Sample Id: 674516-006 S

Prep Method: SW3010A

Date Prep: 10.12.2020

MSD Sample Id: 674516-006 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Boron	<0.500	10.0	10.7	107	10.7	107	75-125	0	20	mg/L	10.12.2020 15:56	
Calcium	1430	250	1720	116	1720	116	75-125	0	20	mg/L	10.12.2020 15:56	
Magnesium	276	250	535	104	535	104	75-125	0	20	mg/L	10.12.2020 15:56	
Potassium	24.9	100	125	100	125	100	75-125	0	20	mg/L	10.12.2020 15:56	
Sodium	268	250	522	102	521	101	75-125	0	20	mg/L	10.12.2020 15:56	

Analytical Method: SAR Metals by SW6010C

Seq Number: 3139650

Matrix: Solid

MB Sample Id: 7713012-1-BLK

LCS Sample Id: 7713012-1-BKS

Prep Method: SW3051

Date Prep: 10.09.2020

LCSD Sample Id: 7713012-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Calcium	<0.400	50.0	50.6	101	50.7	101	75-125	0	20	mg/kg	10.13.2020 19:21	
Magnesium	<0.800	50.0	50.8	102	50.9	102	75-125	0	20	mg/kg	10.13.2020 19:21	
Sodium	<1.00	50.0	50.1	100	50.3	101	75-125	0	20	mg/kg	10.13.2020 19:21	

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
COG - High Brass 002H (6-13-20)

Analytical Method: SAR Metals by SW6010C

Seq Number: 3139650

Parent Sample Id: 674535-008

Matrix: Soil

MD Sample Id: 674535-008 D

Prep Method: SW3051

Date Prep: 10.09.2020

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Calcium	1990	2000	1	20	mg/kg	10.13.2020 21:02	
Magnesium	456	460	1	20	mg/kg	10.13.2020 21:02	
Sodium	686	698	5	20	mg/kg	10.13.2020 21:02	

Analytical Method: Electrical Conductivity (SAR)

Seq Number: 3139429

MB Sample Id: 3139429-1-BLK

Matrix: Solid

LCS Sample Id: 3139429-1-BKS

LCSD Sample Id: 3139429-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Conductivity	<10.0	1410	1420	101	1420	101	80-120	0	20	umhos/cm	10.12.2020 12:42	

Analytical Method: Electrical Conductivity (SAR)

Seq Number: 3139429

Parent Sample Id: 674519-008

Matrix: Soil

MD Sample Id: 674519-008 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Conductivity	3790	3800	0	20	umhos/cm	10.12.2020 12:42	

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



**One Concho Center/600/Illinois
Avenue/Midland, Texas
Tel (432) 683-7443**

674525

Client Name:						COG						Site Manager: Ike Tavaraz itavaraz@concho.com Robert Grubbs Jr rgrubbs@concho.com					
Project Name: High Brass 002H (6-13-20)																	
Project Location: (county, state)						Eddy County, NM						Project #:					
Invoice to: COG																	
Receiving Laboratory:						Xenoco						Sampler Signature: Robert Grubbs Jr					
Comments:																	
LAB # (USE ONLY)		SAMPLE IDENTIFICATION				SAMPLING		MATRIX		PRESERVATIVE METHOD		# CONTAINERS		FILTERED (Y/N)			
						YEAR: 2020											
						DATE		TIME		WATER							
	Background 6 1'					10/5/2020		X			X		1				
	Background 6 2'					10/5/2020		X			X		1				
	Background 6 3'					10/5/2020		X			X		1				
	Background 6 4'					10/5/2020		X			X		1				
	Background 6 5'					10/5/2020		X			X		1				
	Background 6 6'					10/5/2020		X			X		1				
	Background 6 7'					10/5/2020		X			X		1				
	Background 6 8'					10/5/2020		X			X		1				
	Background 6 9'					10/5/2020		X			X		1				
	Background 6 10'					10/5/2020		X			X		1				
Relinquished by:		Date:	Time:		Relinquished by:		Date:	Time:		Relinquished by:		Date:	Time:		LAB USE ONLY		REMARKS:
Robert Grubbs Jr		10/7/2020	11:30														
Relinquished by:		Date:	Time:		Relinquished by:		Date:	Time:		Sample Temperature							
Relinquished by:		Date:	Time:		Relinquished by:		Date:	Time:		Special Report Limits or TRRP Report							
ANALYSIS REQUEST (Circle or Specify Method No.)																	
TPH TX1005 (Ext to C35)																	
BTEX 8021B																	
TPH 8015M (GRO - DRO - MRO)																	
Chloride																	
1:10 Extract																	
Hold																	

ORIGINAL COPY

$$\frac{0.1}{0.9}$$

Inter-Office Shipment

IOS Number : **71558**

Date/Time: 10.08.2020

Created by: Jessica Kramer

Please send report to: Jessica Kramer

Lab# From: **Midland**

Delivery Priority:

Address: 1211 W. Florida Ave

Lab# To: **Houston**

Air Bill No.: 771749870846

E-Mail: jessica.kramer@xenco.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
674535-008	W	Background 6 8'	10.07.2020 10:26	E300_DISS	Dissolved Anions by EPA 300	10.13.2020	10.09.2020 10:26	JKR	CL F NO3N SO4	
674535-008	S	Background 6 8'	10.07.2020 10:26	S29B08_Twice	SAR Twice Saturated Extraction	10.13.2020	04.05.2021	JKR		
674535-008	W	Background 6 8'	10.07.2020 10:26	SM1030E	Cation-Anion Balance Calculation	10.13.2020	11.06.2020	JKR	Cation-Anion Balance	
674535-008	W	Background 6 8'	10.07.2020 10:26	SW6010B_DISS	Dissolved Metals per ICP by SW846 601	10.13.2020	04.05.2021	JKR	CA K MG NA	
674535-008	S	Background 6 8'	10.07.2020 10:26	SM2540G-MOIST	Percent Moisture by SM2540G	10.13.2020	04.05.2021	JKR	MOIST	
674535-008	S	Background 6 8'	10.07.2020 10:26	SW6010C_SAR	SAR Metals by SW6010C	10.13.2020	04.05.2021	JKR	CA MG NA	
674535-008	W	Background 6 8'	10.07.2020 10:26	SM2320B	Alkalinity by SM2320B	10.13.2020	10.21.2020	JKR	ALK	
674535-008	S	Background 6 8'	10.07.2020 10:26	SM2510B_SAR	Electrical Conductivity (SAR)	10.13.2020	11.04.2020	JKR		

Inter Office Shipment or Sample Comments:

Relinquished By:



Jessica Kramer

Date Relinquished: 10.08.2020

Received By:



Hypatia Keys

Date Received: 10.09.2020

Cooler Temperature: 2.3



Inter Office Report- Sample Receipt Checklist

Sent To: Houston

IOS #: 71558

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : hou-203

Sent By: Jessica Kramer

Date Sent: 10.08.2020 08.25 AM

Received By: Hypatia Keys

Date Received: 10.09.2020 01.51 PM

Sample Receipt Checklist

Comments

#1 *Temperature of cooler(s)?	2.3
#2 *Shipping container in good condition?	Yes
#3 *Samples received with appropriate temperature?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	Yes
#5 *Custody Seals Signed and dated for Containers/coolers	N/A
#6 *IOS present?	Yes
#7 Any missing/extra samples?	No
#8 IOS agrees with sample label(s)/matrix?	Yes
#9 Sample matrix/ properties agree with IOS?	Yes
#10 Samples in proper container/ bottle?	Yes
#11 Samples properly preserved?	Yes
#12 Sample container(s) intact?	Yes
#13 Sufficient sample amount for indicated test(s)?	Yes
#14 All samples received within hold time?	Yes

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

NonConformance:

Corrective Action Taken:

Nonconformance Documentation

Contact: _____ Contacted by : _____ Date: _____

Checklist reviewed by:

Hypatia Keys

Date: 10.09.2020

Eurofins Xenco, LLC

Prelogin/Nonconformance Report- Sample Log-In

Client: COG Operating, LLC

Date/ Time Received: 10.07.2020 12.50.17 PM

Work Order #: 674535

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : IR-8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	.6
#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)?	Yes Xenco Stafford
#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: 10.08.2020

Checklist reviewed by:



Jessica Kramer

Date: 10.08.2020

Certificate of Analysis Summary 674799

COG Operating LLC, Artesia, NM

Project Name: COG-High Brass

Project Id: COG - High Brass

Contact: Ike Tavaréz

Project Location:

Date Received in Lab: Fri 10.09.2020 13:20

Report Date: 10.16.2020 14:32

Project Manager: Jessica Kramer

Analysis Requested	Lab Id: 674799-001 Field Id: M-West Bottom Hole 4' Depth: Matrix: SOIL Sampled: 10.05.2020 00:00	Lab Id: 674799-002 Field Id: M-East Bottom Hole 4' Depth: Matrix: SOIL Sampled: 10.05.2020 00:00	Lab Id: 674799-003 Field Id: 2 Track-North Bottom Ho Depth: Matrix: SOIL Sampled: 10.05.2020 00:00	Lab Id: 674799-004 Field Id: 2 Track-South Bottom Ho Depth: Matrix: SOIL Sampled: 10.05.2020 00:00		
Alkalinity by SM2320B SUB: T104704215-20-38	Extracted: 10.15.2020 09:08 Analyzed: 10.15.2020 11:06 Units/RL: mg/L RL	Extracted: 10.15.2020 09:08 Analyzed: 10.15.2020 11:12 Units/RL: mg/L RL	Extracted: 10.15.2020 09:08 Analyzed: 10.15.2020 11:18 Units/RL: mg/L RL	Extracted: 10.15.2020 09:08 Analyzed: 10.15.2020 11:23 Units/RL: mg/L RL		
Alkalinity, Total (CaCO ₃)	31.7 4.00	35.9 4.00	35.3 4.00	39.1 4.00		
Cation-Anion Balance Calculation SUB: T104704215-20-38	Extracted: Analyzed: 10.16.2020 13:38 Units/RL: % RL	Extracted: Analyzed: 10.16.2020 13:38 Units/RL: % RL	Extracted: Analyzed: 10.16.2020 13:38 Units/RL: % RL	Extracted: Analyzed: 10.16.2020 13:38 Units/RL: % RL		
Cation-Anion Balance	4.30	4.00	3.20	5.80		
Dissolved Anions by EPA 300 SUB: T104704215-20-38	Extracted: 10.14.2020 12:15 Analyzed: 10.15.2020 02:48 Units/RL: mg/L RL	Extracted: 10.14.2020 12:15 Analyzed: 10.15.2020 03:22 Units/RL: mg/L RL	Extracted: 10.14.2020 12:15 Analyzed: 10.15.2020 03:55 Units/RL: mg/L RL	Extracted: 10.14.2020 12:15 Analyzed: 10.15.2020 04:07 Units/RL: mg/L RL		
Chloride	1310 X 5.00	2140 5.00	897 5.00	759 5.00		
Fluoride	14.0 K 5.00	14.6 K 5.00	15.2 K 5.00	11.7 K 5.00		
Nitrate as N	2.32 K 1.00	12.4 K 1.00	33.7 K 1.00	9.79 K 1.00		
Sulfate	12900 DX 100	11100 D 100	13700 D 100	14900 D 100		
Dissolved Metals per ICP by SW846 6010B SUB: T104704215-20-38	Extracted: 10.15.2020 09:30 Analyzed: 10.15.2020 21:34 Units/RL: mg/L RL	Extracted: 10.15.2020 09:30 Analyzed: 10.15.2020 21:38 Units/RL: mg/L RL	Extracted: 10.15.2020 09:30 Analyzed: 10.15.2020 21:42 Units/RL: mg/L RL	Extracted: 10.15.2020 09:30 Analyzed: 10.15.2020 21:47 Units/RL: mg/L RL		
Calcium	3710 D 100	3710 D 100	4350 D 100	4730 D 100		
Magnesium	794 4.00	490 4.00	427 4.00	396 4.00		
Potassium	45.1 5.00	47.3 5.00	49.1 5.00	62.4 5.00		
Sodium	695 5.00	1030 5.00	941 5.00	627 5.00		

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico



Certificate of Analysis Summary 674799

COG Operating LLC, Artesia, NM

Project Name: COG-High Brass

Project Id: COG - High Brass

Contact: Ike Tavaréz

Project Location:

Date Received in Lab: Fri 10.09.2020 13:20

Report Date: 10.16.2020 14:32

Project Manager: Jessica Kramer

Analysis Requested	Lab Id: 674799-001 Field Id: M-West Bottom Hole 4' Depth: Matrix: SOIL Sampled: 10.05.2020 00:00	Lab Id: 674799-002 Field Id: M-East Bottom Hole 4' Depth: Matrix: SOIL Sampled: 10.05.2020 00:00	Lab Id: 674799-003 Field Id: 2 Track-North Bottom Ho Depth: Matrix: SOIL Sampled: 10.05.2020 00:00	Lab Id: 674799-004 Field Id: 2 Track-South Bottom Ho Depth: Matrix: SOIL Sampled: 10.05.2020 00:00		
Electrical Conductivity (SAR) SUB: T104704215-20-38	Extracted: Analyzed: 10.15.2020 11:41 Units/RL: umhos/cm RL	Extracted: Analyzed: 10.15.2020 11:41 Units/RL: umhos/cm RL	Extracted: Analyzed: 10.15.2020 11:41 Units/RL: umhos/cm RL	Extracted: Analyzed: 10.15.2020 11:41 Units/RL: umhos/cm RL		
Conductivity	5650 10.0	6720 10.0	4880 10.0	4120 10.0		
Percent Moisture by SM2540G SUB: T104704215-20-38	Extracted: Analyzed: 10.13.2020 15:13 Units/RL: % RL	Extracted: Analyzed: 10.13.2020 15:13 Units/RL: % RL	Extracted: Analyzed: 10.13.2020 15:13 Units/RL: % RL	Extracted: Analyzed: 10.13.2020 15:13 Units/RL: % RL		
Percent Moisture	5.12	4.06	9.68	9.57		
SAR Metals by SW6010C SUB: T104704215-20-38	Extracted: 10.14.2020 13:52 Analyzed: 10.16.2020 00:30 Units/RL: mg/kg RL	Extracted: 10.14.2020 13:52 Analyzed: 10.16.2020 00:38 Units/RL: mg/kg RL	Extracted: 10.14.2020 13:52 Analyzed: 10.16.2020 01:03 Units/RL: mg/kg RL	Extracted: 10.14.2020 13:52 Analyzed: 10.16.2020 01:07 Units/RL: mg/kg RL		
Calcium	1310 D 20.0	1500 D 20.0	1260 D 20.0	1270 D 20.0		
Magnesium	513 D 40.0	273 D 40.0	197 D 40.0	145 0.800		
Sodium	621 D 50.0	912 D 50.0	703 D 50.0	435 D 50.0		
SAR Twice Saturated Extraction SUB: T104704215-20-38	Extracted: Analyzed: 10.16.2020 13:41 Units/RL:	Extracted: Analyzed: 10.16.2020 13:41 Units/RL:	Extracted: Analyzed: 10.16.2020 13:41 Units/RL:	Extracted: Analyzed: 10.16.2020 13:41 Units/RL:		
Sodium Adsorption Ratio	3.68	5.69	4.86	3.08		

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico



Analytical Report 674799

for

COG Operating LLC

Project Manager: Ike Tavaréz

COG-High Brass

COG - High Brass

10.16.2020

Collected By: Client



1211 W. Florida Ave
Midland TX 79701

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-38), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2020-014), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-20-26), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-18)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-23)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-21)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-20-8)
Xenco-Tampa: Florida (E87429), North Carolina (483)



10.16.2020

Project Manager: **Ike Tavaréz**

COG Operating LLC

2407 Pecos Avenue

Artesia, NM 88210

Reference: Eurofins Xenco, LLC Report No(s): **674799**

COG-High Brass

Project Address:

Ike Tavaréz:

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 Eurofins Xenco, LLC Report Number(s) 674799. 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 Eurofins Xenco, LLC. 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. 674799 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 Eurofins Xenco, LLC to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

A handwritten signature in black ink that reads "Jessica Kramer".

Jessica Kramer

Project Manager

A Small Business and Minority Company

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

**Sample Cross Reference 674799****COG Operating LLC, Artesia, NM**

COG-High Brass

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
M-West Bottom Hole 4'	S	10.05.2020 00:00		674799-001
M-East Bottom Hole 4'	S	10.05.2020 00:00		674799-002
2 Track-North Bottom Hole 4'	S	10.05.2020 00:00		674799-003
2 Track-South Bottom Hole 4'	S	10.05.2020 00:00		674799-004



CASE NARRATIVE

Client Name: COG Operating LLC

Project Name: COG-High Brass

Project ID: COG - High Brass
Work Order Number(s): 674799

Report Date: 10.16.2020
Date Received: 10.09.2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3139776 Dissolved Anions by EPA 300

Lab Sample ID 674987-001 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride 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: 674799-001, -002, -003, -004.

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



Certificate of Analytical Results 674799

COG Operating LLC, Artesia, NM

COG-High Brass

Sample Id: **M-West Bottom Hole 4'**

Matrix: Soil

Date Received: 10.09.2020 13:20

Lab Sample Id: 674799-001

Date Collected: 10.05.2020 00:00

Analytical Method: SAR Metals by SW6010C

Prep Method: SW3051

Tech: MLI

Analyst: DEP

Date Prep: 10.14.2020 13:52

% Moisture:

Basis: Wet Weight

Seq Number: 3139849

SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Calcium	7440-70-2	1310	20.0	mg/kg	10.16.2020 00:42	D	50
Magnesium	7439-95-4	513	40.0	mg/kg	10.16.2020 00:42	D	50
Sodium	7440-23-5	621	50.0	mg/kg	10.16.2020 00:42	D	50

Analytical Method: Electrical Conductivity (SAR)

Tech: KBU

Analyst: KBU

Seq Number: 3139770

% Moisture:

Basis: Wet Weight

SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Conductivity	COND	5650	10.0	umhos/cm	10.15.2020 11:41		1

Analytical Method: SAR Twice Saturated Extraction

Tech: DEP

Analyst: DEP

Seq Number: 3139852

% Moisture:

Basis: Wet Weight

SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Sodium Adsorption Ratio		3.68			10.16.2020 13:41		1



Certificate of Analytical Results 674799

COG Operating LLC, Artesia, NM

COG-High Brass

Sample Id: **M-West Bottom Hole 4'** Matrix: Soil Date Received: 10.09.2020 13:20
 Lab Sample Id: 674799-001 Date Collected: 10.05.2020 00:00

Analytical Method: Alkalinity by SM2320B Prep Method: SM2320P
 Tech: KBU
 Analyst: KBU Date Prep: 10.15.2020 09:08 % Moisture:
 Seq Number: 3139764 SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Alkalinity, Total (CaCO3)	1640192	31.7	4.00	mg/L	10.15.2020 11:06		1

Analytical Method: Cation-Anion Balance Calculation

Tech: ALA
 Analyst: ALA % Moisture:
 Seq Number: 3139851 SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Cation-Anion Balance	CATANBAL	4.30		%	10.16.2020 13:38		1

Analytical Method: Dissolved Anions by EPA 300

Tech: JYM Prep Method: E300P
 Analyst: JYM Date Prep: 10.14.2020 12:15 % Moisture:
 Seq Number: 3139776 SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1310	5.00	mg/L	10.15.2020 02:48	X	1
Fluoride	16984-48-8	14.0	5.00	mg/L	10.15.2020 02:48	K	1
Nitrate as N	14797-55-8	2.32	1.00	mg/L	10.15.2020 02:48	K	1
Sulfate	14808-79-8	12900	100	mg/L	10.15.2020 16:05	DX	20

Analytical Method: Dissolved Metals per ICP by SW846 6010B

Tech: MLI Prep Method: SW3010A
 Analyst: DEP Date Prep: 10.15.2020 09:30 % Moisture:
 Seq Number: 3139845 SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Calcium	7440-70-2	3710	100	mg/L	10.15.2020 21:51	D	500
Magnesium	7439-95-4	794	4.00	mg/L	10.15.2020 21:34		10
Potassium	7440-09-7	45.1	5.00	mg/L	10.15.2020 21:34		10
Sodium	7440-23-5	695	5.00	mg/L	10.15.2020 21:34		10



Certificate of Analytical Results 674799

COG Operating LLC, Artesia, NM

COG-High Brass

Sample Id: **M-East Bottom Hole 4'**

Matrix: Soil

Date Received: 10.09.2020 13:20

Lab Sample Id: 674799-002

Date Collected: 10.05.2020 00:00

Analytical Method: SAR Metals by SW6010C

Prep Method: SW3051

Tech: MLI

Analyst: DEP

Date Prep: 10.14.2020 13:52

% Moisture:

Basis: Wet Weight

Seq Number: 3139849

SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Calcium	7440-70-2	1500	20.0	mg/kg	10.16.2020 00:50	D	50
Magnesium	7439-95-4	273	40.0	mg/kg	10.16.2020 00:50	D	50
Sodium	7440-23-5	912	50.0	mg/kg	10.16.2020 00:50	D	50

Analytical Method: Electrical Conductivity (SAR)

Tech: KBU

Analyst: KBU

Seq Number: 3139770

% Moisture:

Basis: Wet Weight

SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Conductivity	COND	6720	10.0	umhos/cm	10.15.2020 11:41		1

Analytical Method: SAR Twice Saturated Extraction

Tech: DEP

Analyst: DEP

Seq Number: 3139852

% Moisture:

Basis: Wet Weight

SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Sodium Adsorption Ratio		5.69			10.16.2020 13:41		1



Certificate of Analytical Results 674799

COG Operating LLC, Artesia, NM

COG-High Brass

Sample Id: **M-East Bottom Hole 4'**

Matrix: Soil

Date Received: 10.09.2020 13:20

Lab Sample Id: 674799-002

Date Collected: 10.05.2020 00:00

Analytical Method: Alkalinity by SM2320B

Prep Method: SM2320P

Tech: KBU

Analyst: KBU

Date Prep: 10.15.2020 09:08

% Moisture:
SUB: T104704215-20-38

Seq Number: 3139764

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Alkalinity, Total (CaCO ₃)	1640192	35.9	4.00	mg/L	10.15.2020 11:12		1

Analytical Method: Cation-Anion Balance Calculation

Tech: ALA

Analyst: ALA

% Moisture:
SUB: T104704215-20-38

Seq Number: 3139851

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Cation-Anion Balance	CATANBAL	4.00		%	10.16.2020 13:38		1

Analytical Method: Dissolved Anions by EPA 300

Prep Method: E300P

Tech: JYM

Analyst: JYM

Date Prep: 10.14.2020 12:15

% Moisture:
SUB: T104704215-20-38

Seq Number: 3139776

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	2140	5.00	mg/L	10.15.2020 03:22		1
Fluoride	16984-48-8	14.6	5.00	mg/L	10.15.2020 03:22	K	1
Nitrate as N	14797-55-8	12.4	1.00	mg/L	10.15.2020 03:22	K	1
Sulfate	14808-79-8	11100	100	mg/L	10.15.2020 16:38	D	20

Analytical Method: Dissolved Metals per ICP by SW846 6010B

Prep Method: SW3010A

Tech: MLI

Analyst: DEP

Date Prep: 10.15.2020 09:30

% Moisture:
SUB: T104704215-20-38

Seq Number: 3139845

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Calcium	7440-70-2	3710	100	mg/L	10.15.2020 21:55	D	500
Magnesium	7439-95-4	490	4.00	mg/L	10.15.2020 21:38		10
Potassium	7440-09-7	47.3	5.00	mg/L	10.15.2020 21:38		10
Sodium	7440-23-5	1030	5.00	mg/L	10.15.2020 21:38		10



Certificate of Analytical Results 674799

COG Operating LLC, Artesia, NM

COG-High Brass

Sample Id: **2 Track-North Bottom Hole 4'**

Matrix: Soil

Date Received: 10.09.2020 13:20

Lab Sample Id: 674799-003

Date Collected: 10.05.2020 00:00

Analytical Method: SAR Metals by SW6010C

Prep Method: SW3051

Tech: MLI

Analyst: DEP

Date Prep: 10.14.2020 13:52

% Moisture:

Basis: Wet Weight

Seq Number: 3139849

SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Calcium	7440-70-2	1260	20.0	mg/kg	10.16.2020 01:24	D	50
Magnesium	7439-95-4	197	40.0	mg/kg	10.16.2020 01:24	D	50
Sodium	7440-23-5	703	50.0	mg/kg	10.16.2020 01:24	D	50

Analytical Method: Electrical Conductivity (SAR)

Tech: KBU

Analyst: KBU

Seq Number: 3139770

% Moisture:

Basis: Wet Weight

SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Conductivity	COND	4880	10.0	umhos/cm	10.15.2020 11:41		1

Analytical Method: SAR Twice Saturated Extraction

Tech: DEP

Analyst: DEP

Seq Number: 3139852

% Moisture:

Basis: Wet Weight

SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Sodium Adsorption Ratio		4.86			10.16.2020 13:41		1



Certificate of Analytical Results 674799

COG Operating LLC, Artesia, NM

COG-High Brass

Sample Id: **2 Track-North Bottom Hole 4'** Matrix: Soil Date Received: 10.09.2020 13:20
 Lab Sample Id: 674799-003 Date Collected: 10.05.2020 00:00

Analytical Method: Alkalinity by SM2320B Prep Method: SM2320P
 Tech: KBU
 Analyst: KBU Date Prep: 10.15.2020 09:08 % Moisture:
 Seq Number: 3139764 SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Alkalinity, Total (CaCO ₃)	1640192	35.3	4.00	mg/L	10.15.2020 11:18		1

Analytical Method: Cation-Anion Balance Calculation

Tech: ALA
 Analyst: ALA % Moisture:
 Seq Number: 3139851 SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Cation-Anion Balance	CATANBAL	3.20		%	10.16.2020 13:38		1

Analytical Method: Dissolved Anions by EPA 300

Tech: JYM Prep Method: E300P
 Analyst: JYM Date Prep: 10.14.2020 12:15 % Moisture:
 Seq Number: 3139776 SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	897	5.00	mg/L	10.15.2020 03:55		1
Fluoride	16984-48-8	15.2	5.00	mg/L	10.15.2020 03:55	K	1
Nitrate as N	14797-55-8	33.7	1.00	mg/L	10.15.2020 03:55	K	1
Sulfate	14808-79-8	13700	100	mg/L	10.15.2020 16:49	D	20

Analytical Method: Dissolved Metals per ICP by SW846 6010B

Tech: MLI Prep Method: SW3010A
 Analyst: DEP Date Prep: 10.15.2020 09:30 % Moisture:
 Seq Number: 3139845 SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Calcium	7440-70-2	4350	100	mg/L	10.15.2020 21:59	D	500
Magnesium	7439-95-4	427	4.00	mg/L	10.15.2020 21:42		10
Potassium	7440-09-7	49.1	5.00	mg/L	10.15.2020 21:42		10
Sodium	7440-23-5	941	5.00	mg/L	10.15.2020 21:42		10



Certificate of Analytical Results 674799

COG Operating LLC, Artesia, NM

COG-High Brass

Sample Id: 2 Track-South Bottom Hole 4'

Matrix: Soil

Date Received: 10.09.2020 13:20

Lab Sample Id: 674799-004

Date Collected: 10.05.2020 00:00

Analytical Method: SAR Metals by SW6010C

Prep Method: SW3051

Tech: MLI

Analyst: DEP

Date Prep: 10.14.2020 13:52

% Moisture:

Basis: Wet Weight

Seq Number: 3139849

SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Calcium	7440-70-2	1270	20.0	mg/kg	10.16.2020 01:28	D	50
Magnesium	7439-95-4	145	0.800	mg/kg	10.16.2020 01:07		1
Sodium	7440-23-5	435	50.0	mg/kg	10.16.2020 01:28	D	50

Analytical Method: Electrical Conductivity (SAR)

Tech: KBU

Analyst: KBU

Seq Number: 3139770

% Moisture:

Basis: Wet Weight

SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Conductivity	COND	4120	10.0	umhos/cm	10.15.2020 11:41		1

Analytical Method: SAR Twice Saturated Extraction

Tech: DEP

Analyst: DEP

Seq Number: 3139852

% Moisture:

Basis: Wet Weight

SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Sodium Adsorption Ratio		3.08			10.16.2020 13:41		1



Certificate of Analytical Results 674799

COG Operating LLC, Artesia, NM

COG-High Brass

Sample Id: **2 Track-South Bottom Hole 4'** Matrix: Soil Date Received: 10.09.2020 13:20
 Lab Sample Id: 674799-004 Date Collected: 10.05.2020 00:00

Analytical Method: Alkalinity by SM2320B Prep Method: SM2320P
 Tech: KBU
 Analyst: KBU Date Prep: 10.15.2020 09:08 % Moisture:
 Seq Number: 3139764 SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Alkalinity, Total (CaCO3)	1640192	39.1	4.00	mg/L	10.15.2020 11:23		1

Analytical Method: Cation-Anion Balance Calculation

Tech: ALA
 Analyst: ALA % Moisture:
 Seq Number: 3139851 SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Cation-Anion Balance	CATANBAL	5.80		%	10.16.2020 13:38		1

Analytical Method: Dissolved Anions by EPA 300

Tech: JYM Prep Method: E300P
 Analyst: JYM Date Prep: 10.14.2020 12:15 % Moisture:
 Seq Number: 3139776 SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	759	5.00	mg/L	10.15.2020 04:07		1
Fluoride	16984-48-8	11.7	5.00	mg/L	10.15.2020 04:07	K	1
Nitrate as N	14797-55-8	9.79	1.00	mg/L	10.15.2020 04:07	K	1
Sulfate	14808-79-8	14900	100	mg/L	10.15.2020 17:00	D	20

Analytical Method: Dissolved Metals per ICP by SW846 6010B

Tech: MLI Prep Method: SW3010A
 Analyst: DEP Date Prep: 10.15.2020 09:30 % Moisture:
 Seq Number: 3139845 SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Calcium	7440-70-2	4730	100	mg/L	10.15.2020 22:03	D	500
Magnesium	7439-95-4	396	4.00	mg/L	10.15.2020 21:47		10
Potassium	7440-09-7	62.4	5.00	mg/L	10.15.2020 21:47		10
Sodium	7440-23-5	627	5.00	mg/L	10.15.2020 21:47		10

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. **ND** Not Detected.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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



COG Operating LLC

COG-High Brass

Analytical Method: Alkalinity by SM2320B

Seq Number: 3139764

MB Sample Id: 7713283-1-BLK

Matrix: Water

LCS Sample Id: 7713283-1-BKS

Prep Method: SM2320P

Date Prep: 10.15.2020

LCSD Sample Id: 7713283-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Alkalinity, Total (CaCO ₃)	<4.00	250	262	105	263	105	85-115	0	20	mg/L	10.15.2020 10:53	

Analytical Method: Alkalinity by SM2320B

Seq Number: 3139764

Parent Sample Id: 674847-002

Matrix: Ground Water

MD Sample Id: 674847-002 D

Prep Method: SM2320P

Date Prep: 10.15.2020

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Alkalinity, Total (CaCO ₃)	143	143	0	20	mg/L	10.15.2020 11:34	

Analytical Method: Alkalinity by SM2320B

Seq Number: 3139764

Parent Sample Id: 674987-004

Matrix: Water

MD Sample Id: 674987-004 D

Prep Method: SM2320P

Date Prep: 10.15.2020

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Alkalinity, Total (CaCO ₃)	124	123	1	20	mg/L	10.15.2020 12:28	

Analytical Method: Dissolved Anions by EPA 300

Seq Number: 3139776

MB Sample Id: 7713232-1-BLK

Matrix: Water

LCS Sample Id: 7713232-1-BKS

Prep Method: E300P

Date Prep: 10.14.2020

LCSD Sample Id: 7713232-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.500	10.0	10.2	102	10.2	102	90-110	0	20	mg/L	10.14.2020 23:37	
Fluoride	<0.500	10.0	10.5	105	10.4	104	90-110	1	20	mg/L	10.14.2020 23:37	
Nitrate as N	<0.100	10.0	10.2	102	10.2	102	90-110	0	20	mg/L	10.14.2020 23:37	
Sulfate	<0.500	10.0	10.9	109	11.0	110	90-110	1	20	mg/L	10.14.2020 23:37	

Analytical Method: Dissolved Anions by EPA 300

Seq Number: 3139776

Parent Sample Id: 674799-001

Matrix: Soil

MS Sample Id: 674799-001 S

Prep Method: E300P

Date Prep: 10.14.2020

MSD Sample Id: 674799-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	1310	100	1390	80	1390	80	90-110	0	20	mg/L	10.15.2020 02:59	X
Fluoride	14.0	100	106	92	106	92	90-110	0	20	mg/L	10.15.2020 02:59	
Nitrate as N	2.32	100	103	101	103	101	90-110	0	20	mg/L	10.15.2020 02:59	

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

COG-High Brass

Analytical Method: Dissolved Anions by EPA 300

Seq Number: 3139776

Matrix: Water

Prep Method: E300P

Date Prep: 10.14.2020

Parent Sample Id: 674987-001

MS Sample Id: 674987-001 S

MSD Sample Id: 674987-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	30.2	10.0	39.1	89	39.1	89	90-110	0	20	mg/L	10.15.2020 00:10	X
Fluoride	<0.500	10.0	10.6	106	10.6	106	90-110	0	20	mg/L	10.15.2020 00:10	
Nitrate as N	0.122	10.0	10.2	101	10.1	100	90-110	1	20	mg/L	10.15.2020 00:10	
Sulfate	19.8	10.0	31.7	119	32.8	130	90-110	3	20	mg/L	10.15.2020 00:10	X

Analytical Method: Percent Moisture by SM2540G

Seq Number: 3139571

Matrix: Solid

MB Sample Id: 3139571-1-BLK

Parameter	MB Result	Units	Analysis Date	Flag
Percent Moisture	0.0300	%	10.13.2020 15:13	

Analytical Method: Percent Moisture by SM2540G

Seq Number: 3139571

Matrix: Soil

Parent Sample Id: 674782-001

MD Sample Id: 674782-001 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Percent Moisture	22.2	22.1	0	10	%	10.13.2020 15:13	

Analytical Method: Percent Moisture by SM2540G

Seq Number: 3139571

Matrix: Soil

Parent Sample Id: 674799-003

MD Sample Id: 674799-003 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Percent Moisture	9.68	8.93	8	10	%	10.13.2020 15:13	

Analytical Method: Dissolved Metals per ICP by SW846 6010B

Seq Number: 3139845

Matrix: Water

Prep Method: SW3010A

Date Prep: 10.15.2020

MB Sample Id: 7713311-1-BLK

LCS Sample Id: 7713311-1-BKS

LCSD Sample Id: 7713311-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Calcium	<0.200	25.0	24.3	97	23.9	96	75-125	2	20	mg/L	10.15.2020 20:57	
Magnesium	<0.400	25.0	24.5	98	23.9	96	75-125	2	20	mg/L	10.15.2020 20:57	
Potassium	<0.500	10.0	9.71	97	9.75	98	75-125	0	20	mg/L	10.15.2020 20:57	
Sodium	<0.500	25.0	23.8	95	24.0	96	75-125	1	20	mg/L	10.15.2020 20:57	

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

COG-High Brass

Analytical Method: Dissolved Metals per ICP by SW846 6010B

Seq Number: 3139845

Matrix: Water

Prep Method: SW3010A

Date Prep: 10.15.2020

Parent Sample Id: 674876-001

MS Sample Id: 674876-001 S

MSD Sample Id: 674876-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Calcium	78.0	25.0	105	108	103	100	75-125	2	20	mg/L	10.15.2020 21:09	
Magnesium	63.6	25.0	90.9	109	88.7	100	75-125	2	20	mg/L	10.15.2020 21:09	
Potassium	13.2	10.0	23.8	106	23.7	105	75-125	0	20	mg/L	10.15.2020 21:09	
Sodium	71.7	25.0	97.8	104	97.9	105	75-125	0	20	mg/L	10.15.2020 21:09	

Analytical Method: SAR Metals by SW6010C

Seq Number: 3139849

Matrix: Solid

Prep Method: SW3051

Date Prep: 10.14.2020

MB Sample Id: 7713314-1-BLK

LCS Sample Id: 7713314-1-BKS

LCSD Sample Id: 7713314-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Calcium	<0.200	25.0	24.0	96	23.9	96	75-125	0	20	mg/kg	10.16.2020 00:21	
Magnesium	<0.400	25.0	24.1	96	24.0	96	75-125	0	20	mg/kg	10.16.2020 00:21	
Sodium	<0.500	25.0	24.0	96	24.1	96	75-125	0	20	mg/kg	10.16.2020 00:21	

Analytical Method: SAR Metals by SW6010C

Seq Number: 3139849

Matrix: Soil

Prep Method: SW3051

Date Prep: 10.14.2020

Parent Sample Id: 674799-001

MD Sample Id: 674799-001 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Calcium	1310	1290	2	20	mg/kg	10.16.2020 00:46	
Magnesium	531	507	1	20	mg/kg	10.16.2020 00:46	
Sodium	621	596	4	20	mg/kg	10.16.2020 00:46	

Analytical Method: Electrical Conductivity (SAR)

Seq Number: 3139770

Matrix: Solid

MB Sample Id: 3139770-1-BLK

LCS Sample Id: 3139770-1-BKS

LCSD Sample Id: 3139770-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Conductivity	<10.0	1410	1430	101	1420	101	80-120	1	20	umhos/cm	10.15.2020 11:41	

Analytical Method: Electrical Conductivity (SAR)

Seq Number: 3139770

Matrix: Soil

Parent Sample Id: 674799-001

MD Sample Id: 674799-001 D

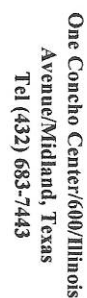
Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Conductivity	5650	5680	1	20	umhos/cm	10.15.2020 11:41	

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



674799

ORIGINAL COPY

Inter-Office Shipment

IOS Number : **71684**

Date/Time: 10.12.2020

Created by: Jessica Kramer

Please send report to: Jessica Kramer

Lab# From: **Midland**

Delivery Priority:

Address: 1211 W. Florida Ave

Lab# To: **Houston**

Air Bill No.:

E-Mail: jessica.kramer@xenco.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
674799-001	S	M-West Bottom Hole 4'	10.05.2020 00:00	S29B08_Twice	SAR Twice Saturated Extraction	10.15.2020	07.19.2035	JKR		
674799-001	W	M-West Bottom Hole 4'	10.05.2020 00:00	E300_DISS	Dissolved Anions by EPA 300	10.15.2020	10.07.2020 00:00	JKR	CL F NO3N SO4	
674799-001	W	M-West Bottom Hole 4'	10.05.2020 00:00	SW6010B_DISS	Dissolved Metals per ICP by SW846 601	10.15.2020	04.03.2021	JKR	CA K MG NA	
674799-001	W	M-West Bottom Hole 4'	10.05.2020 00:00	SM1030E	Cation-Anion Balance Calculation	10.15.2020	11.04.2020	JKR	Cation-Anion Balance	
674799-001	W	M-West Bottom Hole 4'	10.05.2020 00:00	SM2320B	Alkalinity by SM2320B	10.15.2020	10.19.2020	JKR	ALK	
674799-001	S	M-West Bottom Hole 4'	10.05.2020 00:00	SM2540G-MOIST	Percent Moisture by SM2540G	10.15.2020	04.03.2021	JKR	MOIST	
674799-001	S	M-West Bottom Hole 4'	10.05.2020 00:00	SW6010C_SAR	SAR Metals by SW6010C	10.15.2020	04.03.2021	JKR	CA MG NA	
674799-001	S	M-West Bottom Hole 4'	10.05.2020 00:00	SM2510B_SAR	Electrical Conductivity (SAR)	10.15.2020	11.02.2020	JKR		
674799-002	W	M-East Bottom Hole 4'	10.05.2020 00:00	SM1030E	Cation-Anion Balance Calculation	10.15.2020	11.04.2020	JKR	Cation-Anion Balance	
674799-002	S	M-East Bottom Hole 4'	10.05.2020 00:00	SW6010C_SAR	SAR Metals by SW6010C	10.15.2020	04.03.2021	JKR	CA MG NA	
674799-002	W	M-East Bottom Hole 4'	10.05.2020 00:00	SW6010B_DISS	Dissolved Metals per ICP by SW846 601	10.15.2020	04.03.2021	JKR	CA K MG NA	
674799-002	S	M-East Bottom Hole 4'	10.05.2020 00:00	S29B08_Twice	SAR Twice Saturated Extraction	10.15.2020	07.19.2035	JKR		
674799-002	S	M-East Bottom Hole 4'	10.05.2020 00:00	SM2540G-MOIST	Percent Moisture by SM2540G	10.15.2020	04.03.2021	JKR	MOIST	
674799-002	W	M-East Bottom Hole 4'	10.05.2020 00:00	SM2320B	Alkalinity by SM2320B	10.15.2020	10.19.2020	JKR	ALK	
674799-002	S	M-East Bottom Hole 4'	10.05.2020 00:00	SM2510B_SAR	Electrical Conductivity (SAR)	10.15.2020	11.02.2020	JKR		
674799-002	W	M-East Bottom Hole 4'	10.05.2020 00:00	E300_DISS	Dissolved Anions by EPA 300	10.15.2020	10.07.2020 00:00	JKR	CL F NO3N SO4	
674799-003	W	2 Track-North Bottom H	10.05.2020 00:00	SM1030E	Cation-Anion Balance Calculation	10.15.2020	11.04.2020	JKR	Cation-Anion Balance	
674799-003	W	2 Track-North Bottom H	10.05.2020 00:00	SM2320B	Alkalinity by SM2320B	10.15.2020	10.19.2020	JKR	ALK	
674799-003	W	2 Track-North Bottom H	10.05.2020 00:00	E300_DISS	Dissolved Anions by EPA 300	10.15.2020	10.07.2020 00:00	JKR	CL F NO3N SO4	
674799-003	S	2 Track-North Bottom H	10.05.2020 00:00	SM2540G-MOIST	Percent Moisture by SM2540G	10.15.2020	04.03.2021	JKR	MOIST	
674799-003	S	2 Track-North Bottom H	10.05.2020 00:00	SM2510B_SAR	Electrical Conductivity (SAR)	10.15.2020	11.02.2020	JKR		
674799-003	W	2 Track-North Bottom H	10.05.2020 00:00	SW6010B_DISS	Dissolved Metals per ICP by SW846 601	10.15.2020	04.03.2021	JKR	CA K MG NA	
674799-003	S	2 Track-North Bottom H	10.05.2020 00:00	SW6010C_SAR	SAR Metals by SW6010C	10.15.2020	04.03.2021	JKR	CA MG NA	
674799-003	S	2 Track-North Bottom H	10.05.2020 00:00	S29B08_Twice	SAR Twice Saturated Extraction	10.15.2020	07.19.2035	JKR		
674799-004	W	2 Track-South Bottom H	10.05.2020 00:00	SM2320B	Alkalinity by SM2320B	10.15.2020	10.19.2020	JKR	ALK	

Inter-Office Shipment

IOS Number : **71684**

Date/Time: 10.12.2020

Created by: Jessica Kramer

Please send report to: Jessica Kramer

Lab# From: **Midland**

Delivery Priority:

Address: 1211 W. Florida Ave

Lab# To: **Houston**

Air Bill No.:

E-Mail: jessica.kramer@xenco.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
674799-004	W	2 Track-South Bottom H	10.05.2020 00:00	SW6010B_DISS	Dissolved Metals per ICP by SW846 601	10.15.2020	04.03.2021	JKR	CA K MG NA	
674799-004	W	2 Track-South Bottom H	10.05.2020 00:00	E300_DISS	Dissolved Anions by EPA 300	10.15.2020	10.07.2020 00:00	JKR	CL F NO3N SO4	
674799-004	S	2 Track-South Bottom H	10.05.2020 00:00	SW6010C_SAR	SAR Metals by SW6010C	10.15.2020	04.03.2021	JKR	CA MG NA	
674799-004	S	2 Track-South Bottom H	10.05.2020 00:00	SM2540G-MOIST	Percent Moisture by SM2540G	10.15.2020	04.03.2021	JKR	MOIST	
674799-004	S	2 Track-South Bottom H	10.05.2020 00:00	SM2510B_SAR	Electrical Conductivity (SAR)	10.15.2020	11.02.2020	JKR		
674799-004	S	2 Track-South Bottom H	10.05.2020 00:00	S29B08_Twice	SAR Twice Saturated Extraction	10.15.2020	07.19.2035	JKR		
674799-004	W	2 Track-South Bottom H	10.05.2020 00:00	SM1030E	Cation-Anion Balance Calculation	10.15.2020	11.04.2020	JKR	Cation-Anion Balance	

Inter Office Shipment or Sample Comments:

Relinquished By:



Jessica Kramer

Date Relinquished: 10.12.2020

Received By: _____

Date Received: _____

Cooler Temperature: _____

Eurofins Xenco, LLC

Prelogin/Nonconformance Report- Sample Log-In

Client: COG Operating LLC

Date/ Time Received: 10.09.2020 01.20.11 PM

Work Order #: 674799

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : IR8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	21.6
#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)?	Yes Xenco Stafford
#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: 10.12.2020

Checklist reviewed by:



Jessica Kramer

Date: 10.12.2020

Certificate of Analysis Summary 675016



COG Operating LLC, Artesia, NM

Project Name: COG - High Brass

Project Id: COG - High Brass

Date Received in Lab: Tue 10.13.2020 15:34

Contact: Ike Tavaréz

Report Date: 10.14.2020 13:52

Project Location:

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	675016-001	675016-002	675016-003	675016-004	675016-005	675016-006
	<i>Field Id:</i>	M-West Bottom Hole 4'	M-West Bottom Hole 6'	M-West Bottom Hole 8'	M-West Bottom Hole 10'	M-South Bottom Hole 4'	M-South Bottom Hole 6'
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	10.12.2020 00:00	10.12.2020 00:00	10.12.2020 00:00	10.12.2020 00:00	10.12.2020 00:00	10.12.2020 00:00
Chloride by EPA 300	<i>Extracted:</i>	10.13.2020 17:00	10.13.2020 17:00	10.13.2020 17:00	10.13.2020 17:00	10.13.2020 17:00	10.13.2020 17:00
	<i>Analyzed:</i>	10.13.2020 19:45	10.13.2020 20:04	10.13.2020 20:11	10.13.2020 20:17	10.14.2020 09:54	10.13.2020 20:42
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		725 X 50.4	1410 49.6	1300 25.0	1260 49.9	4330 100	4800 49.8

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

Certificate of Analysis Summary 675016



COG Operating LLC, Artesia, NM

Project Name: COG - High Brass

Project Id: COG - High Brass

Date Received in Lab: Tue 10.13.2020 15:34

Contact: Ike Tavaréz

Report Date: 10.14.2020 13:52

Project Location:

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	675016-007	675016-008	675016-009	675016-010	675016-011	675016-012
	<i>Field Id:</i>	M-South Bottom Hole 8'	M-South Bottom Hole 10'	M-North Bottom Hole 4'	M-North Bottom Hole 6'	M-North Bottom Hole 8'	M-North Bottom Hole 10'
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	10.12.2020 00:00	10.12.2020 00:00	10.12.2020 00:00	10.12.2020 00:00	10.12.2020 00:00	10.12.2020 00:00
Chloride by EPA 300	<i>Extracted:</i>	10.13.2020 17:00	10.13.2020 17:00	10.13.2020 17:00	10.13.2020 17:00	10.13.2020 17:00	10.13.2020 17:00
	<i>Analyzed:</i>	10.13.2020 20:49	10.13.2020 20:55	10.13.2020 21:01	10.13.2020 21:08	10.13.2020 21:14	10.13.2020 21:33
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		1600 24.9	1410 25.2	346 49.6	997 24.8	899 X 25.3	853 49.8

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

Analytical Report 675016

for

COG Operating LLC

Project Manager: Ike Tavaréz

COG - High Brass

COG - High Brass

10.14.2020

Collected By: Client



1211 W. Florida Ave
Midland TX 79701

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-38), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2020-014), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-20-26), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-18)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-23)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-21)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-20-8)
Xenco-Tampa: Florida (E87429), North Carolina (483)



10.14.2020

Project Manager: **Ike Tavaréz**

COG Operating LLC

2407 Pecos Avenue

Artesia, NM 88210

Reference: Eurofins Xenco, LLC Report No(s): **675016**

COG - High Brass

Project Address:

Ike Tavaréz:

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 Eurofins Xenco, LLC Report Number(s) 675016. 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 Eurofins Xenco, LLC. 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. 675016 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 Eurofins Xenco, LLC to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

A handwritten signature in black ink that reads "Jessica Kramer".

Jessica Kramer

Project Manager

A Small Business and Minority Company

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

**Sample Cross Reference 675016****COG Operating LLC, Artesia, NM**

COG - High Brass

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
M-West Bottom Hole 4'	S	10.12.2020 00:00		675016-001
M-West Bottom Hole 6'	S	10.12.2020 00:00		675016-002
M-West Bottom Hole 8'	S	10.12.2020 00:00		675016-003
M-West Bottom Hole 10'	S	10.12.2020 00:00		675016-004
M-South Bottom Hole 4'	S	10.12.2020 00:00		675016-005
M-South Bottom Hole 6'	S	10.12.2020 00:00		675016-006
M-South Bottom Hole 8'	S	10.12.2020 00:00		675016-007
M-South Bottom Hole 10'	S	10.12.2020 00:00		675016-008
M-North Bottom Hole 4'	S	10.12.2020 00:00		675016-009
M-North Bottom Hole 6'	S	10.12.2020 00:00		675016-010
M-North Bottom Hole 8'	S	10.12.2020 00:00		675016-011
M-North Bottom Hole 10'	S	10.12.2020 00:00		675016-012



CASE NARRATIVE

Client Name: COG Operating LLC

Project Name: COG - High Brass

Project ID: COG - High Brass
Work Order Number(s): 675016

Report Date: 10.14.2020
Date Received: 10.13.2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3139631 Chloride by EPA 300

Lab Sample ID 675016-011 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: 675016-001, -002, -003, -004, -005, -006, -007, -008, -009, -010, -011, -012.

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

**Certificate of Analytical Results 675016****COG Operating LLC, Artesia, NM****COG - High Brass**Sample Id: **M-West Bottom Hole 4'**

Matrix: Soil

Date Received: 10.13.2020 15:34

Lab Sample Id: 675016-001

Date Collected: 10.12.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

Analyst: CHE

Date Prep: 10.13.2020 17:00

% Moisture:

Seq Number: 3139631

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	725	50.4	mg/kg	10.13.2020 19:45	X	10

**Certificate of Analytical Results 675016****COG Operating LLC, Artesia, NM****COG - High Brass**Sample Id: **M-West Bottom Hole 6'**

Matrix: Soil

Date Received: 10.13.2020 15:34

Lab Sample Id: 675016-002

Date Collected: 10.12.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

Analyst: CHE

Date Prep: 10.13.2020 17:00

% Moisture:

Seq Number: 3139631

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1410	49.6	mg/kg	10.13.2020 20:04		10

**Certificate of Analytical Results 675016****COG Operating LLC, Artesia, NM****COG - High Brass**Sample Id: **M-West Bottom Hole 8'**

Matrix: Soil

Date Received: 10.13.2020 15:34

Lab Sample Id: 675016-003

Date Collected: 10.12.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

Analyst: CHE

Date Prep: 10.13.2020 17:00

% Moisture:

Seq Number: 3139631

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1300	25.0	mg/kg	10.13.2020 20:11		5

**Certificate of Analytical Results 675016****COG Operating LLC, Artesia, NM****COG - High Brass**Sample Id: **M-West Bottom Hole 10'**

Matrix: Soil

Date Received: 10.13.2020 15:34

Lab Sample Id: 675016-004

Date Collected: 10.12.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

Analyst: CHE

Date Prep: 10.13.2020 17:00

% Moisture:

Seq Number: 3139631

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1260	49.9	mg/kg	10.13.2020 20:17		10

**Certificate of Analytical Results 675016****COG Operating LLC, Artesia, NM****COG - High Brass**Sample Id: **M-South Bottom Hole 4'**

Matrix: Soil

Date Received: 10.13.2020 15:34

Lab Sample Id: 675016-005

Date Collected: 10.12.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

Analyst: CHE

Date Prep: 10.13.2020 17:00

% Moisture:

Seq Number: 3139631

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	4330	100	mg/kg	10.14.2020 09:54		20

**Certificate of Analytical Results 675016****COG Operating LLC, Artesia, NM****COG - High Brass**Sample Id: **M-South Bottom Hole 6'**

Matrix: Soil

Date Received: 10.13.2020 15:34

Lab Sample Id: 675016-006

Date Collected: 10.12.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

Analyst: CHE

Date Prep: 10.13.2020 17:00

% Moisture:

Seq Number: 3139631

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	4800	49.8	mg/kg	10.13.2020 20:42		10

**Certificate of Analytical Results 675016****COG Operating LLC, Artesia, NM****COG - High Brass**Sample Id: **M-South Bottom Hole 8'**

Matrix: Soil

Date Received: 10.13.2020 15:34

Lab Sample Id: 675016-007

Date Collected: 10.12.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

Analyst: CHE

Date Prep: 10.13.2020 17:00

% Moisture:

Seq Number: 3139631

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1600	24.9	mg/kg	10.13.2020 20:49		5

**Certificate of Analytical Results 675016****COG Operating LLC, Artesia, NM****COG - High Brass**Sample Id: **M-South Bottom Hole 10'**

Matrix: Soil

Date Received: 10.13.2020 15:34

Lab Sample Id: 675016-008

Date Collected: 10.12.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

Analyst: CHE

Date Prep: 10.13.2020 17:00

% Moisture:

Seq Number: 3139631

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1410	25.2	mg/kg	10.13.2020 20:55		5

**Certificate of Analytical Results 675016****COG Operating LLC, Artesia, NM****COG - High Brass**Sample Id: **M-North Bottom Hole 4'**

Matrix: Soil

Date Received: 10.13.2020 15:34

Lab Sample Id: 675016-009

Date Collected: 10.12.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

Analyst: CHE

Date Prep: 10.13.2020 17:00

% Moisture:

Seq Number: 3139631

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	346	49.6	mg/kg	10.13.2020 21:01		10

**Certificate of Analytical Results 675016****COG Operating LLC, Artesia, NM****COG - High Brass**Sample Id: **M-North Bottom Hole 6'**

Matrix: Soil

Date Received: 10.13.2020 15:34

Lab Sample Id: 675016-010

Date Collected: 10.12.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

Analyst: CHE

Date Prep: 10.13.2020 17:00

% Moisture:

Seq Number: 3139631

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	997	24.8	mg/kg	10.13.2020 21:08		5

**Certificate of Analytical Results 675016****COG Operating LLC, Artesia, NM****COG - High Brass**Sample Id: **M-North Bottom Hole 8'**

Matrix: Soil

Date Received: 10.13.2020 15:34

Lab Sample Id: 675016-011

Date Collected: 10.12.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

Analyst: CHE

Date Prep: 10.13.2020 17:00

% Moisture:

Seq Number: 3139631

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	899	25.3	mg/kg	10.13.2020 21:14	X	5

**Certificate of Analytical Results 675016****COG Operating LLC, Artesia, NM****COG - High Brass**Sample Id: **M-North Bottom Hole 10'**

Matrix: Soil

Date Received: 10.13.2020 15:34

Lab Sample Id: 675016-012

Date Collected: 10.12.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

Analyst: CHE

Date Prep: 10.13.2020 17:00

% Moisture:

Seq Number: 3139631

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	853	49.8	mg/kg	10.13.2020 21:33		10

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. **ND** Not Detected.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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



COG Operating LLC

COG - High Brass

Analytical Method: Chloride by EPA 300

Seq Number: 3139631

MB Sample Id: 7713214-1-BLK

Matrix: Solid

LCS Sample Id: 7713214-1-BKS

Prep Method: E300P

Date Prep: 10.13.2020

LCSD Sample Id: 7713214-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	265	106	265	106	90-110	0	20	mg/kg	10.13.2020 19:33	

Analytical Method: Chloride by EPA 300

Seq Number: 3139631

Parent Sample Id: 675016-001

Matrix: Soil

MS Sample Id: 675016-001 S

Prep Method: E300P

Date Prep: 10.13.2020

MSD Sample Id: 675016-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	725	2520	3820	123	3620	115	90-110	5	20	mg/kg	10.13.2020 19:52	X

Analytical Method: Chloride by EPA 300

Seq Number: 3139631

Parent Sample Id: 675016-011

Matrix: Soil

MS Sample Id: 675016-011 S

Prep Method: E300P

Date Prep: 10.13.2020

MSD Sample Id: 675016-011 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	899	1260	2410	120	2340	114	90-110	3	20	mg/kg	10.13.2020 21:21	X

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



**One Concho Center/600/Illinois
Avenue/Midland, Texas
Tel (432) 683-7443**

575019

Client Name:						Site Manager:											
						Ike Tavarez itavarez@concho.com											
Project Name:						Robert Grubbs Jr rgrubbs@concho.com											
Project Location: (county, state)						Eddy County, NM											
Invoice to:						COG											
Receiving Laboratory:						Xenoco											
Comments:						Sampler Signature: Robert Grubbs Jr											
LAB # (USE ONLY)						SAMPLE IDENTIFICATION											
						SAMPLING YEAR: 2020		MATRIX		PRESERVATIVE METHOD		# CONTAINERS		FILTERED (Y/N)			
						DATE		TIME		WATER SOIL		HCL HNO3 ICE					
M-West Bottom Hole 4'						10/12/2020				X		X		1			
M-West Bottom Hole 6'						10/12/2020				X		X		1			
M-West Bottom Hole 8'						10/12/2020				X		X		1			
M-West Bottom Hole 10'						10/12/2020				X		X		1			
M-South Bottom Hole 4'						10/12/2020				X		X		1			
M-South Bottom Hole 6'						10/12/2020				X		X		1			
M-South Bottom Hole 8'						10/12/2020				X		X		1			
M-South Bottom Hole 10'						10/12/2020				X		X		1			
M-North Bottom Hole 4'						10/12/2020				X		X		1			
M-North Bottom Hole 6'						10/12/2020				X		X		1			
Relinquished by:						Date:		Time:		Relinquished by:		Date:		Time:			
Robert Grubbs Jr						10/13/2020		1338				10/13/2020		15:34			
Relinquished by:						Date:		Time:		Relinquished by:		Date:		Time:			
Relinquished by:						Date:		Time:		Relinquished by:		Date:		Time:			
LAB USE ONLY						TPH TX1005 (Ext to C35)						ANALYSIS REQUEST (Circle or Specify Method No.)					
Sample Temperature						BTEx 8021B											
15.5/16.0						TPH 8015M (GRO - DRO - MRO)											
						Chloride											
						1:10 Extract											
REMARKS:						Hold											
RUSH: Same Day 24 hr 48 hr 72 hr																	
Special Report Limits or TRRP Report																	

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FEDEX UPS Tracking#:

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675014

[illegible]

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(Circle) HAND DELIVERED FEDEX UPS Tracking #

Eurofins Xenco, LLC

Prelogin/Nonconformance Report- Sample Log-In

Client: COG Operating LLC

Date/ Time Received: 10.13.2020 03.34.00 PM

Work Order #: 675016

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : IR-8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	6
#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: 10.13.2020

Checklist reviewed by:



Jessica Kramer

Date: 10.13.2020

Certificate of Analysis Summary 675018

COG Operating LLC, Artesia, NM

Project Name: COG - High Brass (6-13-20)

Project Id: COG - High Brass

Contact: Ike Tavaréz

Project Location:

Date Received in Lab: Tue 10.13.2020 15:34

Report Date: 10.14.2020 13:52

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	675018-001	675018-002	675018-003	675018-004	675018-005	675018-006
	<i>Field Id:</i>	2 Track North 4'	2 Track North 6'	2 Track North 8'	2 Track North 10'	2 Track South 4'	2 Track South 6'
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	10.12.2020 00:00	10.12.2020 00:00	10.12.2020 00:00	10.12.2020 00:00	10.12.2020 00:00	10.12.2020 00:00
Chloride by EPA 300	<i>Extracted:</i>	10.13.2020 17:00	10.13.2020 17:00	10.13.2020 17:00	10.13.2020 17:00	10.13.2020 17:00	10.13.2020 17:00
	<i>Analyzed:</i>	10.13.2020 21:40	10.14.2020 10:06	10.13.2020 22:05	10.13.2020 22:11	10.13.2020 22:18	10.13.2020 22:24
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		980 25.2	974 25.0	916 50.4	916 49.6	809 50.0	765 50.0

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico



Certificate of Analysis Summary 675018

COG Operating LLC, Artesia, NM

Project Name: COG - High Brass (6-13-20)

Project Id: COG - High Brass

Date Received in Lab: Tue 10.13.2020 15:34

Contact: Ike Tavaréz

Report Date: 10.14.2020 13:52

Project Location:

Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	675018-007	675018-008				
	Field Id:	2 Track South 8'	2 Track South 10'				
	Depth:						
	Matrix:	SOIL	SOIL				
	Sampled:	10.12.2020 00:00	10.12.2020 00:00				
Chloride by EPA 300	Extracted:	10.13.2020 17:00	10.13.2020 17:00				
	Analyzed:	10.13.2020 22:30	10.13.2020 22:37				
	Units/RL:	mg/kg RL	mg/kg RL				
Chloride		1120 50.0	704 49.8				

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico



Analytical Report 675018

for

COG Operating LLC

Project Manager: Ike Tavaréz

COG - High Brass (6-13-20)

COG - High Brass

10.14.2020

Collected By: Client



**1211 W. Florida Ave
Midland TX 79701**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-38), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2020-014), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-20-26), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-18)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-23)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-21)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-20-8)
Xenco-Tampa: Florida (E87429), North Carolina (483)



10.14.2020

Project Manager: **Ike Tavaréz**

COG Operating LLC

2407 Pecos Avenue

Artesia, NM 88210

Reference: Eurofins Xenco, LLC Report No(s): **675018**

COG - High Brass (6-13-20)

Project Address:

Ike Tavaréz:

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 Eurofins Xenco, LLC Report Number(s) 675018. 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 Eurofins Xenco, LLC. 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. 675018 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 Eurofins Xenco, LLC to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

A handwritten signature in black ink that reads "Jessica Kramer".

Jessica Kramer

Project Manager

A Small Business and Minority Company

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

**Sample Cross Reference 675018****COG Operating LLC, Artesia, NM**

COG - High Brass (6-13-20)

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
2 Track North 4'	S	10.12.2020 00:00		675018-001
2 Track North 6'	S	10.12.2020 00:00		675018-002
2 Track North 8'	S	10.12.2020 00:00		675018-003
2 Track North 10'	S	10.12.2020 00:00		675018-004
2 Track South 4'	S	10.12.2020 00:00		675018-005
2 Track South 6'	S	10.12.2020 00:00		675018-006
2 Track South 8'	S	10.12.2020 00:00		675018-007
2 Track South 10'	S	10.12.2020 00:00		675018-008



CASE NARRATIVE

Client Name: COG Operating LLC

Project Name: COG - High Brass (6-13-20)

Project ID: COG - High Brass
Work Order Number(s): 675018

Report Date: 10.14.2020
Date Received: 10.13.2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

**Certificate of Analytical Results 675018****COG Operating LLC, Artesia, NM**

COG - High Brass (6-13-20)

Sample Id: 2 Track North 4'

Matrix: Soil

Date Received: 10.13.2020 15:34

Lab Sample Id: 675018-001

Date Collected: 10.12.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

Analyst: CHE

Date Prep: 10.13.2020 17:00

% Moisture:

Seq Number: 3139631

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	980	25.2	mg/kg	10.13.2020 21:40		5

**Certificate of Analytical Results 675018****COG Operating LLC, Artesia, NM**

COG - High Brass (6-13-20)

Sample Id: 2 Track North 6'

Matrix: Soil

Date Received: 10.13.2020 15:34

Lab Sample Id: 675018-002

Date Collected: 10.12.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

Analyst: CHE

Date Prep: 10.13.2020 17:00

% Moisture:

Seq Number: 3139631

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	974	25.0	mg/kg	10.14.2020 10:06		5

**Certificate of Analytical Results 675018****COG Operating LLC, Artesia, NM**

COG - High Brass (6-13-20)

Sample Id: **2 Track North 8'**

Matrix: Soil

Date Received: 10.13.2020 15:34

Lab Sample Id: 675018-003

Date Collected: 10.12.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

Analyst: CHE

Date Prep: 10.13.2020 17:00

% Moisture:

Seq Number: 3139631

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	916	50.4	mg/kg	10.13.2020 22:05		10

**Certificate of Analytical Results 675018****COG Operating LLC, Artesia, NM**

COG - High Brass (6-13-20)

Sample Id: 2 Track North 10'

Matrix: Soil

Date Received: 10.13.2020 15:34

Lab Sample Id: 675018-004

Date Collected: 10.12.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

Analyst: CHE

Date Prep: 10.13.2020 17:00

% Moisture:

Seq Number: 3139631

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	916	49.6	mg/kg	10.13.2020 22:11		10

**Certificate of Analytical Results 675018****COG Operating LLC, Artesia, NM**

COG - High Brass (6-13-20)

Sample Id: 2 'Track South 4'

Matrix: Soil

Date Received: 10.13.2020 15:34

Lab Sample Id: 675018-005

Date Collected: 10.12.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

Analyst: CHE

Date Prep: 10.13.2020 17:00

% Moisture:

Seq Number: 3139631

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	809	50.0	mg/kg	10.13.2020 22:18		10

**Certificate of Analytical Results 675018****COG Operating LLC, Artesia, NM**

COG - High Brass (6-13-20)

Sample Id: 2 Track South 6'

Matrix: Soil

Date Received: 10.13.2020 15:34

Lab Sample Id: 675018-006

Date Collected: 10.12.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

Analyst: CHE

Date Prep: 10.13.2020 17:00

% Moisture:

Seq Number: 3139631

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	765	50.0	mg/kg	10.13.2020 22:24		10

**Certificate of Analytical Results 675018****COG Operating LLC, Artesia, NM**

COG - High Brass (6-13-20)

Sample Id: 2 'Track South 8'

Matrix: Soil

Date Received: 10.13.2020 15:34

Lab Sample Id: 675018-007

Date Collected: 10.12.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

Analyst: CHE

Date Prep: 10.13.2020 17:00

% Moisture:

Seq Number: 3139631

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1120	50.0	mg/kg	10.13.2020 22:30		10

**Certificate of Analytical Results 675018****COG Operating LLC, Artesia, NM**

COG - High Brass (6-13-20)

Sample Id: 2 Track South 10'

Matrix: Soil

Date Received: 10.13.2020 15:34

Lab Sample Id: 675018-008

Date Collected: 10.12.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

Analyst: CHE

Date Prep: 10.13.2020 17:00

% Moisture:

Seq Number: 3139631

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	704	49.8	mg/kg	10.13.2020 22:37		10

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. **ND** Not Detected.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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



COG Operating LLC

COG - High Brass (6-13-20)

Analytical Method: Chloride by EPA 300

Seq Number: 3139631

MB Sample Id: 7713214-1-BLK

Matrix: Solid

LCS Sample Id: 7713214-1-BKS

Prep Method: E300P

Date Prep: 10.13.2020

LCSD Sample Id: 7713214-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	265	106	265	106	90-110	0	20	mg/kg	10.13.2020 19:33	

Analytical Method: Chloride by EPA 300

Seq Number: 3139631

Parent Sample Id: 675016-001

Matrix: Soil

MS Sample Id: 675016-001 S

Prep Method: E300P

Date Prep: 10.13.2020

MSD Sample Id: 675016-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	725	2520	3820	123	3620	115	90-110	5	20	mg/kg	10.13.2020 19:52	X

Analytical Method: Chloride by EPA 300

Seq Number: 3139631

Parent Sample Id: 675016-011

Matrix: Soil

MS Sample Id: 675016-011 S

Prep Method: E300P

Date Prep: 10.13.2020

MSD Sample Id: 675016-011 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	899	1260	2410	120	2340	114	90-110	3	20	mg/kg	10.13.2020 21:21	X

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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Avenue/Midland, Texas
Tel (432) 683-7443

Page

21 of 21

25

Client Name:		COG		Site Manager:		Ike Tavares itavares@concho.com Robert Grubbs Jr rgrubbs@concho.com																							
Project Name:		High Brass 002H (6-13-20)		Project #:																									
Project Location: (county, state)		Eddy County, NM		Project #:																									
Invoice to:		COG		Sampler Signature:		Robert Grubbs Jr																							
Receiving Laboratory:		Xenco		Comments:																									
LAB # (USE ONLY)	SAMPLE IDENTIFICATION			SAMPLING		MATRIX		PRESERVATIVE		METHOD		# CONTAINERS		FILTERED (Y/N)		TPH TX1005 (Ext to C35)		BTX 8021B		TPH 8015M (GRO - DRO - MRO)		Chloride		1:10 Extract		Hold			
				YEAR: 2020																									
				DATE		TIME		WATER		SOIL		HCL		HNO ₃		ICE													
	2 Track North 4'			10/12/2020				X						X				1											
	2 Track North 6'			10/12/2020				X						X				1											
	2 Track North 8'			10/12/2020				X						X				1											
	2 Track North 10'			10/12/2020				X						X				1											
	2 Track South 4'			10/12/2020				X						X				1											
	2 Track South 6'			10/12/2020				X						X				1											
	2 Track South 8'			10/12/2020				X						X				1											
2 Track South 10'			10/12/2020				X						X				1												
Reinquished by:		Date:		Time:		Reinquished by:		Date:		Time:		Reinquished by:		Date:		Time:		Reinquished by:		Date:		Time:		Reinquished by:		Date:		Time:	
Robert Grubbs Jr		10/13/2020		13:34		[Signature]		10/13/2020		15:34		[Signature]		10/13/2020		15:34		[Signature]		10/13/2020		15:34		[Signature]		10/13/2020		15:34	
Reinquished by:		Date:		Time:		Reinquished by:		Date:		Time:		Reinquished by:		Date:		Time:		Reinquished by:		Date:		Time:		Reinquished by:		Date:		Time:	
Reinquished by:		Date:		Time:		Reinquished by:		Date:		Time:		Reinquished by:		Date:		Time:		Reinquished by:		Date:		Time:		Reinquished by:		Date:		Time:	

ORIGINAL COPY

(Circle) HAND DELIVERED FEDEX UPS Tracking #:

LAB USE ONLY

Sample Temperature

2.4/29

REMARKS

X

RUSH: Same Day 24 hr 48 hr 72 hr

Rush Charges Authorized

Special Report Limits or TRRP Report

Eurofins Xenco, LLC

Prelogin/Nonconformance Report- Sample Log-In

Client: COG Operating LLC

Date/ Time Received: 10.13.2020 03.34.00 PM

Work Order #: 675018

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : IR-8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	2.9
#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: 10.13.2020

Checklist reviewed by:



Jessica Kramer

Date: 10.13.2020

Certificate of Analysis Summary 675050

COG Operating LLC, Artesia, NM

Project Name: High Brass

Project Id:

Contact: Ike Tavaréz

Project Location: Eddy County

Date Received in Lab: Tue 10.13.2020 16:30

Report Date: 10.15.2020 20:09

Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	675050-001	675050-002	675050-003			
	Field Id:	R-SW-S1	R-SW-S2	R-SW-S3			
	Depth:						
	Matrix:	SOIL	SOIL	SOIL			
	Sampled:	10.07.2020 00:00	10.07.2020 00:00	10.07.2020 00:00			
BTEX by EPA 8021B	Extracted:	10.13.2020 17:51	10.13.2020 17:51	10.13.2020 17:51			
	Analyzed:	10.13.2020 22:25	10.13.2020 22:47	10.13.2020 23:10			
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL			
Benzene		<0.00198 0.00198	<0.00200 0.00200	<0.00199 0.00199			
Toluene		<0.00198 0.00198	<0.00200 0.00200	<0.00199 0.00199			
Ethylbenzene		<0.00198 0.00198	<0.00200 0.00200	<0.00199 0.00199			
m,p-Xylenes		<0.00396 0.00396	<0.00399 0.00399	<0.00398 0.00398			
o-Xylene		<0.00198 0.00198	<0.00200 0.00200	<0.00199 0.00199			
Total Xylenes		<0.00198 0.00198	<0.00200 0.00200	<0.00199 0.00199			
Total BTEX		<0.00198 0.00198	<0.00200 0.00200	<0.00199 0.00199			
Chloride by EPA 300	Extracted:	10.14.2020 17:20	10.14.2020 17:20	10.14.2020 17:20			
	Analyzed:	10.14.2020 18:32	10.14.2020 18:48	10.14.2020 18:54			
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL			
Chloride		13.0 9.94	<9.94 9.94	13.6 9.90			
TPH By SW8015 Mod	Extracted:	10.13.2020 16:52	10.13.2020 16:52	10.13.2020 16:52			
	Analyzed:	10.13.2020 22:01	10.13.2020 22:22	10.13.2020 22:42			
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL			
Gasoline Range Hydrocarbons		<49.9 49.9	<49.8 49.8	<49.8 49.8			
Diesel Range Organics		<49.9 49.9	<49.8 49.8	<49.8 49.8			
Motor Oil Range Hydrocarbons (MRO)		<49.9 49.9	<49.8 49.8	<49.8 49.8			
Total TPH		<49.9 49.9	<49.8 49.8	<49.8 49.8			

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico





Analytical Report 675050

for

COG Operating LLC

Project Manager: Ike Tavaréz

High Brass

10.15.2020

Collected By: Client

**1089 N Canal Street
Carlsbad, NM 88220**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-38), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2020-014), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-20-26), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-18)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-23)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-21)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TN102385): Texas (T104704534-20-8)
Xenco-Tampa: Florida (E87429), North Carolina (483)



10.15.2020

Project Manager: **Ike Tavaréz**

COG Operating LLC

2407 Pecos Avenue

Artesia, NM 88210

Reference: Eurofins Xenco, LLC Report No(s): **675050**

High Brass

Project Address: Eddy County

Ike Tavaréz:

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 Eurofins Xenco, LLC Report Number(s) 675050. 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 Eurofins Xenco, LLC. 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. 675050 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 Eurofins Xenco, LLC to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

A handwritten signature in black ink that reads "Jessica Kramer".

Jessica Kramer

Project Manager

A Small Business and Minority Company

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico



Sample Cross Reference 675050

COG Operating LLC, Artesia, NM

High Brass

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
R-SW-S1	S	10.07.2020 00:00		675050-001
R-SW-S2	S	10.07.2020 00:00		675050-002
R-SW-S3	S	10.07.2020 00:00		675050-003



CASE NARRATIVE

Client Name: COG Operating LLC

Project Name: High Brass

Project ID:

Work Order Number(s): 675050

Report Date: 10.15.2020

Date Received: 10.13.2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None



Certificate of Analytical Results 675050

COG Operating LLC, Artesia, NM

High Brass

Sample Id: **R-SW-S1**
Lab Sample Id: 675050-001

Matrix: Soil
Date Collected: 10.07.2020 00:00

Date Received: 10.13.2020 16:30

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 10.14.2020 17:20

% Moisture:
Basis: Wet Weight

Seq Number: 3139721

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	13.0	9.94	mg/kg	10.14.2020 18:32		1

Analytical Method: TPH By SW8015 Mod

Prep Method: SW8015P

Tech: DTH

Analyst: DTH

Date Prep: 10.13.2020 16:52

% Moisture:
Basis: Wet Weight

Seq Number: 3139598

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<49.9	49.9	mg/kg	10.13.2020 22:01	U	1
Diesel Range Organics	C10C28DRO	<49.9	49.9	mg/kg	10.13.2020 22:01	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	10.13.2020 22:01	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	10.13.2020 22:01	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	88	%	70-135	10.13.2020 22:01	
o-Terphenyl	84-15-1	91	%	70-135	10.13.2020 22:01	



Certificate of Analytical Results 675050

COG Operating LLC, Artesia, NM

High Brass

Sample Id: **R-SW-S1**
Lab Sample Id: 675050-001

Matrix: Soil
Date Collected: 10.07.2020 00:00

Date Received: 10.13.2020 16:30

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

Analyst: MAB

Date Prep: 10.13.2020 17:51

% Moisture:
Basis: Wet Weight

Seq Number: 3139593

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	10.13.2020 22:25	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	10.13.2020 22:25	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	10.13.2020 22:25	U	1
m,p-Xylenes	179601-23-1	<0.00396	0.00396	mg/kg	10.13.2020 22:25	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	10.13.2020 22:25	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	10.13.2020 22:25	U	1
Total BTEX		<0.00198	0.00198	mg/kg	10.13.2020 22:25	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	100	%	70-130	10.13.2020 22:25	
4-Bromofluorobenzene	460-00-4	88	%	70-130	10.13.2020 22:25	



Certificate of Analytical Results 675050

COG Operating LLC, Artesia, NM

High Brass

Sample Id: **R-SW-S2**
Lab Sample Id: 675050-002

Matrix: Soil
Date Collected: 10.07.2020 00:00

Date Received: 10.13.2020 16:30

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 10.14.2020 17:20

% Moisture:
Basis: Wet Weight

Seq Number: 3139721

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<9.94	9.94	mg/kg	10.14.2020 18:48	U	1

Analytical Method: TPH By SW8015 Mod

Prep Method: SW8015P

Tech: DTH

Analyst: DTH

Date Prep: 10.13.2020 16:52

% Moisture:
Basis: Wet Weight

Seq Number: 3139598

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<49.8	49.8	mg/kg	10.13.2020 22:22	U	1
Diesel Range Organics	C10C28DRO	<49.8	49.8	mg/kg	10.13.2020 22:22	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	10.13.2020 22:22	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	10.13.2020 22:22	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	89	%	70-135	10.13.2020 22:22	
o-Terphenyl	84-15-1	92	%	70-135	10.13.2020 22:22	



Certificate of Analytical Results 675050

COG Operating LLC, Artesia, NM

High Brass

Sample Id: **R-SW-S2**

Matrix: Soil

Date Received: 10.13.2020 16:30

Lab Sample Id: 675050-002

Date Collected: 10.07.2020 00:00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

Analyst: MAB

Date Prep: 10.13.2020 17:51

% Moisture:
Basis: Wet Weight

Seq Number: 3139593

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	10.13.2020 22:47	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	10.13.2020 22:47	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	10.13.2020 22:47	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	10.13.2020 22:47	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	10.13.2020 22:47	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	10.13.2020 22:47	U	1
Total BTEX		<0.00200	0.00200	mg/kg	10.13.2020 22:47	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	99	%	70-130	10.13.2020 22:47		
4-Bromofluorobenzene	460-00-4	91	%	70-130	10.13.2020 22:47		



Certificate of Analytical Results 675050

COG Operating LLC, Artesia, NM

High Brass

Sample Id: **R-SW-S3**

Matrix: Soil

Date Received: 10.13.2020 16:30

Lab Sample Id: 675050-003

Date Collected: 10.07.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 10.14.2020 17:20

% Moisture:

Seq Number: 3139721

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	13.6	9.90	mg/kg	10.14.2020 18:54		1

Analytical Method: TPH By SW8015 Mod

Prep Method: SW8015P

Tech: DTH

Analyst: DTH

Date Prep: 10.13.2020 16:52

% Moisture:

Seq Number: 3139598

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<49.8	49.8	mg/kg	10.13.2020 22:42	U	1
Diesel Range Organics	C10C28DRO	<49.8	49.8	mg/kg	10.13.2020 22:42	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	10.13.2020 22:42	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	10.13.2020 22:42	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	91	%	70-135	10.13.2020 22:42	
o-Terphenyl	84-15-1	92	%	70-135	10.13.2020 22:42	



Certificate of Analytical Results 675050

COG Operating LLC, Artesia, NM

High Brass

Sample Id: **R-SW-S3**

Matrix: Soil

Date Received: 10.13.2020 16:30

Lab Sample Id: 675050-003

Date Collected: 10.07.2020 00:00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

Analyst: MAB

Date Prep: 10.13.2020 17:51

% Moisture:
Basis: Wet Weight

Seq Number: 3139593

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	10.13.2020 23:10	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	10.13.2020 23:10	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	10.13.2020 23:10	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	10.13.2020 23:10	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	10.13.2020 23:10	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	10.13.2020 23:10	U	1
Total BTEX		<0.00199	0.00199	mg/kg	10.13.2020 23:10	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	85	%	70-130	10.13.2020 23:10	
1,4-Difluorobenzene	540-36-3	101	%	70-130	10.13.2020 23:10	

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. **ND** Not Detected.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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



COG Operating LLC High Brass

Analytical Method: Chloride by EPA 300

Seq Number: 3139721

MB Sample Id: 7713286-1-BLK

Matrix: Solid

LCS Sample Id: 7713286-1-BKS

Prep Method: E300P

Date Prep: 10.14.2020

LCSD Sample Id: 7713286-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.0	250	264	106	263	105	90-110	0	20	mg/kg	10.14.2020 18:21	

Analytical Method: Chloride by EPA 300

Seq Number: 3139721

Parent Sample Id: 675050-001

Matrix: Soil

MS Sample Id: 675050-001 S

Prep Method: E300P

Date Prep: 10.14.2020

MSD Sample Id: 675050-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	13.0	199	211	99	212	100	90-110	0	20	mg/kg	10.14.2020 18:37	

Analytical Method: Chloride by EPA 300

Seq Number: 3139721

Parent Sample Id: 675175-007

Matrix: Soil

MS Sample Id: 675175-007 S

Prep Method: E300P

Date Prep: 10.14.2020

MSD Sample Id: 675175-007 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	1740	200	1940	100	1920	91	90-110	1	20	mg/kg	10.14.2020 19:54	

Analytical Method: TPH By SW8015 Mod

Seq Number: 3139598

MB Sample Id: 7713178-1-BLK

Matrix: Solid

LCS Sample Id: 7713178-1-BKS

Prep Method: SW8015P

Date Prep: 10.13.2020

LCSD Sample Id: 7713178-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons	<50.0	1000	834	83	881	88	70-135	5	35	mg/kg	10.13.2020 15:16	
Diesel Range Organics	<50.0	1000	968	97	1030	103	70-135	6	35	mg/kg	10.13.2020 15:16	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	95		104		112		70-135	%	10.13.2020 15:16
o-Terphenyl	91		96		101		70-135	%	10.13.2020 15:16

Analytical Method: TPH By SW8015 Mod

Seq Number: 3139598

Matrix: Solid

MB Sample Id: 7713178-1-BLK

Prep Method: SW8015P

Date Prep: 10.13.2020

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	10.13.2020 14:55	

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

High Brass

Analytical Method: TPH By SW8015 Mod

Seq Number: 3139598

Parent Sample Id: 674930-001

Matrix: Soil

MS Sample Id: 674930-001 S

Prep Method: SW8015P

Date Prep: 10.13.2020

MSD Sample Id: 674930-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons	<49.8	996	883	89	869	87	70-135	2	35	mg/kg	10.13.2020 16:16	
Diesel Range Organics	58.8	996	1110	106	1090	103	70-135	2	35	mg/kg	10.13.2020 16:16	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	112		111		70-135	%	10.13.2020 16:16
o-Terphenyl	109		108		70-135	%	10.13.2020 16:16

Analytical Method: BTEX by EPA 8021B

Seq Number: 3139593

MB Sample Id: 7713165-1-BLK

Matrix: Solid

LCS Sample Id: 7713165-1-BKS

Prep Method: SW5035A

Date Prep: 10.13.2020

LCSD Sample Id: 7713165-1-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	0.100	0.108	108	0.104	104	70-130	4	35	mg/kg	10.13.2020 12:42	
Toluene	<0.00200	0.100	0.103	103	0.100	100	70-130	3	35	mg/kg	10.13.2020 12:42	
Ethylbenzene	<0.00200	0.100	0.0939	94	0.0908	91	71-129	3	35	mg/kg	10.13.2020 12:42	
m,p-Xylenes	<0.00400	0.200	0.188	94	0.182	91	70-135	3	35	mg/kg	10.13.2020 12:42	
o-Xylene	<0.00200	0.100	0.0937	94	0.0909	91	71-133	3	35	mg/kg	10.13.2020 12:42	

Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	98		98		97		70-130	%	10.13.2020 12:42
4-Bromofluorobenzene	84		83		84		70-130	%	10.13.2020 12:42

Analytical Method: BTEX by EPA 8021B

Seq Number: 3139593

Parent Sample Id: 674950-001

Matrix: Soil

MS Sample Id: 674950-001 S

Prep Method: SW5035A

Date Prep: 10.13.2020

MSD Sample Id: 674950-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.0998	0.0996	100	0.109	109	70-130	9	35	mg/kg	10.13.2020 14:12	
Toluene	<0.00200	0.0998	0.0969	97	0.107	107	70-130	10	35	mg/kg	10.13.2020 14:12	
Ethylbenzene	<0.00200	0.0998	0.0897	90	0.0987	99	71-129	10	35	mg/kg	10.13.2020 14:12	
m,p-Xylenes	<0.00399	0.200	0.182	91	0.201	100	70-135	10	35	mg/kg	10.13.2020 14:12	
o-Xylene	<0.00200	0.0998	0.0891	89	0.0985	99	71-133	10	35	mg/kg	10.13.2020 14:12	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	96		98		70-130	%	10.13.2020 14:12
4-Bromofluorobenzene	83		86		70-130	%	10.13.2020 14:12

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

Analysis Request of Chain of Custody Record

One Concho
Center 600 Illinois
Avenue/Midland, Texas

Tel (432) 683-7443

Client Name:

COG

Site Manager:

Jacqui Harris/Robert Grubbs

Project Name:

High Brass

Project Location:
(county, state)

Eddy, NM

Project #:

Invoice to:

Jacqui Harris

Receiving Laboratory:

Sampler Name:

Jacqui Harris/Robert Grubbs

Comments:

SAMPLE IDENTIFICATION

LAB #
(LAB USE ONLY)

SAMPLING

MATRIX

PRESERVATIVE METHOD

CONTAINERS

(C)omposite/(G)rati

TPH 8015M (GRO - DRO - MRO)

BTEX 8021B

Chloride

Hold

R-SW-S1

DATE

TIME

WATER

SOIL

HCL

HNO₃

ICE

X

X

X

X

X

X

X

X

X

X

X

X

X

R-SW-S2

DATE

TIME

WATER

SOIL

HCL

HNO₃

ICE

X

X

X

X

X

X

X

X

X

X

X

X

X

R-SW-S3

DATE

TIME

WATER

SOIL

HCL

HNO₃

ICE

X

X

X

X

X

X

X

X

X

X

X

X

X

Relinquished by:

Date: Time:

Received by:

Date: Time:

Relinquished by:

Date: Time:

Received by:

Date: Time:

Relinquished by:

Date: Time:

Received by:

Date: Time:

ANALYSIS REQUEST

(Circle or Specify Method No.)

LAB USE ONLY

Sample Temperature

4.8/4.6

REMARKS:

☐ RUSH: Same Day 24 hr 48 hr 72 hr

☐ Rush Charges Authorized

☐ Special Report Limits or TRRP Report

(Circle) HAND DELIVERED FEDEX UPS Tracking # _____

675050

Certificate of Analysis Summary 675529

COG Operating LLC, Artesia, NM

Project Name: COG - High Brass

Project Id: COG - High Brass

Contact: Ike Tavaréz

Project Location: Eddy County

Date Received in Lab: Mon 10.19.2020 14:14

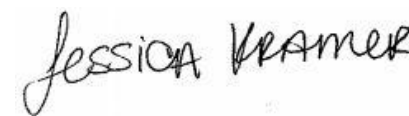
Report Date: 10.23.2020 08:03

Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	675529-001	675529-002				
	Field Id:	High Brass Produced Water	High Brass Produced Water				
	Depth:						
	Matrix:	WATER	WATER				
	Sampled:	10.19.2020 00:00	10.19.2020 00:00				
Alkalinity by SM2320B SUB: T104704215-20-38	Extracted:	10.20.2020 10:53	10.20.2020 10:53				
	Analyzed:	10.20.2020 12:07	10.20.2020 12:13				
	Units/RL:	mg/L RL	mg/L RL				
Alkalinity, Total (CaCO ₃)		93.0 4.00	91.0 4.00				
Cation-Anion Balance Calculation SUB: T104704215-20-38	Extracted:						
	Analyzed:	10.22.2020 16:49	10.22.2020 16:49				
	Units/RL:	% RL	% RL				
Cation-Anion Balance		3.50	6.00				
Dissolved Anions by EPA 300 SUB: T104704215-20-38	Extracted:	10.20.2020 16:34	10.20.2020 16:34				
	Analyzed:	10.20.2020 19:58	10.20.2020 20:23				
	Units/RL:	mg/L RL	mg/L RL				
Chloride		126000 D 250	128000 D 250				
Fluoride		<10.0 10.0	<10.0 10.0				
Nitrate as N		<2.00 2.00	<2.00 2.00				
Sulfate		402 D 100	401 D 100				
Dissolved Metals per ICP by SW846 6010B SUB: T104704215-20-38	Extracted:	10.22.2020 09:05	10.22.2020 09:05				
	Analyzed:	10.22.2020 15:23	10.22.2020 15:27				
	Units/RL:	mg/L RL	mg/L RL				
Calcium		11300 D 200	10900 D 200				
Magnesium		1310 40.0	1290 40.0				
Potassium		1080 50.0	1070 50.0				
Sodium		60200 D 500	58200 D 500				

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico



Certificate of Analysis Summary 675529

COG Operating LLC, Artesia, NM

Project Name: COG - High Brass

Project Id: COG - High Brass

Contact: Ike Tavaréz

Project Location: Eddy County

Date Received in Lab: Mon 10.19.2020 14:14

Report Date: 10.23.2020 08:03

Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	675529-001	675529-002				
	Field Id:	High Brass Produced Water	High Brass Produced Water				
	Depth:						
	Matrix:	WATER	WATER				
	Sampled:	10.19.2020 00:00	10.19.2020 00:00				
SAR Metals by SW6010C SUB: T104704215-20-38	Extracted:	10.21.2020 09:35	10.21.2020 09:35				
	Analyzed:	10.21.2020 19:24	10.21.2020 19:28				
	Units/RL:	mg/L RL	mg/L RL				
		9850 D 50.0	10800 D 50.0				
Calcium		1170 D 20.0	1260 D 20.0				
Magnesium		61300 D 500	61300 D 500				
Sodium							
Sodium Adsorption Ratio SUB: T104704215-20-38	Extracted:						
	Analyzed:	10.22.2020 16:27	10.22.2020 16:27				
	Units/RL:						
		155	149				
Sodium Adsorption Ratio							
Specific Conductance @25C by SM2510B SUB: T104704215-20-38	Extracted:						
	Analyzed:	10.20.2020 14:03	10.20.2020 14:03				
	Units/RL:	umhos/cm RL	umhos/cm RL				
		706 10.0	231000 300				
Conductivity							

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico





Analytical Report 675529

for

COG Operating LLC

Project Manager: Ike Tavaréz

COG - High Brass

COG - High Brass

10.23.2020

Collected By: Client

**1089 N Canal Street
Carlsbad, NM 88220**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-38), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2020-014), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-20-26), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-18)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-23)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-21)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TN102385): Texas (T104704534-20-8)
Xenco-Tampa: Florida (E87429), North Carolina (483)



10.23.2020

Project Manager: **Ike Tavaréz**

COG Operating LLC

2407 Pecos Avenue

Artesia, NM 88210

Reference: Eurofins Xenco, LLC Report No(s): **675529**

COG - High Brass

Project Address: Eddy County

Ike Tavaréz:

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 Eurofins Xenco, LLC Report Number(s) 675529. 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 Eurofins Xenco, LLC. 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. 675529 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 Eurofins Xenco, LLC to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

A handwritten signature in black ink that reads "Jessica Kramer".

Jessica Kramer

Project Manager

A Small Business and Minority Company

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico



Sample Cross Reference 675529

COG Operating LLC, Artesia, NM

COG - High Brass

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
High Brass Produced Water Sample 1	W	10.19.2020 00:00		675529-001
High Brass Produced Water Sample 2	W	10.19.2020 00:00		675529-002



CASE NARRATIVE

Client Name: COG Operating LLC

Project Name: COG - High Brass

Project ID: COG - High Brass
Work Order Number(s): 675529

Report Date: 10.23.2020
Date Received: 10.19.2020

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None



Certificate of Analytical Results 675529

COG Operating LLC, Artesia, NM

COG - High Brass

Sample Id: **High Brass Produced Water Sample 1** Matrix: Water Date Received: 10.19.2020 14:14
 Lab Sample Id: 675529-001 Date Collected: 10.19.2020 00:00

Analytical Method: Alkalinity by SM2320B Prep Method: SM2320P
 Tech: KBU
 Analyst: KBU Date Prep: 10.20.2020 10:53 % Moisture:
 Seq Number: 3140140 SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Alkalinity, Total (CaCO ₃)	1640192	93.0	4.00	mg/L	10.20.2020 12:07		1

Analytical Method: Cation-Anion Balance Calculation

Tech: ALA
 Analyst: ALA % Moisture:
 Seq Number: 3140380 SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Cation-Anion Balance	CATANBAL	3.50		%	10.22.2020 16:49		1

Analytical Method: Dissolved Anions by EPA 300

Tech: JYM
 Analyst: JYM Date Prep: 10.20.2020 16:34 Prep Method: E300P
 Seq Number: 3140179 % Moisture:
 SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	126000	250	mg/L	10.21.2020 10:02	D	500
Fluoride	16984-48-8	<10.0	10.0	mg/L	10.20.2020 19:58	U	20
Nitrate as N	14797-55-8	<2.00	2.00	mg/L	10.20.2020 19:58	U	20
Sulfate	14808-79-8	402	100	mg/L	10.20.2020 20:10	D	200

Analytical Method: Dissolved Metals per ICP by SW846 6010B

Tech: MLI
 Analyst: DEP Date Prep: 10.22.2020 09:05 Prep Method: SW3010A
 Seq Number: 3140366 % Moisture:
 SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Calcium	7440-70-2	11300	200	mg/L	10.22.2020 15:40	D	1000
Magnesium	7439-95-4	1310	40.0	mg/L	10.22.2020 15:23		100
Potassium	7440-09-7	1080	50.0	mg/L	10.22.2020 15:23		100
Sodium	7440-23-5	60200	500	mg/L	10.22.2020 15:40	D	1000



Certificate of Analytical Results 675529

COG Operating LLC, Artesia, NM

COG - High Brass

Sample Id: **High Brass Produced Water Sample 1**

Matrix: Water

Date Received: 10.19.2020 14:14

Lab Sample Id: 675529-001

Date Collected: 10.19.2020 00:00

Analytical Method: SAR Metals by SW6010C

Prep Method: SW3010A

Tech: MLI

Analyst: DEP

Date Prep: 10.21.2020 09:35

% Moisture:

SUB: T104704215-20-38

Seq Number: 3140270

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Calcium	7440-70-2	9850	50.0	mg/L	10.21.2020 19:41	D	250
Magnesium	7439-95-4	1170	20.0	mg/L	10.21.2020 19:32	D	50
Sodium	7440-23-5	61300	500	mg/L	10.22.2020 13:11	D	1000

Analytical Method: Sodium Adsorption Ratio

Tech: DEP

Analyst: DEP

% Moisture:

SUB: T104704215-20-38

Seq Number: 3140371

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Sodium Adsorption Ratio		155			10.22.2020 16:27		1

Analytical Method: Specific Conductance @25C by SM2510B

Tech: KBU

Analyst: KBU

% Moisture:

SUB: T104704215-20-38

Seq Number: 3140168

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Conductivity	COND	706	10.0	umhos/cm	10.20.2020 14:03		1



Certificate of Analytical Results 675529

COG Operating LLC, Artesia, NM

COG - High Brass

Sample Id: **High Brass Produced Water Sample 2** Matrix: Water Date Received: 10.19.2020 14:14
 Lab Sample Id: 675529-002 Date Collected: 10.19.2020 00:00

Analytical Method: Alkalinity by SM2320B Prep Method: SM2320P
 Tech: KBU
 Analyst: KBU Date Prep: 10.20.2020 10:53 % Moisture:
 Seq Number: 3140140 SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Alkalinity, Total (CaCO ₃)	1640192	91.0	4.00	mg/L	10.20.2020 12:13		1

Analytical Method: Cation-Anion Balance Calculation

Tech: ALA
 Analyst: ALA % Moisture:
 Seq Number: 3140380 SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Cation-Anion Balance	CATANBAL	6.00		%	10.22.2020 16:49		1

Analytical Method: Dissolved Anions by EPA 300

Tech: JYM
 Analyst: JYM Date Prep: 10.20.2020 16:34 Prep Method: E300P
 Seq Number: 3140179 % Moisture:
 SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	128000	250	mg/L	10.21.2020 10:15	D	500
Fluoride	16984-48-8	<10.0	10.0	mg/L	10.20.2020 20:23	U	20
Nitrate as N	14797-55-8	<2.00	2.00	mg/L	10.20.2020 20:23	U	20
Sulfate	14808-79-8	401	100	mg/L	10.20.2020 20:36	D	200

Analytical Method: Dissolved Metals per ICP by SW846 6010B

Tech: MLI
 Analyst: DEP Date Prep: 10.22.2020 09:05 Prep Method: SW3010A
 Seq Number: 3140366 % Moisture:
 SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Calcium	7440-70-2	10900	200	mg/L	10.22.2020 15:44	D	1000
Magnesium	7439-95-4	1290	40.0	mg/L	10.22.2020 15:27		100
Potassium	7440-09-7	1070	50.0	mg/L	10.22.2020 15:27		100
Sodium	7440-23-5	58200	500	mg/L	10.22.2020 15:44	D	1000



Certificate of Analytical Results 675529

COG Operating LLC, Artesia, NM

COG - High Brass

Sample Id: **High Brass Produced Water Sample 2** Matrix: Water Date Received: 10.19.2020 14:14

Lab Sample Id: 675529-002 Date Collected: 10.19.2020 00:00

Analytical Method: SAR Metals by SW6010C

Prep Method: SW3010A

Tech: MLI

Analyst: DEP

Date Prep: 10.21.2020 09:35

% Moisture:

SUB: T104704215-20-38

Seq Number: 3140270

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Calcium	7440-70-2	10800	50.0	mg/L	10.21.2020 19:45	D	250
Magnesium	7439-95-4	1260	20.0	mg/L	10.21.2020 19:36	D	50
Sodium	7440-23-5	61300	500	mg/L	10.22.2020 13:16	D	1000

Analytical Method: Sodium Adsorption Ratio

Tech: DEP

Analyst: DEP

% Moisture:

SUB: T104704215-20-38

Seq Number: 3140371

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Sodium Adsorption Ratio		149			10.22.2020 16:27		1

Analytical Method: Specific Conductance @25C by SM2510B

Tech: KBU

Analyst: KBU

% Moisture:

SUB: T104704215-20-38

Seq Number: 3140168

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Conductivity	COND	231000	300	umhos/cm	10.20.2020 14:03		30

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. **ND** Not Detected.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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



COG Operating LLC

COG - High Brass

Analytical Method: Alkalinity by SM2320B

Seq Number: 3140140

Matrix: Water

Prep Method: SM2320P

Date Prep: 10.20.2020

MB Sample Id: 7713553-1-BLK

LCS Sample Id: 7713553-1-BKS

LCSD Sample Id: 7713553-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Alkalinity, Total (CaCO3)	<4.00	250	259	104	264	106	85-115	2	20	mg/L	10.20.2020 11:26	

Analytical Method: Alkalinity by SM2320B

Seq Number: 3140140

Matrix: Ground Water

Prep Method: SM2320P

Date Prep: 10.20.2020

Parent Sample Id: 674885-001

MD Sample Id: 674885-001 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Alkalinity, Total (CaCO3)	176	175	1	20	mg/L	10.20.2020 11:45	

Analytical Method: Dissolved Anions by EPA 300

Seq Number: 3140179

Matrix: Water

Prep Method: E300P

Date Prep: 10.20.2020

MB Sample Id: 7713599-1-BLK

LCS Sample Id: 7713599-1-BKS

LCSD Sample Id: 7713599-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.500	10.0	10.3	103	10.3	103	90-110	0	20	mg/L	10.20.2020 16:25	
Fluoride	<0.500	10.0	10.5	105	10.5	105	90-110	0	20	mg/L	10.20.2020 16:25	
Nitrate as N	<0.100	10.0	10.2	102	10.3	103	90-110	1	20	mg/L	10.20.2020 16:25	
Sulfate	<0.500	10.0	10.3	103	10.3	103	90-110	0	20	mg/L	10.20.2020 16:25	

Analytical Method: Dissolved Anions by EPA 300

Seq Number: 3140179

Matrix: Ground Water

Prep Method: E300P

Date Prep: 10.20.2020

Parent Sample Id: 675549-001

MS Sample Id: 675549-001 S

MSD Sample Id: 675549-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	187	10.0	193	60	193	60	90-110	0	20	mg/L	10.20.2020 17:03	X
Fluoride	0.270	10.0	10.7	104	10.7	104	90-110	0	20	mg/L	10.20.2020 17:03	
Nitrate as N	3.61	10.0	13.8	102	13.8	102	90-110	0	20	mg/L	10.20.2020 17:03	
Sulfate	39.5	10.0	48.8	93	48.9	94	90-110	0	20	mg/L	10.20.2020 17:03	

Analytical Method: Dissolved Anions by EPA 300

Seq Number: 3140179

Matrix: Ground Water

Prep Method: E300P

Date Prep: 10.20.2020

Parent Sample Id: 675549-002

MS Sample Id: 675549-002 S

MSD Sample Id: 675549-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	279	10.0	284	50	283	40	90-110	0	20	mg/L	10.20.2020 17:40	X
Fluoride	0.376	10.0	10.7	103	10.7	103	90-110	0	20	mg/L	10.20.2020 17:40	
Nitrate as N	8.53	10.0	18.6	101	18.6	101	90-110	0	20	mg/L	10.20.2020 17:40	
Sulfate	116	10.0	124	80	124	80	90-110	0	20	mg/L	10.20.2020 17:40	X

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

COG - High Brass

Analytical Method: Dissolved Metals per ICP by SW846 6010B

Seq Number: 3140366

Matrix: Water

Prep Method: SW3010A

Date Prep: 10.22.2020

MB Sample Id: 7713720-1-BLK

LCS Sample Id: 7713720-1-BKS

LCSD Sample Id: 7713720-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Calcium	<0.200	25.0	23.7	95	23.6	94	75-125	0	20	mg/L	10.22.2020 14:12	
Magnesium	<0.400	25.0	23.9	96	23.8	95	75-125	0	20	mg/L	10.22.2020 14:12	
Potassium	<0.500	10.0	9.50	95	9.51	95	75-125	0	20	mg/L	10.22.2020 14:12	
Sodium	<0.500	25.0	23.7	95	23.6	94	75-125	0	20	mg/L	10.22.2020 14:12	

Analytical Method: Dissolved Metals per ICP by SW846 6010B

Seq Number: 3140366

Matrix: Ground Water

Prep Method: SW3010A

Date Prep: 10.22.2020

Parent Sample Id: 675451-002

MS Sample Id: 675451-002 S

MSD Sample Id: 675451-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Calcium	4.56	25.0	27.7	93	27.4	91	75-125	1	20	mg/L	10.22.2020 14:25	
Magnesium	2.25	25.0	26.1	95	25.9	95	75-125	1	20	mg/L	10.22.2020 14:25	
Potassium	1.28	10.0	10.8	95	10.6	93	75-125	2	20	mg/L	10.22.2020 14:25	
Sodium	15.1	25.0	38.9	95	38.6	94	75-125	1	20	mg/L	10.22.2020 14:25	

Analytical Method: SAR Metals by SW6010C

Seq Number: 3140270

Matrix: Water

Prep Method: SW3010A

Date Prep: 10.21.2020

MB Sample Id: 7713634-1-BLK

LCS Sample Id: 7713634-1-BKS

LCSD Sample Id: 7713634-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Calcium	<0.200	25.0	24.8	99	24.8	99	75-125	0	20	mg/L	10.21.2020 14:29	
Magnesium	<0.400	25.0	25.0	100	25.0	100	75-125	0	20	mg/L	10.21.2020 14:29	
Sodium	<0.500	25.0	24.7	99	24.8	99	75-125	0	20	mg/L	10.21.2020 14:29	

Analytical Method: SAR Metals by SW6010C

Seq Number: 3140270

Matrix: Water

Prep Method: SW3010A

Date Prep: 10.21.2020

Parent Sample Id: 675222-001

MS Sample Id: 675222-001 S

MSD Sample Id: 675222-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Calcium	10.0	25.0	34.6	98	34.6	98	75-125	0	20	mg/L	10.21.2020 14:42	
Magnesium	3.23	25.0	27.9	99	27.9	99	75-125	0	20	mg/L	10.21.2020 14:42	
Sodium	3.85	25.0	29.9	104	29.8	104	75-125	0	20	mg/L	10.21.2020 14:42	

Analytical Method: Specific Conductance @25C by SM2510B

Seq Number: 3140168

Matrix: Water

MB Sample Id: 3140168-1-BLK

LCS Sample Id: 3140168-1-BKS

LCSD Sample Id: 3140168-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Conductivity	<10.0	1410	1420	101	1410	100	80-120	1	20	umhos/cm	10.20.2020 14:03	

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

COG - High Brass

Analytical Method: Specific Conductance @25C by SM2510B

Seq Number: 3140168 Matrix: Water
 Parent Sample Id: 675228-004 MD Sample Id: 675228-004 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Conductivity	78100	78300	0	20	umhos/cm	10.20.2020 14:03	

Analytical Method: Specific Conductance @25C by SM2510B

Seq Number: 3140168 Matrix: Water
 Parent Sample Id: 675361-001 MD Sample Id: 675361-001 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Conductivity	<10.0	<10.0	0	20	umhos/cm	10.20.2020 14:03	

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

One Concho
Center/600 Illinois
Avenue/Midland, Texas

1 ei (432) 683-7443

Page 1 of 1

675529

Inter-Office Shipment

IOS Number : **72011**

Date/Time: 10.19.2020

Created by: Cloe Clifton

Please send report to: Jessica Kramer

Lab# From: **Carlsbad**

Delivery Priority:

Address: 1089 N Canal Street

Lab# To: **Houston**

Air Bill No.: 771839736450

E-Mail: jessica.kramer@eurofinset.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
675529-001	W	High Brass Produced W	10.19.2020 00:00	SM1030E	Cation-Anion Balance Calculation	10.21.2020	11.18.2020	JKR	Cation-Anion Balance	
675529-001	W	High Brass Produced W	10.19.2020 00:00	SM2320B	Alkalinity by SM2320B	10.21.2020	11.02.2020	JKR	ALK	
675529-001	W	High Brass Produced W	10.19.2020 00:00	SW6010C_SAR	SAR Metals by SW6010C	10.21.2020	04.17.2021	JKR	CA MG NA	
675529-001	W	High Brass Produced W	10.19.2020 00:00	SM2510B	Specific Conductance @25C by SM2510	10.21.2020	11.16.2020	JKR		
675529-001	W	High Brass Produced W	10.19.2020 00:00	SAR	Sodium Adsorption Ratio	10.21.2020	08.02.2035	JKR		
675529-001	W	High Brass Produced W	10.19.2020 00:00	SW6010B_DISS	Dissolved Metals per ICP by SW846 601	10.21.2020	04.17.2021	JKR	CA K MG NA	
675529-001	W	High Brass Produced W	10.19.2020 00:00	E300_DISS	Dissolved Anions by EPA 300	10.21.2020	10.21.2020 00:00	JKR	CL F NO3N SO4	
675529-002	W	High Brass Produced W	10.19.2020 00:00	SM2510B	Specific Conductance @25C by SM2510	10.21.2020	11.16.2020	JKR		
675529-002	W	High Brass Produced W	10.19.2020 00:00	SAR	Sodium Adsorption Ratio	10.21.2020	08.02.2035	JKR		
675529-002	W	High Brass Produced W	10.19.2020 00:00	SW6010B_DISS	Dissolved Metals per ICP by SW846 601	10.21.2020	04.17.2021	JKR	CA K MG NA	
675529-002	W	High Brass Produced W	10.19.2020 00:00	SW6010C_SAR	SAR Metals by SW6010C	10.21.2020	04.17.2021	JKR	CA MG NA	
675529-002	W	High Brass Produced W	10.19.2020 00:00	SM2320B	Alkalinity by SM2320B	10.21.2020	11.02.2020	JKR	ALK	
675529-002	W	High Brass Produced W	10.19.2020 00:00	E300_DISS	Dissolved Anions by EPA 300	10.21.2020	10.21.2020 00:00	JKR	CL F NO3N SO4	
675529-002	W	High Brass Produced W	10.19.2020 00:00	SM1030E	Cation-Anion Balance Calculation	10.21.2020	11.18.2020	JKR	Cation-Anion Balance	

Inter Office Shipment or Sample Comments:

Relinquished By: Jessica Kramer
 Jessica Kramer

Date Relinquished: 10.19.2020

Received By: Hypatia Keys
 Hypatia Keys

Date Received: 10.20.2020

Cooler Temperature: 2.1

Inter-Office Shipment

IOS Number : **72012**

Date/Time: 10.19.2020

Created by: Cloe Clifton

Please send report to: Jessica Kramer

Lab# From: **Carlsbad**

Delivery Priority:

Address: 1089 N Canal Street

Lab# To: **Houston**

Air Bill No.:

E-Mail: jessica.kramer@eurofinset.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
675529-001	S	High Brass Produced Wi	10.19.2020 00:00	S29B08_Twice	SAR Twice Saturated Extraction	10.21.2020	08.02.2035	JKR		
675529-002	S	High Brass Produced Wi	10.19.2020 00:00	S29B08_Twice	SAR Twice Saturated Extraction	10.21.2020	08.02.2035	JKR		

Inter Office Shipment or Sample Comments:

Relinquished By:



Cloe Clifton

Date Relinquished: 10.19.2020

Received By: _____

Date Received: _____

Cooler Temperature: _____

Inter Office Report- Sample Receipt Checklist

Sent To: Houston

IOS #: 72011

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : hou-203

Sent By: Cloe Clifton

Date Sent: 10.19.2020 03.32 PM

Received By: Hypatia Keys

Date Received: 10.20.2020 01.47 PM

Sample Receipt Checklist

Comments

#1 *Temperature of cooler(s)?	2.1
#2 *Shipping container in good condition?	Yes
#3 *Samples received with appropriate temperature?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	N/A
#5 *Custody Seals Signed and dated for Containers/coolers	N/A
#6 *IOS present?	Yes
#7 Any missing/extra samples?	No
#8 IOS agrees with sample label(s)/matrix?	Yes
#9 Sample matrix/ properties agree with IOS?	Yes
#10 Samples in proper container/ bottle?	Yes
#11 Samples properly preserved?	Yes
#12 Sample container(s) intact?	Yes
#13 Sufficient sample amount for indicated test(s)?	Yes
#14 All samples received within hold time?	Yes

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

NonConformance:

Corrective Action Taken:

Nonconformance Documentation

Contact: _____ Contacted by : _____ Date: _____

Checklist reviewed by:



Hypatia Keys

Date: 10.20.2020

Eurofins Xenco, LLC

Prelogin/Nonconformance Report- Sample Log-In

Client: COG Operating LLC

Date/ Time Received: 10.19.2020 02.14.00 PM

Work Order #: 675529

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : T_NM_007

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	16
#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)?	Yes
#18 Water VOC samples have zero headspace?	N/A

Samples sent to Stafford.

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

Analyst:

PH Device/Lot#:

Checklist completed by:



Cloe Clifton

Date: 10.19.2020

Checklist reviewed by:

Date: 10.19.2020

Certificate of Analysis Summary 676490

COG Operating LLC, Artesia, NM

Project Name: High Brass 002H (6-13-20)

Project Id: COG - High Brass

Contact: Ike Tavaréz

Project Location: Eddy County, NM

Date Received in Lab: Fri 10.30.2020 13:31

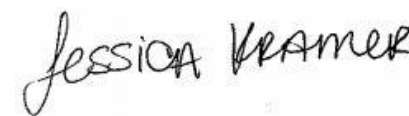
Report Date: 11.04.2020 18:25

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	676490-001	676490-002	676490-003	676490-004	676490-005	676490-006
	<i>Field Id:</i>	Background 7 1'	Background 7 2'	Background 7 3'	Background 7 4'	Background 7 5'	Background 7 6'
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	10.29.2020 00:00	10.29.2020 00:00	10.29.2020 00:00	10.29.2020 00:00	10.29.2020 00:00	10.29.2020 00:00
Alkalinity by SM2320B SUB: T104704215-20-38	<i>Extracted:</i>						11.04.2020 09:45
	<i>Analyzed:</i>						11.04.2020 12:00
	<i>Units/RL:</i>						mg/L RL
Alkalinity, Total (CaCO ₃)							252 40.0
Cation-Anion Balance Calculation SUB: T104704215-20-38	<i>Extracted:</i>						11.04.2020 18:06
	<i>Analyzed:</i>						% RL
	<i>Units/RL:</i>						
Cation-Anion Balance							1.30
Dissolved Anions by EPA 300 SUB: T104704215-20-38	<i>Extracted:</i>						11.03.2020 10:52
	<i>Analyzed:</i>						11.03.2020 16:31
	<i>Units/RL:</i>						mg/L RL
Chloride							80.9 5.00
Fluoride							<5.00 5.00
Nitrate as N							1.49 K 1.00
Sulfate							7520 E 5.00
Dissolved Metals per ICP by SW846 6010B SUB: T104704215-20-38	<i>Extracted:</i>						11.04.2020 09:00
	<i>Analyzed:</i>						11.04.2020 13:48
	<i>Units/RL:</i>						mg/L RL
Boron							<0.500 0.500
Calcium							3090 D 100
Magnesium							92.4 4.00
Potassium							34.9 5.00
Sodium							91.9 5.00

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico



Certificate of Analysis Summary 676490

COG Operating LLC, Artesia, NM

Project Name: High Brass 002H (6-13-20)

Project Id: COG - High Brass

Contact: Ike Tavaréz

Project Location: Eddy County, NM

Date Received in Lab: Fri 10.30.2020 13:31

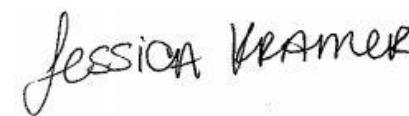
Report Date: 11.04.2020 18:25

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	676490-001	676490-002	676490-003	676490-004	676490-005	676490-006
	<i>Field Id:</i>	Background 7 1'	Background 7 2'	Background 7 3'	Background 7 4'	Background 7 5'	Background 7 6'
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	10.29.2020 00:00	10.29.2020 00:00	10.29.2020 00:00	10.29.2020 00:00	10.29.2020 00:00	10.29.2020 00:00
Chloride by EPA 300	<i>Extracted:</i>	10.30.2020 18:10	10.30.2020 18:10	10.30.2020 18:10	10.30.2020 18:10	10.30.2020 18:10	10.30.2020 18:10
	<i>Analyzed:</i>	10.31.2020 14:11	10.31.2020 14:27	10.31.2020 14:32	10.31.2020 14:38	10.31.2020 14:43	10.31.2020 14:48
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		15.2 X 5.05	11.5 4.97	11.9 4.97	16.9 4.97	27.2 5.00	46.8 4.96
Electrical Conductivity (SAR) SUB: T104704215-20-38	<i>Extracted:</i>						11.04.2020 15:41
	<i>Analyzed:</i>						umhos/cm RL
	<i>Units/RL:</i>						
Conductivity							7290 20.0
Percent Moisture by SM2540G SUB: T104704215-20-38	<i>Extracted:</i>						10.31.2020 09:49
	<i>Analyzed:</i>						% RL
	<i>Units/RL:</i>						
Percent Moisture							3.81
SAR Metals by SW6010C SUB: T104704215-20-38	<i>Extracted:</i>						11.03.2020 16:50
	<i>Analyzed:</i>						11.04.2020 12:04
	<i>Units/RL:</i>						mg/kg RL
Calcium							1940 D 20.8
Magnesium							41.9 0.830
Sodium							54.7 1.04
SAR Twice Saturated Extraction SUB: T104704215-20-38	<i>Extracted:</i>						11.04.2020 16:25
	<i>Analyzed:</i>						
	<i>Units/RL:</i>						
Sodium Adsorption Ratio							0.336

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico



Certificate of Analysis Summary 676490

COG Operating LLC, Artesia, NM

Project Name: High Brass 002H (6-13-20)

Project Id: COG - High Brass

Contact: Ike Tavaréz

Project Location: Eddy County, NM

Date Received in Lab: Fri 10.30.2020 13:31

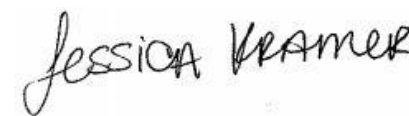
Report Date: 11.04.2020 18:25

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	676490-007	676490-008	676490-009	676490-010	676490-011	676490-012
	<i>Field Id:</i>	Background 7 7'	Background 7 8'	Background 7 9'	Background 7 10'	Background 7 12'	Background 7 14' (Refusa
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	10.29.2020 00:00	10.29.2020 00:00	10.29.2020 00:00	10.29.2020 00:00	10.29.2020 00:00	10.29.2020 00:00
Alkalinity by SM2320B SUB: T104704215-20-38	<i>Extracted:</i>				11.04.2020 09:45		11.04.2020 09:45
	<i>Analyzed:</i>				11.04.2020 12:05		11.04.2020 12:10
	<i>Units/RL:</i>				mg/L RL		mg/L RL
Alkalinity, Total (CaCO ₃)					108 40.0		262 40.0
Cation-Anion Balance Calculation SUB: T104704215-20-38	<i>Extracted:</i>						
	<i>Analyzed:</i>				11.04.2020 18:06		11.04.2020 18:06
	<i>Units/RL:</i>				% RL		% RL
Cation-Anion Balance					2.50		5.10
Dissolved Anions by EPA 300 SUB: T104704215-20-38	<i>Extracted:</i>				11.03.2020 10:52		11.03.2020 10:52
	<i>Analyzed:</i>				11.03.2020 16:57		11.03.2020 17:23
	<i>Units/RL:</i>				mg/L RL		mg/L RL
Chloride					164 5.00		223 5.00
Fluoride					<5.00 5.00		<5.00 5.00
Nitrate as N					1.43 K 1.00		1.42 K 1.00
Sulfate					4480 E 5.00		2340 5.00
Dissolved Metals per ICP by SW846 6010B SUB: T104704215-20-38	<i>Extracted:</i>				11.04.2020 09:00		11.04.2020 09:00
	<i>Analyzed:</i>				11.04.2020 14:22		11.04.2020 14:26
	<i>Units/RL:</i>				mg/L RL		mg/L RL
Boron					<0.500 0.500		<0.500 0.500
Calcium					1660 D 100		850 D 100
Magnesium					109 4.00		88.8 4.00
Potassium					24.2 5.00		19.5 5.00
Sodium					135 5.00		137 5.00

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico



Certificate of Analysis Summary 676490

COG Operating LLC, Artesia, NM

Project Name: High Brass 002H (6-13-20)

Project Id: COG - High Brass

Contact: Ike Tavarez

Project Location: Eddy County, NM

Date Received in Lab: Fri 10.30.2020 13:31

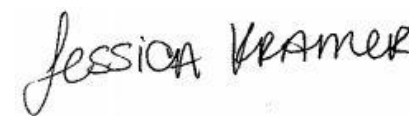
Report Date: 11.04.2020 18:25

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	676490-007	676490-008	676490-009	676490-010	676490-011	676490-012
	<i>Field Id:</i>	Background 7 7'	Background 7 8'	Background 7 9'	Background 7 10'	Background 7 12'	Background 7 14' (Refusa
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	10.29.2020 00:00	10.29.2020 00:00	10.29.2020 00:00	10.29.2020 00:00	10.29.2020 00:00	10.29.2020 00:00
Chloride by EPA 300	<i>Extracted:</i>	10.30.2020 18:10	10.30.2020 18:10	10.30.2020 18:10	10.30.2020 18:10	10.30.2020 18:10	10.30.2020 18:10
	<i>Analyzed:</i>	10.30.2020 20:47	10.30.2020 20:52	10.30.2020 20:57	10.30.2020 21:02	10.30.2020 21:08	10.30.2020 21:24
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		46.8 24.8	95.8 25.0	179 25.2	157 25.1	186 25.0	210 24.9
Electrical Conductivity (SAR) SUB: T104704215-20-38	<i>Extracted:</i>						
	<i>Analyzed:</i>				11.04.2020 15:41		11.04.2020 15:41
	<i>Units/RL:</i>				umhos/cm RL		umhos/cm RL
Conductivity					8980 20.0		7070 20.0
Percent Moisture by SM2540G SUB: T104704215-20-38	<i>Extracted:</i>						
	<i>Analyzed:</i>				10.31.2020 09:49		10.31.2020 09:49
	<i>Units/RL:</i>				% RL		% RL
Percent Moisture					2.65		2.95
SAR Metals by SW6010C SUB: T104704215-20-38	<i>Extracted:</i>						
	<i>Analyzed:</i>				11.03.2020 16:50		11.03.2020 16:50
	<i>Units/RL:</i>				11.04.2020 12:12		11.04.2020 12:17
Calcium					mg/kg RL		mg/kg RL
Magnesium					2210 D 20.5		1570 D 20.6
Sodium					85.1 0.820		72.7 0.823
					144 1.03		157 1.03
SAR Twice Saturated Extraction SUB: T104704215-20-38	<i>Extracted:</i>						
	<i>Analyzed:</i>				11.04.2020 16:25		11.04.2020 16:25
	<i>Units/RL:</i>						
Sodium Adsorption Ratio					0.818		1.05

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico



Analytical Report 676490

for

COG Operating LLC

Project Manager: Ike Tavaréz

High Brass 002H (6-13-20)

COG - High Brass

11.04.2020

Collected By: Client



**1211 W. Florida Ave
Midland TX 79701**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-38), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2020-014), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-20-26), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-18)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-23)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-21)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-20-8)
Xenco-Tampa: Florida (E87429), North Carolina (483)



11.04.2020

Project Manager: **Ike Tavaréz**

COG Operating LLC

2407 Pecos Avenue

Artesia, NM 88210

Reference: Eurofins Xenco, LLC Report No(s): **676490**

High Brass 002H (6-13-20)

Project Address: Eddy County, NM

Ike Tavaréz:

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 Eurofins Xenco, LLC Report Number(s) 676490. 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 Eurofins Xenco, LLC. 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. 676490 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 Eurofins Xenco, LLC to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

A handwritten signature in black ink that reads "Jessica Kramer".

Jessica Kramer

Project Manager

A Small Business and Minority Company

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

**Sample Cross Reference 676490****COG Operating LLC, Artesia, NM**

High Brass 002H (6-13-20)

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
Background 7 1'	S	10.29.2020 00:00		676490-001
Background 7 2'	S	10.29.2020 00:00		676490-002
Background 7 3'	S	10.29.2020 00:00		676490-003
Background 7 4'	S	10.29.2020 00:00		676490-004
Background 7 5'	S	10.29.2020 00:00		676490-005
Background 7 6'	S	10.29.2020 00:00		676490-006
Background 7 7'	S	10.29.2020 00:00		676490-007
Background 7 8'	S	10.29.2020 00:00		676490-008
Background 7 9'	S	10.29.2020 00:00		676490-009
Background 7 10'	S	10.29.2020 00:00		676490-010
Background 7 12'	S	10.29.2020 00:00		676490-011
Background 7 14' (Refusal)	S	10.29.2020 00:00		676490-012

**CASE NARRATIVE****Client Name: COG Operating LLC****Project Name: High Brass 002H (6-13-20)**

Project ID: COG - High Brass
Work Order Number(s): 676490

Report Date: 11.04.2020
Date Received: 10.30.2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3141072 Chloride by EPA 300

Lab Sample ID 676490-011 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: 676490-001, -002, -003, -004, -005, -006, -007, -008, -009, -010, -011, -012.

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

**Certificate of Analytical Results 676490****COG Operating LLC, Artesia, NM**

High Brass 002H (6-13-20)

Sample Id: **Background 7 1'**

Matrix: Soil

Date Received: 10.30.2020 13:31

Lab Sample Id: 676490-001

Date Collected: 10.29.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 10.30.2020 18:10

% Moisture:

Seq Number: 3141072

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	15.2	5.05	mg/kg	10.31.2020 14:11	X	1

**Certificate of Analytical Results 676490****COG Operating LLC, Artesia, NM**

High Brass 002H (6-13-20)

Sample Id: **Background 7 2'**

Matrix: Soil

Date Received: 10.30.2020 13:31

Lab Sample Id: 676490-002

Date Collected: 10.29.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 10.30.2020 18:10

% Moisture:

Seq Number: 3141072

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	11.5	4.97	mg/kg	10.31.2020 14:27		1



Certificate of Analytical Results 676490

COG Operating LLC, Artesia, NM

High Brass 002H (6-13-20)

Sample Id: **Background 7 3'**

Matrix: Soil

Date Received: 10.30.2020 13:31

Lab Sample Id: 676490-003

Date Collected: 10.29.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 10.30.2020 18:10

% Moisture:

Seq Number: 3141072

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	11.9	4.97	mg/kg	10.31.2020 14:32		1



Certificate of Analytical Results 676490

COG Operating LLC, Artesia, NM

High Brass 002H (6-13-20)

Sample Id: **Background 7 4'**

Matrix: Soil

Date Received: 10.30.2020 13:31

Lab Sample Id: 676490-004

Date Collected: 10.29.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 10.30.2020 18:10

% Moisture:

Seq Number: 3141072

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	16.9	4.97	mg/kg	10.31.2020 14:38		1



Certificate of Analytical Results 676490

COG Operating LLC, Artesia, NM

High Brass 002H (6-13-20)

Sample Id: **Background 7 5'**

Matrix: Soil

Date Received: 10.30.2020 13:31

Lab Sample Id: 676490-005

Date Collected: 10.29.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 10.30.2020 18:10

% Moisture:

Seq Number: 3141072

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	27.2	5.00	mg/kg	10.31.2020 14:43		1



Certificate of Analytical Results 676490

COG Operating LLC, Artesia, NM

High Brass 002H (6-13-20)

Sample Id: **Background 7 6'**

Matrix: Soil

Date Received: 10.30.2020 13:31

Lab Sample Id: 676490-006

Date Collected: 10.29.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 10.30.2020 18:10

% Moisture:

Seq Number: 3141072

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	46.8	4.96	mg/kg	10.31.2020 14:48		1

Analytical Method: SAR Metals by SW6010C

Prep Method: SW3051

Tech: PJB

Analyst: DEP

Date Prep: 11.03.2020 16:50

% Moisture: 3.81

Seq Number: 3141351

Basis: Dry Weight

SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Calcium	7440-70-2	1940	20.8	mg/kg	11.04.2020 12:46	D	50
Magnesium	7439-95-4	41.9	0.830	mg/kg	11.04.2020 12:04		1
Sodium	7440-23-5	54.7	1.04	mg/kg	11.04.2020 12:04		1

Analytical Method: Electrical Conductivity (SAR)

Tech: YAV

Analyst: YAV

% Moisture:

Seq Number: 3141350

Basis: Wet Weight

SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Conductivity	COND	7290	20.0	umhos/cm	11.04.2020 15:41		1

Analytical Method: SAR Twice Saturated Extraction

Tech: DEP

Analyst: DEP

% Moisture:

Seq Number: 3141354

Basis: Wet Weight

SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Sodium Adsorption Ratio		0.336			11.04.2020 16:25		1



Certificate of Analytical Results 676490

COG Operating LLC, Artesia, NM

High Brass 002H (6-13-20)

Sample Id: **Background 7 6'**

Matrix: Soil

Date Received: 10.30.2020 13:31

Lab Sample Id: 676490-006

Date Collected: 10.29.2020 00:00

Analytical Method: Alkalinity by SM2320B

Prep Method: SM2320P

Tech: ALA

Analyst: ALA

Date Prep: 11.04.2020 09:45

% Moisture:
SUB: T104704215-20-38

Seq Number: 3141335

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Alkalinity, Total (CaCO3)	1640192	252	40.0	mg/L	11.04.2020 12:00		1

Analytical Method: Cation-Anion Balance Calculation

Tech: ALA

Analyst: ALA

% Moisture:
SUB: T104704215-20-38

Seq Number: 3141374

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Cation-Anion Balance	CATANBAL	1.30		%	11.04.2020 18:06		1

Analytical Method: Dissolved Anions by EPA 300

Prep Method: E300P

Tech: JYM

Analyst: JYM

Date Prep: 11.03.2020 10:52

% Moisture:
SUB: T104704215-20-38

Seq Number: 3141295

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	80.9	5.00	mg/L	11.03.2020 16:31		1
Fluoride	16984-48-8	<5.00	5.00	mg/L	11.03.2020 16:31	UK	1
Nitrate as N	14797-55-8	1.49	1.00	mg/L	11.03.2020 16:31	K	1
Sulfate	14808-79-8	7520	5.00	mg/L	11.03.2020 16:31	E	1

Analytical Method: Dissolved Metals per ICP by SW846 6010B

Prep Method: SW3010A

Tech: MLI

Analyst: DEP

Date Prep: 11.04.2020 09:00

% Moisture:
SUB: T104704215-20-38

Seq Number: 3141348

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Boron	7440-42-8	<0.500	0.500	mg/L	11.04.2020 13:48	U	1
Calcium	7440-70-2	3090	100	mg/L	11.04.2020 14:09	D	500
Magnesium	7439-95-4	92.4	4.00	mg/L	11.04.2020 13:48		1
Potassium	7440-09-7	34.9	5.00	mg/L	11.04.2020 13:48		1
Sodium	7440-23-5	91.9	5.00	mg/L	11.04.2020 13:48		1

**Certificate of Analytical Results 676490****COG Operating LLC, Artesia, NM**

High Brass 002H (6-13-20)

Sample Id: **Background 7 7'**

Matrix: Soil

Date Received: 10.30.2020 13:31

Lab Sample Id: 676490-007

Date Collected: 10.29.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 10.30.2020 18:10

% Moisture:

Seq Number: 3141072

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	46.8	24.8	mg/kg	10.30.2020 20:47		5

**Certificate of Analytical Results 676490****COG Operating LLC, Artesia, NM**

High Brass 002H (6-13-20)

Sample Id: **Background 7 8'**

Matrix: Soil

Date Received: 10.30.2020 13:31

Lab Sample Id: 676490-008

Date Collected: 10.29.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 10.30.2020 18:10

% Moisture:

Seq Number: 3141072

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	95.8	25.0	mg/kg	10.30.2020 20:52		5

**Certificate of Analytical Results 676490****COG Operating LLC, Artesia, NM**

High Brass 002H (6-13-20)

Sample Id: **Background 7 9'**

Matrix: Soil

Date Received: 10.30.2020 13:31

Lab Sample Id: 676490-009

Date Collected: 10.29.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 10.30.2020 18:10

% Moisture:

Seq Number: 3141072

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	179	25.2	mg/kg	10.30.2020 20:57		5



Certificate of Analytical Results 676490

COG Operating LLC, Artesia, NM

High Brass 002H (6-13-20)

Sample Id: **Background 7 10'**

Matrix: Soil

Date Received: 10.30.2020 13:31

Lab Sample Id: 676490-010

Date Collected: 10.29.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 10.30.2020 18:10

% Moisture:
Basis: Wet Weight

Seq Number: 3141072

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	157	25.1	mg/kg	10.30.2020 21:02		5

Analytical Method: SAR Metals by SW6010C

Prep Method: SW3051

Tech: PJB

Analyst: DEP

Date Prep: 11.03.2020 16:50

% Moisture: 2.65
Basis: Dry Weight
SUB: T104704215-20-38

Seq Number: 3141351

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Calcium	7440-70-2	2210	20.5	mg/kg	11.04.2020 12:55	D	50
Magnesium	7439-95-4	85.1	0.820	mg/kg	11.04.2020 12:12		1
Sodium	7440-23-5	144	1.03	mg/kg	11.04.2020 12:12		1

Analytical Method: Electrical Conductivity (SAR)

Tech: YAV

Analyst: YAV

% Moisture:
Basis: Wet Weight
SUB: T104704215-20-38

Seq Number: 3141350

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Conductivity	COND	8980	20.0	umhos/cm	11.04.2020 15:41		1

Analytical Method: SAR Twice Saturated Extraction

Tech: DEP

Analyst: DEP

% Moisture:
Basis: Wet Weight
SUB: T104704215-20-38

Seq Number: 3141354

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Sodium Adsorption Ratio		0.818			11.04.2020 16:25		1



Certificate of Analytical Results 676490

COG Operating LLC, Artesia, NM

High Brass 002H (6-13-20)

Sample Id: **Background 7 10'**

Matrix: Soil

Date Received: 10.30.2020 13:31

Lab Sample Id: 676490-010

Date Collected: 10.29.2020 00:00

Analytical Method: Alkalinity by SM2320B

Prep Method: SM2320P

Tech: ALA

Analyst: ALA

Date Prep: 11.04.2020 09:45

% Moisture:
SUB: T104704215-20-38

Seq Number: 3141335

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Alkalinity, Total (CaCO3)	1640192	108	40.0	mg/L	11.04.2020 12:05		1

Analytical Method: Cation-Anion Balance Calculation

Tech: ALA

Analyst: ALA

% Moisture:
SUB: T104704215-20-38

Seq Number: 3141374

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Cation-Anion Balance	CATANBAL	2.50		%	11.04.2020 18:06		1

Analytical Method: Dissolved Anions by EPA 300

Prep Method: E300P

Tech: JYM

Analyst: JYM

Date Prep: 11.03.2020 10:52

% Moisture:
SUB: T104704215-20-38

Seq Number: 3141295

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	164	5.00	mg/L	11.03.2020 16:57		1
Fluoride	16984-48-8	<5.00	5.00	mg/L	11.03.2020 16:57	UK	1
Nitrate as N	14797-55-8	1.43	1.00	mg/L	11.03.2020 16:57	K	1
Sulfate	14808-79-8	4480	5.00	mg/L	11.03.2020 16:57	E	1

Analytical Method: Dissolved Metals per ICP by SW846 6010B

Prep Method: SW3010A

Tech: MLI

Analyst: DEP

Date Prep: 11.04.2020 09:00

% Moisture:
SUB: T104704215-20-38

Seq Number: 3141348

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Boron	7440-42-8	<0.500	0.500	mg/L	11.04.2020 14:22	U	10
Calcium	7440-70-2	1660	100	mg/L	11.04.2020 14:44	D	500
Magnesium	7439-95-4	109	4.00	mg/L	11.04.2020 14:22		10
Potassium	7440-09-7	24.2	5.00	mg/L	11.04.2020 14:22		10
Sodium	7440-23-5	135	5.00	mg/L	11.04.2020 14:22		10



Certificate of Analytical Results 676490

COG Operating LLC, Artesia, NM

High Brass 002H (6-13-20)

Sample Id: **Background 7 12'**

Matrix: Soil

Date Received: 10.30.2020 13:31

Lab Sample Id: 676490-011

Date Collected: 10.29.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 10.30.2020 18:10

% Moisture:

Seq Number: 3141072

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	186	25.0	mg/kg	10.30.2020 21:08		5



Certificate of Analytical Results 676490

COG Operating LLC, Artesia, NM

High Brass 002H (6-13-20)

Sample Id: **Background 7 14' (Refusal)**

Matrix: Soil

Date Received: 10.30.2020 13:31

Lab Sample Id: 676490-012

Date Collected: 10.29.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 10.30.2020 18:10

% Moisture:
Basis: Wet Weight

Seq Number: 3141072

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	210	24.9	mg/kg	10.30.2020 21:24		5

Analytical Method: SAR Metals by SW6010C

Prep Method: SW3051

Tech: PJB

Analyst: DEP

Date Prep: 11.03.2020 16:50

% Moisture: 2.95
Basis: Dry Weight
SUB: T104704215-20-38

Seq Number: 3141351

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Calcium	7440-70-2	1570	20.6	mg/kg	11.04.2020 12:59	D	50
Magnesium	7439-95-4	72.7	0.823	mg/kg	11.04.2020 12:17		1
Sodium	7440-23-5	157	1.03	mg/kg	11.04.2020 12:17		1

Analytical Method: Electrical Conductivity (SAR)

Tech: YAV

Analyst: YAV

% Moisture:
Basis: Wet Weight
SUB: T104704215-20-38

Seq Number: 3141350

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Conductivity	COND	7070	20.0	umhos/cm	11.04.2020 15:41		1

Analytical Method: SAR Twice Saturated Extraction

Tech: DEP

Analyst: DEP

% Moisture:
Basis: Wet Weight
SUB: T104704215-20-38

Seq Number: 3141354

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Sodium Adsorption Ratio		1.05			11.04.2020 16:25		1



Certificate of Analytical Results 676490

COG Operating LLC, Artesia, NM

High Brass 002H (6-13-20)

Sample Id: **Background 7 14' (Refusal)**

Matrix: Soil

Date Received: 10.30.2020 13:31

Lab Sample Id: 676490-012

Date Collected: 10.29.2020 00:00

Analytical Method: Alkalinity by SM2320B

Prep Method: SM2320P

Tech: ALA

Analyst: ALA

Date Prep: 11.04.2020 09:45

% Moisture:
SUB: T104704215-20-38

Seq Number: 3141335

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Alkalinity, Total (CaCO3)	1640192	262	40.0	mg/L	11.04.2020 12:10		1

Analytical Method: Cation-Anion Balance Calculation

Tech: ALA

Analyst: ALA

% Moisture:
SUB: T104704215-20-38

Seq Number: 3141374

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Cation-Anion Balance	CATANBAL	5.10		%	11.04.2020 18:06		1

Analytical Method: Dissolved Anions by EPA 300

Prep Method: E300P

Tech: JYM

Analyst: JYM

Date Prep: 11.03.2020 10:52

% Moisture:
SUB: T104704215-20-38

Seq Number: 3141295

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	223	5.00	mg/L	11.03.2020 17:23		1
Fluoride	16984-48-8	<5.00	5.00	mg/L	11.03.2020 17:23	UK	1
Nitrate as N	14797-55-8	1.42	1.00	mg/L	11.03.2020 17:23	K	1
Sulfate	14808-79-8	2340	5.00	mg/L	11.03.2020 17:23		1

Analytical Method: Dissolved Metals per ICP by SW846 6010B

Prep Method: SW3010A

Tech: MLI

Analyst: DEP

Date Prep: 11.04.2020 09:00

% Moisture:
SUB: T104704215-20-38

Seq Number: 3141348

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Boron	7440-42-8	<0.500	0.500	mg/L	11.04.2020 14:26	U	10
Calcium	7440-70-2	850	100	mg/L	11.04.2020 14:49	D	500
Magnesium	7439-95-4	88.8	4.00	mg/L	11.04.2020 14:26		10
Potassium	7440-09-7	19.5	5.00	mg/L	11.04.2020 14:26		10
Sodium	7440-23-5	137	5.00	mg/L	11.04.2020 14:26		10

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. **ND** Not Detected.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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

COG Operating LLC

High Brass 002H (6-13-20)

Analytical Method: Alkalinity by SM2320B

Seq Number: 3141335

MB Sample Id: 7714482-1-BLK

Matrix: Water

LCS Sample Id: 7714482-1-BKS

Prep Method: SM2320P

Date Prep: 11.04.2020

LCSD Sample Id: 7714482-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Alkalinity, Total (CaCO ₃)	<4.00	250	261	104	264	106	85-115	1	20	mg/L	11.04.2020 11:35	

Analytical Method: Alkalinity by SM2320B

Seq Number: 3141335

Parent Sample Id: 676293-001

Matrix: Water

MD Sample Id: 676293-001 D

Prep Method: SM2320P

Date Prep: 11.04.2020

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Alkalinity, Total (CaCO ₃)	184	182	1	20	mg/L	11.04.2020 11:54	

Analytical Method: Alkalinity by SM2320B

Seq Number: 3141335

Parent Sample Id: 676430-004

Matrix: Water

MD Sample Id: 676430-004 D

Prep Method: SM2320P

Date Prep: 11.04.2020

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Alkalinity, Total (CaCO ₃)	243	243	0	20	mg/L	11.04.2020 13:10	

Analytical Method: Chloride by EPA 300

Seq Number: 3141072

MB Sample Id: 7714286-1-BLK

Matrix: Solid

LCS Sample Id: 7714286-1-BKS

Prep Method: E300P

Date Prep: 10.30.2020

LCSD Sample Id: 7714286-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	260	104	259	104	90-110	0	20	mg/kg	10.30.2020 19:43	

Analytical Method: Chloride by EPA 300

Seq Number: 3141072

Parent Sample Id: 676490-001

Matrix: Soil

MS Sample Id: 676490-001 S

Prep Method: E300P

Date Prep: 10.30.2020

MSD Sample Id: 676490-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	15.2	253	285	107	235	87	90-110	19	20	mg/kg	10.31.2020 14:17	X

Analytical Method: Chloride by EPA 300

Seq Number: 3141072

Parent Sample Id: 676490-011

Matrix: Soil

MS Sample Id: 676490-011 S

Prep Method: E300P

Date Prep: 10.30.2020

MSD Sample Id: 676490-011 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	186	1250	1490	104	1510	106	90-110	1	20	mg/kg	10.30.2020 21:13	

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

High Brass 002H (6-13-20)

Analytical Method: Dissolved Anions by EPA 300

Seq Number: 3141295

MB Sample Id: 7714392-1-BLK

Matrix: Water

LCS Sample Id: 7714392-1-BKS

Prep Method: E300P

Date Prep: 11.03.2020

LCSD Sample Id: 7714392-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.500	10.0	9.86	99	9.89	99	90-110	0	20	mg/L	11.03.2020 10:48	
Fluoride	<0.500	10.0	9.99	100	10.0	100	90-110	0	20	mg/L	11.03.2020 10:48	
Nitrate as N	<0.100	10.0	9.82	98	9.87	99	90-110	1	20	mg/L	11.03.2020 10:48	
Sulfate	<0.500	10.0	9.89	99	9.95	100	90-110	1	20	mg/L	11.03.2020 10:48	

Analytical Method: Dissolved Anions by EPA 300

Seq Number: 3141295

Parent Sample Id: 676615-001

Matrix: Water

MS Sample Id: 676615-001 S

Prep Method: E300P

Date Prep: 11.03.2020

MSD Sample Id: 676615-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	332	10.0	336	40	336	40	90-110	0	20	mg/L	11.03.2020 11:51	X
Fluoride	2.99	10.0	11.5	85	11.5	85	90-110	0	20	mg/L	11.03.2020 11:51	X
Nitrate as N	7.86	10.0	17.8	99	17.9	100	90-110	1	20	mg/L	11.03.2020 11:51	
Sulfate	198	10.0	204	60	204	60	90-110	0	20	mg/L	11.03.2020 11:51	X

Analytical Method: Dissolved Anions by EPA 300

Seq Number: 3141295

Parent Sample Id: 676615-002

Matrix: Water

MS Sample Id: 676615-002 S

Prep Method: E300P

Date Prep: 11.03.2020

MSD Sample Id: 676615-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	17.8	10.0	27.1	93	27.1	93	90-110	0	20	mg/L	11.03.2020 12:30	
Fluoride	<0.500	10.0	10.3	103	10.3	103	90-110	0	20	mg/L	11.03.2020 12:30	
Nitrate as N	1.72	10.0	11.8	101	11.8	101	90-110	0	20	mg/L	11.03.2020 12:30	
Sulfate	3.86	10.0	13.8	99	13.8	99	90-110	0	20	mg/L	11.03.2020 12:30	

Analytical Method: Percent Moisture by SM2540G

Seq Number: 3141063

Matrix: Solid

MB Sample Id: 3141063-1-BLK

Parameter	MB Result	Units	Analysis Date	Flag
Percent Moisture	0.0100	%	10.31.2020 09:49	

Analytical Method: Percent Moisture by SM2540G

Seq Number: 3141063

Matrix: Soil

Parent Sample Id: 676272-001

MD Sample Id: 676272-001 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Percent Moisture	9.07	9.34	3	10	%	10.31.2020 09:49	

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

High Brass 002H (6-13-20)

Analytical Method: Dissolved Metals per ICP by SW846 6010B

Seq Number: 3141348

Matrix: Water

Prep Method: SW3010A

Date Prep: 11.04.2020

MB Sample Id: 7714466-1-BLK

LCS Sample Id: 7714466-1-BKS

LCSD Sample Id: 7714466-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Boron	<0.0500	1.00	0.978	98	0.982	98	75-125	0	20	mg/L	11.04.2020 13:40	
Calcium	<0.200	25.0	24.4	98	24.4	98	75-125	0	20	mg/L	11.04.2020 13:40	
Magnesium	<0.400	25.0	24.7	99	24.6	98	75-125	0	20	mg/L	11.04.2020 13:40	
Potassium	<0.500	10.0	9.37	94	9.36	94	75-125	0	20	mg/L	11.04.2020 13:40	
Sodium	<0.500	25.0	23.0	92	23.0	92	75-125	0	20	mg/L	11.04.2020 13:40	

Analytical Method: Dissolved Metals per ICP by SW846 6010B

Seq Number: 3141348

Matrix: Soil

Prep Method: SW3010A

Date Prep: 11.04.2020

Parent Sample Id: 676490-006

MS Sample Id: 676490-006 S

MSD Sample Id: 676490-006 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Boron	<0.500	10.0	10.3	103	10.3	103	75-125	0	20	mg/L	11.04.2020 13:53	
Calcium	3090	250	3300	84	3300	84	75-125	0	20	mg/L	11.04.2020 13:53	
Magnesium	92.4	250	341	99	341	99	75-125	0	20	mg/L	11.04.2020 13:53	
Potassium	34.9	100	131	96	131	96	75-125	0	20	mg/L	11.04.2020 13:53	
Sodium	91.9	250	331	96	330	95	75-125	0	20	mg/L	11.04.2020 13:53	

Analytical Method: SAR Metals by SW6010C

Seq Number: 3141351

Matrix: Solid

Prep Method: SW3051

Date Prep: 11.03.2020

MB Sample Id: 7714474-1-BLK

LCS Sample Id: 7714474-1-BKS

LCSD Sample Id: 7714474-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Calcium	<0.400	50.0	48.4	97	48.3	97	75-125	0	20	mg/kg	11.04.2020 11:48	
Magnesium	<0.800	50.0	48.9	98	48.7	97	75-125	0	20	mg/kg	11.04.2020 11:48	
Sodium	<1.00	50.0	47.4	95	47.4	95	75-125	0	20	mg/kg	11.04.2020 11:48	

Analytical Method: SAR Metals by SW6010C

Seq Number: 3141351

Matrix: Soil

Prep Method: SW3051

Date Prep: 11.03.2020

Parent Sample Id: 676490-006

MD Sample Id: 676490-006 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Calcium	1940	1850	5	20	mg/kg	11.04.2020 12:51	
Magnesium	41.9	41.5	1	20	mg/kg	11.04.2020 12:08	
Sodium	54.7	54.5	0	20	mg/kg	11.04.2020 12:08	

Analytical Method: Electrical Conductivity (SAR)

Seq Number: 3141350

Matrix: Solid

MB Sample Id: 3141350-1-BLK

LCS Sample Id: 3141350-1-BKS

LCSD Sample Id: 3141350-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Conductivity	<10.0	1410	1420	101	1420	101	80-120	0	20	umhos/cm	11.04.2020 15:41	

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

High Brass 002H (6-13-20)

Analytical Method: Electrical Conductivity (SAR)

Seq Number: 3141350

Matrix: Soil

Parent Sample Id: 676490-006

MD Sample Id: 676490-006 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Conductivity	7290	7250	1	20	umhos/cm	11.04.2020 15:41	

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



CONCHO

One Concho Center/600/Illinois
Avenue/Midland, Texas
Tel (432) 683-7443

Client Name:

COG

Site Manager:

Ike Tavaraz itavaraz@concho.com
Robert Grubbs Jr rgrubbs@concho.com

Project Name:

High Brass 002H (6-13-20)

Project Location:

Eddy County, NM

Project #:

Invoice to:

COG

Receiving Laboratory:

Xenco

Sampler Signature:

Robert Grubbs Jr

Comments:

LAB #
(USE ONLY)

SAMPLE IDENTIFICATION

LAB # (USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING		MATRIX		PRESERVATIVE METHOD			# CONTAINERS	FILTERED (Y/N)	TPH TX1005 (Ext to BTEX 8021B TPH 8015M (GRO Chloride 1:10 Extract																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
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Relinquished by: Robert Grubbs Jr

Date: 10/30/2020

Time: 1:33

Relinquished by: Robert Grubbs Jr

Date: 10/30/2020

Time: 1:33

ORIGINAL COPY

ANALYSIS REQUEST
(Circle or Specify Method No.)

TPH TX1005 (Ext to C35)
BTEX 8021B
TPH 8015M (GRO - DRO - MRO)
Chloride
1:10 Extract

Hold

LAB USE ONLY

Sample Temperature

12.0/13.1

REMARKS

Rush the Chlorides to determine if additional 1:15 Extracts analysis are needed.

X

RUSH: Same Day 24 hr 48 hr 72 hr

Rush Charges Authorized

Special Report Limits or TRRP Report

(Circle) HAND DELIVERED FEDEX UPS Tracking #:



**One Concho Center/600/Illinois
Avenue/Midland, Texas
Tel (432) 683-7443**

676490

[illegible]

ORIGINAL COPY

Inter-Office Shipment

IOS Number : **72586**

Date/Time: 10.30.2020

Created by: Jessica Kramer

Please send report to: Jessica Kramer

Lab# From: **Midland**

Delivery Priority:

Address: 1211 W. Florida Ave

Lab# To: **Houston**

Air Bill No.: 771954930964

E-Mail: jessica.kramer@eurofinset.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
676490-001	W	Background 7 1'	10.29.2020 00:00	SM1030E	Cation-Anion Balance Calculation	HOLD	11.28.2020	JKR	Cation-Anion Balance	
676490-001	S	Background 7 1'	10.29.2020 00:00	SW6010C_SAR	SAR Metals by SW6010C	HOLD	04.27.2021	JKR	CA MG NA	
676490-001	S	Background 7 1'	10.29.2020 00:00	SM2540G-MOIST	Percent Moisture by SM2540G	HOLD	04.27.2021	JKR	MOIST	
676490-001	W	Background 7 1'	10.29.2020 00:00	E300_DISS	Dissolved Anions by EPA 300	HOLD	10.31.2020 00:00	JKR	CL F NO3N SO4	
676490-001	S	Background 7 1'	10.29.2020 00:00	S29B08_Twice	SAR Twice Saturated Extraction	HOLD	08.12.2035	JKR		
676490-001	W	Background 7 1'	10.29.2020 00:00	SM2320B	Alkalinity by SM2320B	HOLD	11.12.2020	JKR	ALK	
676490-001	S	Background 7 1'	10.29.2020 00:00	SM2510B_SAR	Electrical Conductivity (SAR)	HOLD	11.26.2020	JKR		
676490-001	W	Background 7 1'	10.29.2020 00:00	SW6010B_DISS	Dissolved Metals per ICP by SW846 601	HOLD	04.27.2021	JKR	B CA K MG NA	
676490-002	W	Background 7 2'	10.29.2020 00:00	SM1030E	Cation-Anion Balance Calculation	HOLD	11.28.2020	JKR	Cation-Anion Balance	
676490-002	S	Background 7 2'	10.29.2020 00:00	S29B08_Twice	SAR Twice Saturated Extraction	HOLD	08.12.2035	JKR		
676490-002	W	Background 7 2'	10.29.2020 00:00	E300_DISS	Dissolved Anions by EPA 300	HOLD	10.31.2020 00:00	JKR	CL F NO3N SO4	
676490-002	S	Background 7 2'	10.29.2020 00:00	SM2540G-MOIST	Percent Moisture by SM2540G	HOLD	04.27.2021	JKR	MOIST	
676490-002	S	Background 7 2'	10.29.2020 00:00	SW6010C_SAR	SAR Metals by SW6010C	HOLD	04.27.2021	JKR	CA MG NA	
676490-002	W	Background 7 2'	10.29.2020 00:00	SW6010B_DISS	Dissolved Metals per ICP by SW846 601	HOLD	04.27.2021	JKR	B CA K MG NA	
676490-002	S	Background 7 2'	10.29.2020 00:00	SM2510B_SAR	Electrical Conductivity (SAR)	HOLD	11.26.2020	JKR		
676490-002	W	Background 7 2'	10.29.2020 00:00	SM2320B	Alkalinity by SM2320B	HOLD	11.12.2020	JKR	ALK	
676490-003	W	Background 7 3'	10.29.2020 00:00	SM1030E	Cation-Anion Balance Calculation	HOLD	11.28.2020	JKR	Cation-Anion Balance	
676490-003	W	Background 7 3'	10.29.2020 00:00	SM2320B	Alkalinity by SM2320B	HOLD	11.12.2020	JKR	ALK	
676490-003	W	Background 7 3'	10.29.2020 00:00	SW6010B_DISS	Dissolved Metals per ICP by SW846 601	HOLD	04.27.2021	JKR	B CA K MG NA	
676490-003	S	Background 7 3'	10.29.2020 00:00	S29B08_Twice	SAR Twice Saturated Extraction	HOLD	08.12.2035	JKR		
676490-003	S	Background 7 3'	10.29.2020 00:00	SM2510B_SAR	Electrical Conductivity (SAR)	HOLD	11.26.2020	JKR		
676490-003	W	Background 7 3'	10.29.2020 00:00	E300_DISS	Dissolved Anions by EPA 300	HOLD	10.31.2020 00:00	JKR	CL F NO3N SO4	
676490-003	S	Background 7 3'	10.29.2020 00:00	SM2540G-MOIST	Percent Moisture by SM2540G	HOLD	04.27.2021	JKR	MOIST	
676490-003	S	Background 7 3'	10.29.2020 00:00	SW6010C_SAR	SAR Metals by SW6010C	HOLD	04.27.2021	JKR	CA MG NA	
676490-004	W	Background 7 4'	10.29.2020 00:00	E300_DISS	Dissolved Anions by EPA 300	HOLD	10.31.2020 00:00	JKR	CL F NO3N SO4	

Inter-Office Shipment

IOS Number : **72586**

Date/Time: 10.30.2020

Created by: Jessica Kramer

Please send report to: Jessica Kramer

Lab# From: **Midland**

Delivery Priority:

Address: 1211 W. Florida Ave

Lab# To: **Houston**

Air Bill No.: 771954930964

E-Mail: jessica.kramer@eurofinset.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
676490-004	S	Background 7 4'	10.29.2020 00:00	SM2510B_SAR	Electrical Conductivity (SAR)	HOLD	11.26.2020	JKR		
676490-004	W	Background 7 4'	10.29.2020 00:00	SW6010B_DISS	Dissolved Metals per ICP by SW846 601	HOLD	04.27.2021	JKR	B CA K MG NA	
676490-004	S	Background 7 4'	10.29.2020 00:00	SW6010C_SAR	SAR Metals by SW6010C	HOLD	04.27.2021	JKR	CA MG NA	
676490-004	S	Background 7 4'	10.29.2020 00:00	S29B08_Twice	SAR Twice Saturated Extraction	HOLD	08.12.2035	JKR		
676490-004	W	Background 7 4'	10.29.2020 00:00	SM2320B	Alkalinity by SM2320B	HOLD	11.12.2020	JKR	ALK	
676490-004	W	Background 7 4'	10.29.2020 00:00	SM1030E	Cation-Anion Balance Calculation	HOLD	11.28.2020	JKR	Cation-Anion Balance	
676490-004	S	Background 7 4'	10.29.2020 00:00	SM2540G-MOIST	Percent Moisture by SM2540G	HOLD	04.27.2021	JKR	MOIST	
676490-005	W	Background 7 5'	10.29.2020 00:00	SM2320B	Alkalinity by SM2320B	HOLD	11.12.2020	JKR	ALK	
676490-005	S	Background 7 5'	10.29.2020 00:00	SM2510B_SAR	Electrical Conductivity (SAR)	HOLD	11.26.2020	JKR		
676490-005	S	Background 7 5'	10.29.2020 00:00	SM2540G-MOIST	Percent Moisture by SM2540G	HOLD	04.27.2021	JKR	MOIST	
676490-005	S	Background 7 5'	10.29.2020 00:00	S29B08_Twice	SAR Twice Saturated Extraction	HOLD	08.12.2035	JKR		
676490-005	S	Background 7 5'	10.29.2020 00:00	SW6010C_SAR	SAR Metals by SW6010C	HOLD	04.27.2021	JKR	CA MG NA	
676490-005	W	Background 7 5'	10.29.2020 00:00	SW6010B_DISS	Dissolved Metals per ICP by SW846 601	HOLD	04.27.2021	JKR	B CA K MG NA	
676490-005	W	Background 7 5'	10.29.2020 00:00	SM1030E	Cation-Anion Balance Calculation	HOLD	11.28.2020	JKR	Cation-Anion Balance	
676490-005	W	Background 7 5'	10.29.2020 00:00	E300_DISS	Dissolved Anions by EPA 300	HOLD	10.31.2020 00:00	JKR	CL F NO3N SO4	
676490-006	W	Background 7 6'	10.29.2020 00:00	SM1030E	Cation-Anion Balance Calculation	11.02.2020	11.28.2020	JKR	Cation-Anion Balance	
676490-006	W	Background 7 6'	10.29.2020 00:00	SM2320B	Alkalinity by SM2320B	11.02.2020	11.12.2020	JKR	ALK	
676490-006	S	Background 7 6'	10.29.2020 00:00	S29B08_Twice	SAR Twice Saturated Extraction	11.02.2020	08.12.2035	JKR		
676490-006	S	Background 7 6'	10.29.2020 00:00	SW6010C_SAR	SAR Metals by SW6010C	11.02.2020	04.27.2021	JKR	CA MG NA	
676490-006	W	Background 7 6'	10.29.2020 00:00	SW6010B_DISS	Dissolved Metals per ICP by SW846 601	11.02.2020	04.27.2021	JKR	B CA K MG NA	
676490-006	W	Background 7 6'	10.29.2020 00:00	E300_DISS	Dissolved Anions by EPA 300	11.02.2020	10.31.2020 00:00	JKR	CL F NO3N SO4	
676490-006	S	Background 7 6'	10.29.2020 00:00	SM2540G-MOIST	Percent Moisture by SM2540G	11.02.2020	04.27.2021	JKR	MOIST	
676490-006	S	Background 7 6'	10.29.2020 00:00	SM2510B_SAR	Electrical Conductivity (SAR)	11.02.2020	11.26.2020	JKR		
676490-007	W	Background 7 7'	10.29.2020 00:00	SW6010B_DISS	Dissolved Metals per ICP by SW846 601	HOLD	04.27.2021	JKR	B CA K MG NA	
676490-007	W	Background 7 7'	10.29.2020 00:00	SM1030E	Cation-Anion Balance Calculation	HOLD	11.28.2020	JKR	Cation-Anion Balance	

Inter Office Shipment or Sample Comments:

Inter-Office Shipment

IOS Number : **72586**

Date/Time: 10.30.2020

Created by: Jessica Kramer

Please send report to: Jessica Kramer

Lab# From: **Midland**

Delivery Priority:

Address: 1211 W. Florida Ave

Lab# To: **Houston**

Air Bill No.: 771954930964

E-Mail: jessica.kramer@eurofinset.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
676490-007	S	Background 7 7'	10.29.2020 00:00	SM2540G-MOIST	Percent Moisture by SM2540G	HOLD	04.27.2021	JKR	MOIST	
676490-007	S	Background 7 7'	10.29.2020 00:00	SM2510B_SAR	Electrical Conductivity (SAR)	HOLD	11.26.2020	JKR		
676490-007	S	Background 7 7'	10.29.2020 00:00	S29B08_Twice	SAR Twice Saturated Extraction	HOLD	08.12.2035	JKR		
676490-007	W	Background 7 7'	10.29.2020 00:00	SM2320B	Alkalinity by SM2320B	HOLD	11.12.2020	JKR	ALK	
676490-007	W	Background 7 7'	10.29.2020 00:00	E300_DISS	Dissolved Anions by EPA 300	HOLD	10.31.2020 00:00	JKR	CL F NO3N SO4	
676490-007	S	Background 7 7'	10.29.2020 00:00	SW6010C_SAR	SAR Metals by SW6010C	HOLD	04.27.2021	JKR	CA MG NA	
676490-008	W	Background 7 8'	10.29.2020 00:00	SM1030E	Cation-Anion Balance Calculation	HOLD	11.28.2020	JKR	Cation-Anion Balance	
676490-008	S	Background 7 8'	10.29.2020 00:00	SM2540G-MOIST	Percent Moisture by SM2540G	HOLD	04.27.2021	JKR	MOIST	
676490-008	S	Background 7 8'	10.29.2020 00:00	SW6010C_SAR	SAR Metals by SW6010C	HOLD	04.27.2021	JKR	CA MG NA	
676490-008	S	Background 7 8'	10.29.2020 00:00	SM2510B_SAR	Electrical Conductivity (SAR)	HOLD	11.26.2020	JKR		
676490-008	W	Background 7 8'	10.29.2020 00:00	SW6010B_DISS	Dissolved Metals per ICP by SW846 601	HOLD	04.27.2021	JKR	B CA K MG NA	
676490-008	W	Background 7 8'	10.29.2020 00:00	E300_DISS	Dissolved Anions by EPA 300	HOLD	10.31.2020 00:00	JKR	CL F NO3N SO4	
676490-008	W	Background 7 8'	10.29.2020 00:00	SM2320B	Alkalinity by SM2320B	HOLD	11.12.2020	JKR	ALK	
676490-008	S	Background 7 8'	10.29.2020 00:00	S29B08_Twice	SAR Twice Saturated Extraction	HOLD	08.12.2035	JKR		
676490-009	W	Background 7 9'	10.29.2020 00:00	SM2320B	Alkalinity by SM2320B	HOLD	11.12.2020	JKR	ALK	
676490-009	W	Background 7 9'	10.29.2020 00:00	E300_DISS	Dissolved Anions by EPA 300	HOLD	10.31.2020 00:00	JKR	CL F NO3N SO4	
676490-009	S	Background 7 9'	10.29.2020 00:00	S29B08_Twice	SAR Twice Saturated Extraction	HOLD	08.12.2035	JKR		
676490-009	S	Background 7 9'	10.29.2020 00:00	SM2510B_SAR	Electrical Conductivity (SAR)	HOLD	11.26.2020	JKR		
676490-009	W	Background 7 9'	10.29.2020 00:00	SM1030E	Cation-Anion Balance Calculation	HOLD	11.28.2020	JKR	Cation-Anion Balance	
676490-009	S	Background 7 9'	10.29.2020 00:00	SM2540G-MOIST	Percent Moisture by SM2540G	HOLD	04.27.2021	JKR	MOIST	
676490-009	S	Background 7 9'	10.29.2020 00:00	SW6010C_SAR	SAR Metals by SW6010C	HOLD	04.27.2021	JKR	CA MG NA	
676490-009	W	Background 7 9'	10.29.2020 00:00	SW6010B_DISS	Dissolved Metals per ICP by SW846 601	HOLD	04.27.2021	JKR	B CA K MG NA	
676490-010	S	Background 7 10'	10.29.2020 00:00	S29B08_Twice	SAR Twice Saturated Extraction	11.02.2020	08.12.2035	JKR		
676490-010	S	Background 7 10'	10.29.2020 00:00	SW6010C_SAR	SAR Metals by SW6010C	11.02.2020	04.27.2021	JKR	CA MG NA	
676490-010	W	Background 7 10'	10.29.2020 00:00	SW6010B_DISS	Dissolved Metals per ICP by SW846 601	11.02.2020	04.27.2021	JKR	B CA K MG NA	

Inter Office Shipment or Sample Comments:

Relinquished By:

Received By:

Released to Imaging: 7/20/2021 2:26:20 PM

Inter-Office Shipment

IOS Number : **72586**

Date/Time: 10.30.2020

Created by: Jessica Kramer

Please send report to: Jessica Kramer

Lab# From: **Midland**

Delivery Priority:

Address: 1211 W. Florida Ave

Lab# To: **Houston**

Air Bill No.: 771954930964

E-Mail: jessica.kramer@eurofinset.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
676490-010	W	Background 7 10'	10.29.2020 00:00	SM2320B	Alkalinity by SM2320B	11.02.2020	11.12.2020	JKR	ALK	
676490-010	S	Background 7 10'	10.29.2020 00:00	SM2510B_SAR	Electrical Conductivity (SAR)	11.02.2020	11.26.2020	JKR		
676490-010	S	Background 7 10'	10.29.2020 00:00	SM2540G-MOIST	Percent Moisture by SM2540G	11.02.2020	04.27.2021	JKR	MOIST	
676490-010	W	Background 7 10'	10.29.2020 00:00	E300_DISS	Dissolved Anions by EPA 300	11.02.2020	10.31.2020 00:00	JKR	CL F NO3N SO4	
676490-010	W	Background 7 10'	10.29.2020 00:00	SM1030E	Cation-Anion Balance Calculation	11.02.2020	11.28.2020	JKR	Cation-Anion Balance	
676490-011	W	Background 7 12'	10.29.2020 00:00	E300_DISS	Dissolved Anions by EPA 300	HOLD	10.31.2020 00:00	JKR	CL F NO3N SO4	
676490-011	W	Background 7 12'	10.29.2020 00:00	SM1030E	Cation-Anion Balance Calculation	HOLD	11.28.2020	JKR	Cation-Anion Balance	
676490-011	S	Background 7 12'	10.29.2020 00:00	SM2540G-MOIST	Percent Moisture by SM2540G	HOLD	04.27.2021	JKR	MOIST	
676490-011	W	Background 7 12'	10.29.2020 00:00	SM2320B	Alkalinity by SM2320B	HOLD	11.12.2020	JKR	ALK	
676490-011	W	Background 7 12'	10.29.2020 00:00	SW6010B_DISS	Dissolved Metals per ICP by SW846 601	HOLD	04.27.2021	JKR	B CA K MG NA	
676490-011	S	Background 7 12'	10.29.2020 00:00	SW6010C_SAR	SAR Metals by SW6010C	HOLD	04.27.2021	JKR	CA MG NA	
676490-011	S	Background 7 12'	10.29.2020 00:00	S29B08_Twice	SAR Twice Saturated Extraction	HOLD	08.12.2035	JKR		
676490-011	S	Background 7 12'	10.29.2020 00:00	SM2510B_SAR	Electrical Conductivity (SAR)	HOLD	11.26.2020	JKR		
676490-012	W	Background 7 14' (Refus	10.29.2020 00:00	SM1030E	Cation-Anion Balance Calculation	11.02.2020	11.28.2020	JKR	Cation-Anion Balance	
676490-012	W	Background 7 14' (Refus	10.29.2020 00:00	E300_DISS	Dissolved Anions by EPA 300	11.02.2020	10.31.2020 00:00	JKR	CL F NO3N SO4	
676490-012	S	Background 7 14' (Refus	10.29.2020 00:00	SW6010C_SAR	SAR Metals by SW6010C	11.02.2020	04.27.2021	JKR	CA MG NA	
676490-012	S	Background 7 14' (Refus	10.29.2020 00:00	S29B08_Twice	SAR Twice Saturated Extraction	11.02.2020	08.12.2035	JKR		
676490-012	S	Background 7 14' (Refus	10.29.2020 00:00	SM2510B_SAR	Electrical Conductivity (SAR)	11.02.2020	11.26.2020	JKR		
676490-012	W	Background 7 14' (Refus	10.29.2020 00:00	SM2320B	Alkalinity by SM2320B	11.02.2020	11.12.2020	JKR	ALK	
676490-012	W	Background 7 14' (Refus	10.29.2020 00:00	SW6010B_DISS	Dissolved Metals per ICP by SW846 601	11.02.2020	04.27.2021	JKR	B CA K MG NA	
676490-012	S	Background 7 14' (Refus	10.29.2020 00:00	SM2540G-MOIST	Percent Moisture by SM2540G	11.02.2020	04.27.2021	JKR	MOIST	

Inter Office Shipment or Sample Comments:

Date Relinquished:



Jessica Kramer

10.30.2020

Date Received:



Hypatia Keys

10.31.2020

Inter-Office Shipment

IOS Number : 72586

Date/Time: 10.30.2020

Created by: Jessica Kramer

Please send report to: Jessica Kramer

Lab# From: **Midland**

Delivery Priority:

Address: 1211 W. Florida Ave

Lab# To: **Houston**

Air Bill No.: 771954930964

E-Mail: jessica.kramer@eurofinset.com

Inter Office Shipment or Sample Comments:

Cooler Temperature: 3.3



Inter Office Report- Sample Receipt Checklist

Sent To: Houston

IOS #: 72586

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : hou-203

Sent By: Jessica Kramer

Date Sent: 10.30.2020 02.05 PM

Received By: Hypatia Keys

Date Received: 10.31.2020 09.20 AM

Sample Receipt Checklist

Comments

#1 *Temperature of cooler(s)?	3.3	
#2 *Shipping container in good condition?	Yes	
#3 *Samples received with appropriate temperature?	Yes	
#4 *Custody Seals intact on shipping container/ cooler?	N/A	
#5 *Custody Seals Signed and dated for Containers/coolers	N/A	
#6 *IOS present?	Yes	
#7 Any missing/extra samples?	Yes	Did not receive the water samples for WO 676490 and 676492 only received the soil samples. (1) 250ml HNO3 missing and (3) VOA HCL are missing from WO 676528-008. Did not receive 1 L unpreserved for WO 676536-001
#8 IOS agrees with sample label(s)/matrix?	Yes	
#9 Sample matrix/ properties agree with IOS?	Yes	
#10 Samples in proper container/ bottle?	Yes	
#11 Samples properly preserved?	Yes	676528 1 L preservative label is incorrect.
#12 Sample container(s) intact?	Yes	
#13 Sufficient sample amount for indicated test(s)?	Yes	
#14 All samples received within hold time?	Yes	

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

NonConformance:

Corrective Action Taken:

Nonconformance Documentation

Contact: _____ Contacted by : _____ Date: _____

Checklist reviewed by:

Hypatia Keys

Date: 10.31.2020

Eurofins Xenco, LLC

Prelogin/Nonconformance Report- Sample Log-In

Client: COG Operating LLC

Date/ Time Received: 10.30.2020 01.31.00 PM

Work Order #: 676490

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : IR-8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	13.1
#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)?	Yes Xenco Stafford
#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: 10.30.2020

Checklist reviewed by:



Jessica Kramer

Date: 10.30.2020

Certificate of Analysis Summary 676492

COG Operating LLC, Artesia, NM

Project Name: High Brass 002H (6-13-20)

Project Id: COG - High Brass

Contact: Ike Tavaréz

Project Location: Eddy County, NM

Date Received in Lab: Fri 10.30.2020 13:31

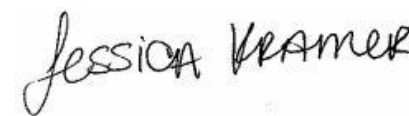
Report Date: 11.06.2020 08:36

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	676492-001	676492-002	676492-003	676492-004	676492-005	676492-006
	<i>Field Id:</i>	Background 8 1'	Background 8 2'	Background 8 3'	Background 8 4'	Background 8 5'	Background 8 6'
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	10.29.2020 00:00	10.29.2020 00:00	10.29.2020 00:00	10.29.2020 00:00	10.29.2020 00:00	10.29.2020 00:00
Alkalinity by SM2320B SUB: T104704215-20-38	<i>Extracted:</i>						11.04.2020 09:45
	<i>Analyzed:</i>						11.04.2020 12:16
	<i>Units/RL:</i>						mg/L RL
Alkalinity, Total (CaCO ₃)							179 40.0
Cation-Anion Balance Calculation SUB: T104704215-20-38	<i>Extracted:</i>						11.04.2020 18:06
	<i>Analyzed:</i>						% RL
	<i>Units/RL:</i>						
Cation-Anion Balance							12.6
Dissolved Anions by EPA 300 SUB: T104704215-20-38	<i>Extracted:</i>						11.04.2020 09:30
	<i>Analyzed:</i>						11.04.2020 09:36
	<i>Units/RL:</i>						mg/L RL
Chloride							1390 5.00
Fluoride							12.6 K 5.00
Nitrate as N							3.05 K 1.00
Sulfate							4560 50.0
Dissolved Metals per ICP by SW846 6010B SUB: T104704215-20-38	<i>Extracted:</i>						11.04.2020 09:00
	<i>Analyzed:</i>						11.04.2020 14:32
	<i>Units/RL:</i>						mg/L RL
Boron							1.69 0.500
Calcium							716 2.00
Magnesium							477 4.00
Potassium							21.3 5.00
Sodium							1370 5.00

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico



Certificate of Analysis Summary 676492

COG Operating LLC, Artesia, NM

Project Name: High Brass 002H (6-13-20)

Project Id: COG - High Brass

Contact: Ike Tavaréz

Project Location: Eddy County, NM

Date Received in Lab: Fri 10.30.2020 13:31

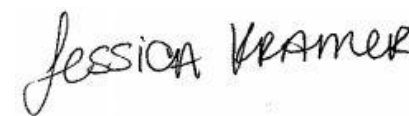
Report Date: 11.06.2020 08:36

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	676492-001	676492-002	676492-003	676492-004	676492-005	676492-006
	<i>Field Id:</i>	Background 8 1'	Background 8 2'	Background 8 3'	Background 8 4'	Background 8 5'	Background 8 6'
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	10.29.2020 00:00	10.29.2020 00:00	10.29.2020 00:00	10.29.2020 00:00	10.29.2020 00:00	10.29.2020 00:00
Chloride by EPA 300	<i>Extracted:</i>	10.30.2020 18:10	10.30.2020 18:10	10.30.2020 18:10	10.30.2020 18:10	10.30.2020 18:10	10.30.2020 18:10
	<i>Analyzed:</i>	10.30.2020 21:29	10.30.2020 21:45	10.30.2020 21:50	10.30.2020 21:55	10.30.2020 22:01	10.30.2020 22:06
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		762 4.97	1200 24.9	1410 49.8	1400 49.6	1280 50.1	1340 49.9
Electrical Conductivity (SAR) SUB: T104704215-20-38	<i>Extracted:</i>						11.04.2020 15:41
	<i>Analyzed:</i>						umhos/cm RL
	<i>Units/RL:</i>						
Conductivity							14200 20.0
Percent Moisture by SM2540G SUB: T104704215-20-38	<i>Extracted:</i>						10.31.2020 09:49
	<i>Analyzed:</i>						% RL
	<i>Units/RL:</i>						
Percent Moisture							9.30
SAR Metals by SW6010C SUB: T104704215-20-38	<i>Extracted:</i>						11.03.2020 16:50
	<i>Analyzed:</i>						11.04.2020 12:21
	<i>Units/RL:</i>						mg/kg RL
Calcium							1540 D 22.0
Magnesium							575 D 44.0
Sodium							1320 D 55.0
SAR Twice Saturated Extraction SUB: T104704215-20-38	<i>Extracted:</i>						11.04.2020 16:25
	<i>Analyzed:</i>						
	<i>Units/RL:</i>						
Sodium Adsorption Ratio							7.28

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico



Certificate of Analysis Summary 676492

COG Operating LLC, Artesia, NM

Project Name: High Brass 002H (6-13-20)

Project Id: COG - High Brass

Contact: Ike Tavaréz

Project Location: Eddy County, NM

Date Received in Lab: Fri 10.30.2020 13:31

Report Date: 11.06.2020 08:36

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	676492-007	676492-008	676492-009	676492-010	676492-011	676492-012
	<i>Field Id:</i>	Background 8 7'	Background 8 8'	Background 8 9'	Background 8 10'	Background 8 12'	Background 8 14'
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	10.29.2020 00:00	10.29.2020 00:00	10.29.2020 00:00	10.29.2020 00:00	10.29.2020 00:00	10.29.2020 00:00
Alkalinity by SM2320B SUB: T104704215-20-38	<i>Extracted:</i>				11.04.2020 09:45		
	<i>Analyzed:</i>				11.04.2020 12:21		
	<i>Units/RL:</i>				mg/L RL		
Alkalinity, Total (CaCO ₃)					148 40.0		
Cation-Anion Balance Calculation SUB: T104704215-20-38	<i>Extracted:</i>				11.04.2020 18:06		
	<i>Analyzed:</i>				% RL		
	<i>Units/RL:</i>						
Cation-Anion Balance					12.8		
Dissolved Anions by EPA 300 SUB: T104704215-20-38	<i>Extracted:</i>				11.03.2020 15:15		
	<i>Analyzed:</i>				11.03.2020 19:42		
	<i>Units/RL:</i>				mg/L RL		
Chloride					915 5.00		
Fluoride					8.72 K 5.00		
Nitrate as N					1.90 K 1.00		
Sulfate					5950 D 100		
Dissolved Metals per ICP by SW846 6010B SUB: T104704215-20-38	<i>Extracted:</i>				11.04.2020 09:00		
	<i>Analyzed:</i>				11.04.2020 14:36		
	<i>Units/RL:</i>				mg/L RL		
Boron					1.15 0.500		
Calcium					1190 D 100		
Magnesium					473 4.00		
Potassium					30.8 5.00		
Sodium					1010 5.00		

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico



Certificate of Analysis Summary 676492

COG Operating LLC, Artesia, NM

Project Name: High Brass 002H (6-13-20)

Project Id: COG - High Brass

Contact: Ike Tavaréz

Project Location: Eddy County, NM

Date Received in Lab: Fri 10.30.2020 13:31

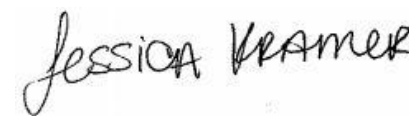
Report Date: 11.06.2020 08:36

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	676492-007	676492-008	676492-009	676492-010	676492-011	676492-012
	<i>Field Id:</i>	Background 8 7'	Background 8 8'	Background 8 9'	Background 8 10'	Background 8 12'	Background 8 14'
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	10.29.2020 00:00	10.29.2020 00:00	10.29.2020 00:00	10.29.2020 00:00	10.29.2020 00:00	10.29.2020 00:00
Chloride by EPA 300	<i>Extracted:</i>	10.30.2020 18:10	10.30.2020 18:10	10.31.2020 13:29	10.31.2020 13:29	10.31.2020 13:29	10.31.2020 13:29
	<i>Analyzed:</i>	10.30.2020 22:11	10.30.2020 22:16	10.31.2020 15:20	10.31.2020 15:36	10.31.2020 15:41	10.31.2020 15:46
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		1370 25.1	1210 25.1	1110 X 24.9	1180 50.5	1080 25.2	933 50.1
Electrical Conductivity (SAR) SUB: T104704215-20-38	<i>Extracted:</i>				11.04.2020 15:41		
	<i>Analyzed:</i>				umhos/cm RL		
	<i>Units/RL:</i>						
Conductivity					13100 20.0		
Percent Moisture by SM2540G SUB: T104704215-20-38	<i>Extracted:</i>				10.31.2020 09:49		
	<i>Analyzed:</i>				% RL		
	<i>Units/RL:</i>						
Percent Moisture					8.37		
SAR Metals by SW6010C SUB: T104704215-20-38	<i>Extracted:</i>				11.03.2020 16:50		
	<i>Analyzed:</i>				11.04.2020 12:25		
	<i>Units/RL:</i>				mg/kg RL		
Calcium					1810 D 21.8		
Magnesium					427 D 43.6		
Sodium					1040 D 54.5		
SAR Twice Saturated Extraction SUB: T104704215-20-38	<i>Extracted:</i>				11.04.2020 16:25		
	<i>Analyzed:</i>						
	<i>Units/RL:</i>						
Sodium Adsorption Ratio					5.71		

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico



Certificate of Analysis Summary 676492

COG Operating LLC, Artesia, NM

Project Name: High Brass 002H (6-13-20)

Project Id: COG - High Brass

Contact: Ike Tavaréz

Project Location: Eddy County, NM

Date Received in Lab: Fri 10.30.2020 13:31

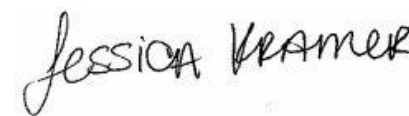
Report Date: 11.06.2020 08:36

Project Manager: Jessica Kramer

Analysis Requested	Lab Id: 676492-013 Field Id: Background 8 16' Depth: Matrix: SOIL Sampled: 10.29.2020 00:00	676492-014 Background 8 18' SOIL 10.29.2020 00:00				
Alkalinity by SM2320B SUB: T104704215-20-38	Extracted: Analyzed: Units/RL:	11.04.2020 09:45 11.04.2020 12:38 mg/L RL				
Alkalinity, Total (CaCO3)		308 40.0				
Cation-Anion Balance Calculation SUB: T104704215-20-38	Extracted: Analyzed: Units/RL:	11.04.2020 18:06 % RL				
Cation-Anion Balance		7.90				
Dissolved Anions by EPA 300 SUB: T104704215-20-38	Extracted: Analyzed: Units/RL:	11.03.2020 15:15 11.03.2020 21:37 mg/L RL				
Chloride		597 5.00				
Fluoride		7.51 K 5.00				
Nitrate as N		1.74 K 1.00				
Sulfate		7990 D 50.0				
Dissolved Metals per ICP by SW846 6010B SUB: T104704215-20-38	Extracted: Analyzed: Units/RL:	11.04.2020 09:00 11.04.2020 14:40 mg/L RL				
Boron		1.18 0.500				
Calcium		1870 D 100				
Magnesium		496 4.00				
Potassium		42.8 5.00				
Sodium		857 5.00				

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico



Certificate of Analysis Summary 676492

COG Operating LLC, Artesia, NM

Project Name: High Brass 002H (6-13-20)

Project Id: COG - High Brass

Contact: Ike Tavaréz

Project Location: Eddy County, NM

Date Received in Lab: Fri 10.30.2020 13:31

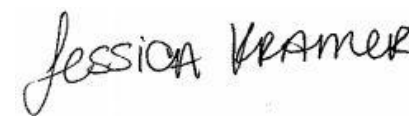
Report Date: 11.06.2020 08:36

Project Manager: Jessica Kramer

Analysis Requested	Lab Id: 676492-013 Field Id: Background 8 16' Depth: Matrix: SOIL Sampled: 10.29.2020 00:00	Lab Id: 676492-014 Field Id: Background 8 18' Depth: Matrix: SOIL Sampled: 10.29.2020 00:00				
Chloride by EPA 300	Extracted: 10.31.2020 13:29 Analyzed: 10.31.2020 15:51 Units/RL: mg/kg RL	Extracted: 10.31.2020 13:29 Analyzed: 10.31.2020 16:07 Units/RL: mg/kg RL				
Chloride	684 25.1	619 50.0				
Electrical Conductivity (SAR) SUB: T104704215-20-38	Extracted: Analyzed: Units/RL:	Extracted: Analyzed: 11.04.2020 15:41 Units/RL: umhos/cm RL				
Conductivity		12400 20.0				
Percent Moisture by SM2540G SUB: T104704215-20-38	Extracted: Analyzed: Units/RL:	Extracted: Analyzed: 10.31.2020 09:49 Units/RL: % RL				
Percent Moisture		8.00				
SAR Metals by SW6010C SUB: T104704215-20-38	Extracted: Analyzed: Units/RL:	Extracted: Analyzed: 11.03.2020 16:50 11.04.2020 12:29 Units/RL: mg/kg RL				
Calcium		1680 D 21.7				
Magnesium		453 D 43.4				
Sodium		987 D 54.2				
SAR Twice Saturated Extraction SUB: T104704215-20-38	Extracted: Analyzed: Units/RL:	Extracted: Analyzed: 11.04.2020 16:25 Units/RL:				
Sodium Adsorption Ratio		5.52				

BRL - Below Reporting Limit

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Analytical Report 676492

for

COG Operating LLC

Project Manager: Ike Tavaréz

High Brass 002H (6-13-20)

COG - High Brass

11.06.2020

Collected By: Client



**1211 W. Florida Ave
Midland TX 79701**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-38), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2020-014), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-20-26), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-18)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-23)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-21)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-20-8)
Xenco-Tampa: Florida (E87429), North Carolina (483)



11.06.2020

Project Manager: **Ike Tavarez**

COG Operating LLC

2407 Pecos Avenue

Artesia, NM 88210

Reference: Eurofins Xenco, LLC Report No(s): **676492**

High Brass 002H (6-13-20)

Project Address: Eddy 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 Eurofins Xenco, LLC Report Number(s) 676492. 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 Eurofins Xenco, LLC. 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. 676492 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 Eurofins Xenco, LLC to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

A handwritten signature in black ink that reads "Jessica Kramer".

Jessica Kramer

Project Manager

A Small Business and Minority Company

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

**Sample Cross Reference 676492****COG Operating LLC, Artesia, NM**

High Brass 002H (6-13-20)

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
Background 8 1'	S	10.29.2020 00:00		676492-001
Background 8 2'	S	10.29.2020 00:00		676492-002
Background 8 3'	S	10.29.2020 00:00		676492-003
Background 8 4'	S	10.29.2020 00:00		676492-004
Background 8 5'	S	10.29.2020 00:00		676492-005
Background 8 6'	S	10.29.2020 00:00		676492-006
Background 8 7'	S	10.29.2020 00:00		676492-007
Background 8 8'	S	10.29.2020 00:00		676492-008
Background 8 9'	S	10.29.2020 00:00		676492-009
Background 8 10'	S	10.29.2020 00:00		676492-010
Background 8 12'	S	10.29.2020 00:00		676492-011
Background 8 14'	S	10.29.2020 00:00		676492-012
Background 8 16'	S	10.29.2020 00:00		676492-013
Background 8 18'	S	10.29.2020 00:00		676492-014

**CASE NARRATIVE****Client Name: COG Operating LLC****Project Name: High Brass 002H (6-13-20)**

Project ID: COG - High Brass
Work Order Number(s): 676492

Report Date: 11.06.2020
Date Received: 10.30.2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3141073 Chloride by EPA 300

Lab Sample ID 676533-001 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: 676492-009, -010, -011, -012, -013, -014.

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



Certificate of Analytical Results 676492

COG Operating LLC, Artesia, NM

High Brass 002H (6-13-20)

Sample Id: **Background 8 1'**

Matrix: Soil

Date Received: 10.30.2020 13:31

Lab Sample Id: 676492-001

Date Collected: 10.29.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 10.30.2020 18:10

% Moisture:

Seq Number: 3141072

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	762	4.97	mg/kg	10.30.2020 21:29		1



Certificate of Analytical Results 676492

COG Operating LLC, Artesia, NM

High Brass 002H (6-13-20)

Sample Id: **Background 8 2'**

Matrix: Soil

Date Received: 10.30.2020 13:31

Lab Sample Id: 676492-002

Date Collected: 10.29.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 10.30.2020 18:10

% Moisture:

Seq Number: 3141072

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1200	24.9	mg/kg	10.30.2020 21:45		5



Certificate of Analytical Results 676492

COG Operating LLC, Artesia, NM

High Brass 002H (6-13-20)

Sample Id: **Background 8 3'**

Matrix: Soil

Date Received: 10.30.2020 13:31

Lab Sample Id: 676492-003

Date Collected: 10.29.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 10.30.2020 18:10

% Moisture:

Seq Number: 3141072

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1410	49.8	mg/kg	10.30.2020 21:50		10



Certificate of Analytical Results 676492

COG Operating LLC, Artesia, NM

High Brass 002H (6-13-20)

Sample Id: **Background 8 4'**

Matrix: Soil

Date Received: 10.30.2020 13:31

Lab Sample Id: 676492-004

Date Collected: 10.29.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 10.30.2020 18:10

% Moisture:

Seq Number: 3141072

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1400	49.6	mg/kg	10.30.2020 21:55		10

**Certificate of Analytical Results 676492****COG Operating LLC, Artesia, NM**

High Brass 002H (6-13-20)

Sample Id: **Background 8 5'**

Matrix: Soil

Date Received: 10.30.2020 13:31

Lab Sample Id: 676492-005

Date Collected: 10.29.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 10.30.2020 18:10

% Moisture:

Seq Number: 3141072

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1280	50.1	mg/kg	10.30.2020 22:01		10



Certificate of Analytical Results 676492

COG Operating LLC, Artesia, NM

High Brass 002H (6-13-20)

Sample Id: **Background 8 6'**

Matrix: Soil

Date Received: 10.30.2020 13:31

Lab Sample Id: 676492-006

Date Collected: 10.29.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 10.30.2020 18:10

% Moisture:
Basis: Wet Weight

Seq Number: 3141072

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1340	49.9	mg/kg	10.30.2020 22:06		10

Analytical Method: SAR Metals by SW6010C

Prep Method: SW3051

Tech: PJB

Analyst: DEP

Date Prep: 11.03.2020 16:50

% Moisture: 9.3
Basis: Dry Weight
SUB: T104704215-20-38

Seq Number: 3141351

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Calcium	7440-70-2	1540	22.0	mg/kg	11.04.2020 13:05	D	50
Magnesium	7439-95-4	575	44.0	mg/kg	11.04.2020 13:05	D	50
Sodium	7440-23-5	1320	55.0	mg/kg	11.04.2020 13:05	D	50

Analytical Method: Electrical Conductivity (SAR)

Tech: YAV

Analyst: YAV

% Moisture:
Basis: Wet Weight
SUB: T104704215-20-38

Seq Number: 3141350

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Conductivity	COND	14200	20.0	umhos/cm	11.04.2020 15:41		1

Analytical Method: SAR Twice Saturated Extraction

Tech: DEP

Analyst: DEP

% Moisture:
Basis: Wet Weight
SUB: T104704215-20-38

Seq Number: 3141354

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Sodium Adsorption Ratio		7.28			11.04.2020 16:25		1



Certificate of Analytical Results 676492

COG Operating LLC, Artesia, NM

High Brass 002H (6-13-20)

Sample Id: **Background 8 6'**

Matrix: Soil

Date Received: 10.30.2020 13:31

Lab Sample Id: 676492-006

Date Collected: 10.29.2020 00:00

Analytical Method: Alkalinity by SM2320B

Prep Method: SM2320P

Tech: ALA

Analyst: ALA

Date Prep: 11.04.2020 09:45

% Moisture:
SUB: T104704215-20-38

Seq Number: 3141335

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Alkalinity, Total (CaCO ₃)	1640192	179	40.0	mg/L	11.04.2020 12:16		1

Analytical Method: Cation-Anion Balance Calculation

Tech: ALA

Analyst: ALA

% Moisture:
SUB: T104704215-20-38

Seq Number: 3141374

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Cation-Anion Balance	CATANBAL	12.6		%	11.04.2020 18:06		1

Analytical Method: Dissolved Anions by EPA 300

Prep Method: E300P

Tech: JYM

Analyst: JYM

Date Prep: 11.04.2020 09:30

% Moisture:
SUB: T104704215-20-38

Seq Number: 3141357

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1390	5.00	mg/L	11.04.2020 09:36		1
Fluoride	16984-48-8	12.6	5.00	mg/L	11.04.2020 09:36	K	1
Nitrate as N	14797-55-8	3.05	1.00	mg/L	11.04.2020 09:36	K	1
Sulfate	14808-79-8	4560	50.0	mg/L	11.04.2020 09:49		10

Analytical Method: Dissolved Metals per ICP by SW846 6010B

Prep Method: SW3010A

Tech: MLI

Analyst: DEP

Date Prep: 11.04.2020 09:00

% Moisture:
SUB: T104704215-20-38

Seq Number: 3141348

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Boron	7440-42-8	1.69	0.500	mg/L	11.04.2020 14:32		10
Calcium	7440-70-2	716	2.00	mg/L	11.04.2020 14:32		10
Magnesium	7439-95-4	477	4.00	mg/L	11.04.2020 14:32		10
Potassium	7440-09-7	21.3	5.00	mg/L	11.04.2020 14:32		10
Sodium	7440-23-5	1370	5.00	mg/L	11.04.2020 14:32		10

**Certificate of Analytical Results 676492****COG Operating LLC, Artesia, NM**

High Brass 002H (6-13-20)

Sample Id: **Background 8 7'**

Matrix: Soil

Date Received: 10.30.2020 13:31

Lab Sample Id: 676492-007

Date Collected: 10.29.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 10.30.2020 18:10

% Moisture:

Seq Number: 3141072

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1370	25.1	mg/kg	10.30.2020 22:11		5



Certificate of Analytical Results 676492

COG Operating LLC, Artesia, NM

High Brass 002H (6-13-20)

Sample Id: **Background 8 8'**

Matrix: Soil

Date Received: 10.30.2020 13:31

Lab Sample Id: 676492-008

Date Collected: 10.29.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 10.30.2020 18:10

% Moisture:

Seq Number: 3141072

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1210	25.1	mg/kg	10.30.2020 22:16		5



Certificate of Analytical Results 676492

COG Operating LLC, Artesia, NM

High Brass 002H (6-13-20)

Sample Id: **Background 8 9'**

Matrix: Soil

Date Received: 10.30.2020 13:31

Lab Sample Id: 676492-009

Date Collected: 10.29.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 10.31.2020 13:29

% Moisture:

Seq Number: 3141073

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1110	24.9	mg/kg	10.31.2020 15:20	X	5



Certificate of Analytical Results 676492

COG Operating LLC, Artesia, NM

High Brass 002H (6-13-20)

Sample Id: **Background 8 10'**

Matrix: Soil

Date Received: 10.30.2020 13:31

Lab Sample Id: 676492-010

Date Collected: 10.29.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 10.31.2020 13:29

% Moisture:
Basis: Wet Weight

Seq Number: 3141073

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1180	50.5	mg/kg	10.31.2020 15:36		10

Analytical Method: SAR Metals by SW6010C

Prep Method: SW3051

Tech: PJB

Analyst: DEP

Date Prep: 11.03.2020 16:50

% Moisture: 8.37
Basis: Dry Weight
SUB: T104704215-20-38

Seq Number: 3141351

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Calcium	7440-70-2	1810	21.8	mg/kg	11.04.2020 13:09	D	50
Magnesium	7439-95-4	427	43.6	mg/kg	11.04.2020 13:09	D	50
Sodium	7440-23-5	1040	54.5	mg/kg	11.04.2020 13:09	D	50

Analytical Method: Electrical Conductivity (SAR)

Tech: YAV

Analyst: YAV

% Moisture:
Basis: Wet Weight
SUB: T104704215-20-38

Seq Number: 3141350

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Conductivity	COND	13100	20.0	umhos/cm	11.04.2020 15:41		1

Analytical Method: SAR Twice Saturated Extraction

Tech: DEP

Analyst: DEP

% Moisture:
Basis: Wet Weight
SUB: T104704215-20-38

Seq Number: 3141354

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Sodium Adsorption Ratio		5.71			11.04.2020 16:25		1



Certificate of Analytical Results 676492

COG Operating LLC, Artesia, NM

High Brass 002H (6-13-20)

Sample Id: **Background 8 10'**

Matrix: Soil

Date Received: 10.30.2020 13:31

Lab Sample Id: 676492-010

Date Collected: 10.29.2020 00:00

Analytical Method: Alkalinity by SM2320B

Prep Method: SM2320P

Tech: ALA

Analyst: ALA

Date Prep: 11.04.2020 09:45

% Moisture:
SUB: T104704215-20-38

Seq Number: 3141335

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Alkalinity, Total (CaCO ₃)	1640192	148	40.0	mg/L	11.04.2020 12:21		1

Analytical Method: Cation-Anion Balance Calculation

Tech: ALA

Analyst: ALA

% Moisture:
SUB: T104704215-20-38

Seq Number: 3141374

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Cation-Anion Balance	CATANBAL	12.8		%	11.04.2020 18:06		1

Analytical Method: Dissolved Anions by EPA 300

Prep Method: E300P

Tech: JYM

Analyst: JYM

Date Prep: 11.03.2020 15:15

% Moisture:
SUB: T104704215-20-38

Seq Number: 3141298

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	915	5.00	mg/L	11.03.2020 19:42		1
Fluoride	16984-48-8	8.72	5.00	mg/L	11.03.2020 19:42	K	1
Nitrate as N	14797-55-8	1.90	1.00	mg/L	11.03.2020 19:42	K	1
Sulfate	14808-79-8	5950	100	mg/L	11.03.2020 20:21	D	20

Analytical Method: Dissolved Metals per ICP by SW846 6010B

Prep Method: SW3010A

Tech: MLI

Analyst: DEP

Date Prep: 11.04.2020 09:00

% Moisture:
SUB: T104704215-20-38

Seq Number: 3141348

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Boron	7440-42-8	1.15	0.500	mg/L	11.04.2020 14:36		10
Calcium	7440-70-2	1190	100	mg/L	11.04.2020 14:57	D	500
Magnesium	7439-95-4	473	4.00	mg/L	11.04.2020 14:36		10
Potassium	7440-09-7	30.8	5.00	mg/L	11.04.2020 14:36		10
Sodium	7440-23-5	1010	5.00	mg/L	11.04.2020 14:36		10



Certificate of Analytical Results 676492

COG Operating LLC, Artesia, NM

High Brass 002H (6-13-20)

Sample Id: **Background 8 12'**

Matrix: Soil

Date Received: 10.30.2020 13:31

Lab Sample Id: 676492-011

Date Collected: 10.29.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 10.31.2020 13:29

% Moisture:

Seq Number: 3141073

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1080	25.2	mg/kg	10.31.2020 15:41		5



Certificate of Analytical Results 676492

COG Operating LLC, Artesia, NM

High Brass 002H (6-13-20)

Sample Id: **Background 8 14'**

Matrix: Soil

Date Received: 10.30.2020 13:31

Lab Sample Id: 676492-012

Date Collected: 10.29.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 10.31.2020 13:29

% Moisture:

Seq Number: 3141073

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	933	50.1	mg/kg	10.31.2020 15:46		10



Certificate of Analytical Results 676492

COG Operating LLC, Artesia, NM

High Brass 002H (6-13-20)

Sample Id: **Background 8 16'**

Matrix: Soil

Date Received: 10.30.2020 13:31

Lab Sample Id: 676492-013

Date Collected: 10.29.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 10.31.2020 13:29

% Moisture:

Seq Number: 3141073

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	684	25.1	mg/kg	10.31.2020 15:51		5



Certificate of Analytical Results 676492

COG Operating LLC, Artesia, NM

High Brass 002H (6-13-20)

Sample Id: **Background 8 18'**

Matrix: Soil

Date Received: 10.30.2020 13:31

Lab Sample Id: 676492-014

Date Collected: 10.29.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 10.31.2020 13:29

% Moisture:
Basis: Wet Weight

Seq Number: 3141073

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	619	50.0	mg/kg	10.31.2020 16:07		10

Analytical Method: SAR Metals by SW6010C

Prep Method: SW3051

Tech: PJB

Analyst: DEP

Date Prep: 11.03.2020 16:50

% Moisture: 8
Basis: Dry Weight
SUB: T104704215-20-38

Seq Number: 3141351

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Calcium	7440-70-2	1680	21.7	mg/kg	11.04.2020 13:13	D	50
Magnesium	7439-95-4	453	43.4	mg/kg	11.04.2020 13:13	D	50
Sodium	7440-23-5	987	54.2	mg/kg	11.04.2020 13:13	D	50

Analytical Method: Electrical Conductivity (SAR)

Tech: YAV

Analyst: YAV

% Moisture:
Basis: Wet Weight
SUB: T104704215-20-38

Seq Number: 3141350

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Conductivity	COND	12400	20.0	umhos/cm	11.04.2020 15:41		1

Analytical Method: SAR Twice Saturated Extraction

Tech: DEP

Analyst: DEP

% Moisture:
Basis: Wet Weight
SUB: T104704215-20-38

Seq Number: 3141354

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Sodium Adsorption Ratio		5.52			11.04.2020 16:25		1



Certificate of Analytical Results 676492

COG Operating LLC, Artesia, NM

High Brass 002H (6-13-20)

Sample Id: **Background 8 18'**

Matrix: Soil

Date Received: 10.30.2020 13:31

Lab Sample Id: 676492-014

Date Collected: 10.29.2020 00:00

Analytical Method: Alkalinity by SM2320B

Prep Method: SM2320P

Tech: ALA

Analyst: ALA

Date Prep: 11.04.2020 09:45

% Moisture:

SUB: T104704215-20-38

Seq Number: 3141335

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Alkalinity, Total (CaCO3)	1640192	308	40.0	mg/L	11.04.2020 12:38		1

Analytical Method: Cation-Anion Balance Calculation

Tech: ALA

Analyst: ALA

% Moisture:

SUB: T104704215-20-38

Seq Number: 3141374

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Cation-Anion Balance	CATANBAL	7.90		%	11.04.2020 18:06		1

Analytical Method: Dissolved Anions by EPA 300

Prep Method: E300P

Tech: JYM

Analyst: JYM

Date Prep: 11.03.2020 15:15

% Moisture:

SUB: T104704215-20-38

Seq Number: 3141298

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	597	5.00	mg/L	11.03.2020 21:37		1
Fluoride	16984-48-8	7.51	5.00	mg/L	11.03.2020 21:37	K	1
Nitrate as N	14797-55-8	1.74	1.00	mg/L	11.03.2020 21:37	K	1
Sulfate	14808-79-8	7990	50.0	mg/L	11.03.2020 20:59	D	10

Analytical Method: Dissolved Metals per ICP by SW846 6010B

Prep Method: SW3010A

Tech: MLI

Analyst: DEP

Date Prep: 11.04.2020 09:00

% Moisture:

SUB: T104704215-20-38

Seq Number: 3141348

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Boron	7440-42-8	1.18	0.500	mg/L	11.04.2020 14:40		10
Calcium	7440-70-2	1870	100	mg/L	11.04.2020 15:01	D	500
Magnesium	7439-95-4	496	4.00	mg/L	11.04.2020 14:40		10
Potassium	7440-09-7	42.8	5.00	mg/L	11.04.2020 14:40		10
Sodium	7440-23-5	857	5.00	mg/L	11.04.2020 14:40		10

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. **ND** Not Detected.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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



COG Operating LLC

High Brass 002H (6-13-20)

Analytical Method: Alkalinity by SM2320B

Seq Number: 3141335

MB Sample Id: 7714482-1-BLK

Matrix: Water

LCS Sample Id: 7714482-1-BKS

Prep Method: SM2320P

Date Prep: 11.04.2020

LCSD Sample Id: 7714482-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Alkalinity, Total (CaCO ₃)	<4.00	250	261	104	264	106	85-115	1	20	mg/L	11.04.2020 11:35	

Analytical Method: Alkalinity by SM2320B

Seq Number: 3141335

Parent Sample Id: 676293-001

Matrix: Water

MD Sample Id: 676293-001 D

Prep Method: SM2320P

Date Prep: 11.04.2020

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Alkalinity, Total (CaCO ₃)	184	182	1	20	mg/L	11.04.2020 11:54	

Analytical Method: Alkalinity by SM2320B

Seq Number: 3141335

Parent Sample Id: 676430-004

Matrix: Water

MD Sample Id: 676430-004 D

Prep Method: SM2320P

Date Prep: 11.04.2020

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Alkalinity, Total (CaCO ₃)	243	243	0	20	mg/L	11.04.2020 13:10	

Analytical Method: Chloride by EPA 300

Seq Number: 3141072

MB Sample Id: 7714286-1-BLK

Matrix: Solid

LCS Sample Id: 7714286-1-BKS

Prep Method: E300P

Date Prep: 10.30.2020

LCSD Sample Id: 7714286-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	260	104	259	104	90-110	0	20	mg/kg	10.30.2020 19:43	

Analytical Method: Chloride by EPA 300

Seq Number: 3141073

MB Sample Id: 7714288-1-BLK

Matrix: Solid

LCS Sample Id: 7714288-1-BKS

Prep Method: E300P

Date Prep: 10.31.2020

LCSD Sample Id: 7714288-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	272	109	272	109	90-110	0	20	mg/kg	10.31.2020 15:09	

Analytical Method: Chloride by EPA 300

Seq Number: 3141072

Parent Sample Id: 676490-001

Matrix: Soil

MS Sample Id: 676490-001 S

Prep Method: E300P

Date Prep: 10.30.2020

MSD Sample Id: 676490-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	15.2	253	285	107	235	87	90-110	19	20	mg/kg	10.31.2020 14:17	X

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

High Brass 002H (6-13-20)

Analytical Method: Chloride by EPA 300

Seq Number: 3141072

Parent Sample Id: 676490-011

Matrix: Soil

MS Sample Id: 676490-011 S

Prep Method: E300P

Date Prep: 10.30.2020

MSD Sample Id: 676490-011 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	186	1250	1490	104	1510	106	90-110	1	20	mg/kg	10.30.2020 21:13	

Analytical Method: Chloride by EPA 300

Seq Number: 3141073

Parent Sample Id: 676492-009

Matrix: Soil

MS Sample Id: 676492-009 S

Prep Method: E300P

Date Prep: 10.31.2020

MSD Sample Id: 676492-009 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	1110	1240	2500	112	2540	115	90-110	2	20	mg/kg	10.31.2020 15:25	X

Analytical Method: Chloride by EPA 300

Seq Number: 3141073

Parent Sample Id: 676533-001

Matrix: Soil

MS Sample Id: 676533-001 S

Prep Method: E300P

Date Prep: 10.31.2020

MSD Sample Id: 676533-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	8730	5000	14300	111	14200	109	90-110	1	20	mg/kg	10.31.2020 16:39	X

Analytical Method: Dissolved Anions by EPA 300

Seq Number: 3141298

MB Sample Id: 7714414-1-BLK

Matrix: Water

LCS Sample Id: 7714414-1-BKS

Prep Method: E300P

Date Prep: 11.03.2020

LCSD Sample Id: 7714414-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.500	10.0	10.1	101	10.0	100	90-110	1	20	mg/L	11.03.2020 19:17	
Fluoride	<0.500	10.0	10.3	103	10.2	102	90-110	1	20	mg/L	11.03.2020 19:17	
Nitrate as N	<0.100	10.0	10.0	100	9.98	100	90-110	0	20	mg/L	11.03.2020 19:17	
Sulfate	<0.500	10.0	10.1	101	9.99	100	90-110	1	20	mg/L	11.03.2020 19:17	

Analytical Method: Dissolved Anions by EPA 300

Seq Number: 3141357

MB Sample Id: 7714452-1-BLK

Matrix: Water

LCS Sample Id: 7714452-1-BKS

Prep Method: E300P

Date Prep: 11.04.2020

LCSD Sample Id: 7714452-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.500	10.0	10.1	101	10.1	101	90-110	0	20	mg/L	11.04.2020 09:11	
Fluoride	<0.500	10.0	10.3	103	10.3	103	90-110	0	20	mg/L	11.04.2020 09:11	
Nitrate as N	<0.100	10.0	10.1	101	10.1	101	90-110	0	20	mg/L	11.04.2020 09:11	
Sulfate	<0.500	10.0	10.1	101	10.1	101	90-110	0	20	mg/L	11.04.2020 09:11	

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

High Brass 002H (6-13-20)

Analytical Method: Dissolved Anions by EPA 300

Seq Number: 3141298

Parent Sample Id: 676492-010

Matrix: Soil

MS Sample Id: 676492-010 S

Prep Method: E300P

Date Prep: 11.03.2020

MSD Sample Id: 676492-010 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	915	100	1010	95	1010	95	90-110	0	20	mg/L	11.03.2020 19:55	
Fluoride	8.72	100	104	95	104	95	90-110	0	20	mg/L	11.03.2020 19:55	
Nitrate as N	1.90	100	103	101	103	101	90-110	0	20	mg/L	11.03.2020 19:55	

Analytical Method: Dissolved Anions by EPA 300

Seq Number: 3141357

Parent Sample Id: 676731-005

Matrix: Water

MS Sample Id: 676731-005 S

Prep Method: E300P

Date Prep: 11.04.2020

MSD Sample Id: 676731-005 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	24.8	10.0	34.4	96	34.4	96	90-110	0	20	mg/L	11.04.2020 10:15	
Fluoride	<0.500	10.0	10.5	105	10.4	104	90-110	1	20	mg/L	11.04.2020 10:15	
Nitrate as N	<0.100	10.0	10.1	101	10.1	101	90-110	0	20	mg/L	11.04.2020 10:15	
Sulfate	97.9	10.0	106	81	106	81	90-110	0	20	mg/L	11.04.2020 10:15	X

Analytical Method: Dissolved Anions by EPA 300

Seq Number: 3141357

Parent Sample Id: 676731-006

Matrix: Water

MS Sample Id: 676731-006 S

Prep Method: E300P

Date Prep: 11.04.2020

MSD Sample Id: 676731-006 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	24.8	10.0	34.2	94	34.2	94	90-110	0	20	mg/L	11.04.2020 17:41	
Fluoride	<0.500	10.0	10.3	103	10.3	103	90-110	0	20	mg/L	11.04.2020 17:41	
Nitrate as N	<0.100	10.0	10.0	100	10.0	100	90-110	0	20	mg/L	11.04.2020 17:41	
Sulfate	97.9	10.0	105	71	105	71	90-110	0	20	mg/L	11.04.2020 17:41	X

Analytical Method: Percent Moisture by SM2540G

Seq Number: 3141063

Matrix: Solid

MB Sample Id: 3141063-1-BLK

Parameter	MB Result	Units	Analysis Date	Flag
Percent Moisture	0.0100	%	10.31.2020 09:49	

Analytical Method: Percent Moisture by SM2540G

Seq Number: 3141063

Matrix: Soil

Parent Sample Id: 676272-001

MD Sample Id: 676272-001 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Percent Moisture	9.07	9.34	3	10	%	10.31.2020 09:49	

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

High Brass 002H (6-13-20)

Analytical Method: Dissolved Metals per ICP by SW846 6010B

Seq Number: 3141348

Matrix: Water

Prep Method: SW3010A

Date Prep: 11.04.2020

MB Sample Id: 7714466-1-BLK

LCS Sample Id: 7714466-1-BKS

LCSD Sample Id: 7714466-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Boron	<0.0500	1.00	0.978	98	0.982	98	75-125	0	20	mg/L	11.04.2020 13:40	
Calcium	<0.200	25.0	24.4	98	24.4	98	75-125	0	20	mg/L	11.04.2020 13:40	
Magnesium	<0.400	25.0	24.7	99	24.6	98	75-125	0	20	mg/L	11.04.2020 13:40	
Potassium	<0.500	10.0	9.37	94	9.36	94	75-125	0	20	mg/L	11.04.2020 13:40	
Sodium	<0.500	25.0	23.0	92	23.0	92	75-125	0	20	mg/L	11.04.2020 13:40	

Analytical Method: Dissolved Metals per ICP by SW846 6010B

Seq Number: 3141348

Matrix: Soil

Prep Method: SW3010A

Date Prep: 11.04.2020

Parent Sample Id: 676490-006

MS Sample Id: 676490-006 S

MSD Sample Id: 676490-006 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Boron	<0.500	10.0	10.3	103	10.3	103	75-125	0	20	mg/L	11.04.2020 13:53	
Calcium	3090	250	3300	84	3300	84	75-125	0	20	mg/L	11.04.2020 13:53	
Magnesium	92.4	250	341	99	341	99	75-125	0	20	mg/L	11.04.2020 13:53	
Potassium	34.9	100	131	96	131	96	75-125	0	20	mg/L	11.04.2020 13:53	
Sodium	91.9	250	331	96	330	95	75-125	0	20	mg/L	11.04.2020 13:53	

Analytical Method: SAR Metals by SW6010C

Seq Number: 3141351

Matrix: Solid

Prep Method: SW3051

Date Prep: 11.03.2020

MB Sample Id: 7714474-1-BLK

LCS Sample Id: 7714474-1-BKS

LCSD Sample Id: 7714474-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Calcium	<0.400	50.0	48.4	97	48.3	97	75-125	0	20	mg/kg	11.04.2020 11:48	
Magnesium	<0.800	50.0	48.9	98	48.7	97	75-125	0	20	mg/kg	11.04.2020 11:48	
Sodium	<1.00	50.0	47.4	95	47.4	95	75-125	0	20	mg/kg	11.04.2020 11:48	

Analytical Method: SAR Metals by SW6010C

Seq Number: 3141351

Matrix: Soil

Prep Method: SW3051

Date Prep: 11.03.2020

Parent Sample Id: 676490-006

MD Sample Id: 676490-006 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Calcium	1940	1850	0	20	mg/kg	11.04.2020 12:51	
Magnesium	41.9	41.5	1	20	mg/kg	11.04.2020 12:08	
Sodium	54.7	54.5	0	20	mg/kg	11.04.2020 12:08	

Analytical Method: Electrical Conductivity (SAR)

Seq Number: 3141350

Matrix: Solid

MB Sample Id: 3141350-1-BLK

LCS Sample Id: 3141350-1-BKS

LCSD Sample Id: 3141350-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Conductivity	<10.0	1410	1420	101	1420	101	80-120	0	20	umhos/cm	11.04.2020 15:41	

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
High Brass 002H (6-13-20)

Analytical Method: Electrical Conductivity (SAR)

Seq Number: 3141350

Matrix: Soil

Parent Sample Id: 676490-006

MD Sample Id: 676490-006 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Conductivity	7290	7250	1	20	umhos/cm	11.04.2020 15:41	

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



One Concho Center/600/Illinois
Avenue/Midland, Texas
Tel (432) 683-7443

1076492

Client Name:		COG		Site Manager:		Ike Tavaraz itavaraz@concho.com Robert Grubbs Jr rgrubbs@concho.com	
Project Name:		High Brass 002H (6-13-20)		Project #:			
Project Location:		Eddy County, NM		Project #:			
Invoice for:		COG		Sampler Signature:		Robert Grubbs Jr	
Receiving Laboratory:		Xenco		Sampler Signature:		Robert Grubbs Jr	
Comments:							
LAB # (USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING		MATRIX	PRESERVATIVE METHOD	# CONTAINERS	FILTERED (Y/N)
		YEAR: 2020	DATE				
	Background 8 1'		10/29/2020	X		1	
	Background 8 2'		10/29/2020	X		1	
	Background 8 3'		10/29/2020	X		1	
	Background 8 4'		10/29/2020	X		1	
	Background 8 5'		10/29/2020	X		1	
	Background 8 6'		10/29/2020	X		1	
	Background 8 7'		10/29/2020	X		1	
	Background 8 8'		10/29/2020	X		1	
	Background 8 9'		10/29/2020	X		1	
	Background 8 10'		10/29/2020	X		1	
Relinquished by:		Date:	Time:	Received by:		Date:	Time:
Robert Grubbs Jr		10/30/2020	13:30	Ike Tavaraz		10/30/2020	13:31
Relinquished by:		Date:	Time:	Received by:		Date:	Time:
Relinquished by:		Date:	Time:	Received by:		Date:	Time:

LAB USE ONLY		REMARKS	
X	RUSH: Same Day 24 hr 48 hr 72 hr	Rush the Chlorides to determine if additional 1:15 Extracts analysis are needed.	
	Special Report Limits or TRRP Report		

Sample Temperature	
13.6	13.1

(Circle) HAND DELIVERED		FEDEX UPS Tracking #	
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ORIGINAL COPY



ORIGINAL COPY

Inter-Office Shipment

IOS Number : **72587**

Date/Time: 10.30.2020

Created by: Jessica Kramer

Please send report to: Jessica Kramer

Lab# From: **Midland**

Delivery Priority:

Address: 1211 W. Florida Ave

Lab# To: **Houston**

Air Bill No.: 771954930964

E-Mail: jessica.kramer@eurofinset.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
676492-001	S	Background 8 1'	10.29.2020 00:00	SM2540G-MOIST	Percent Moisture by SM2540G	HOLD	04.27.2021	JKR	MOIST	
676492-001	W	Background 8 1'	10.29.2020 00:00	E300_DISS	Dissolved Anions by EPA 300	HOLD	10.31.2020 00:00	JKR	CL F NO3N SO4	
676492-001	W	Background 8 1'	10.29.2020 00:00	SM1030E	Cation-Anion Balance Calculation	HOLD	11.28.2020	JKR	Cation-Anion Balance	
676492-001	W	Background 8 1'	10.29.2020 00:00	SM2320B	Alkalinity by SM2320B	HOLD	11.12.2020	JKR	ALK	
676492-001	S	Background 8 1'	10.29.2020 00:00	S29B08_Twice	SAR Twice Saturated Extraction	HOLD	08.12.2035	JKR		
676492-001	S	Background 8 1'	10.29.2020 00:00	SW6010C_SAR	SAR Metals by SW6010C	HOLD	04.27.2021	JKR	CA MG NA	
676492-001	W	Background 8 1'	10.29.2020 00:00	SW6010B_DISS	Dissolved Metals per ICP by SW846 601	HOLD	04.27.2021	JKR	B CA K MG NA	
676492-001	S	Background 8 1'	10.29.2020 00:00	SM2510B_SAR	Electrical Conductivity (SAR)	HOLD	11.26.2020	JKR		
676492-002	S	Background 8 2'	10.29.2020 00:00	SM2540G-MOIST	Percent Moisture by SM2540G	HOLD	04.27.2021	JKR	MOIST	
676492-002	W	Background 8 2'	10.29.2020 00:00	E300_DISS	Dissolved Anions by EPA 300	HOLD	10.31.2020 00:00	JKR	CL F NO3N SO4	
676492-002	W	Background 8 2'	10.29.2020 00:00	SM1030E	Cation-Anion Balance Calculation	HOLD	11.28.2020	JKR	Cation-Anion Balance	
676492-002	W	Background 8 2'	10.29.2020 00:00	SM2320B	Alkalinity by SM2320B	HOLD	11.12.2020	JKR	ALK	
676492-002	S	Background 8 2'	10.29.2020 00:00	S29B08_Twice	SAR Twice Saturated Extraction	HOLD	08.12.2035	JKR		
676492-002	S	Background 8 2'	10.29.2020 00:00	SW6010C_SAR	SAR Metals by SW6010C	HOLD	04.27.2021	JKR	CA MG NA	
676492-002	W	Background 8 2'	10.29.2020 00:00	SW6010B_DISS	Dissolved Metals per ICP by SW846 601	HOLD	04.27.2021	JKR	B CA K MG NA	
676492-002	S	Background 8 2'	10.29.2020 00:00	SM2510B_SAR	Electrical Conductivity (SAR)	HOLD	11.26.2020	JKR		
676492-003	W	Background 8 3'	10.29.2020 00:00	SW6010B_DISS	Dissolved Metals per ICP by SW846 601	HOLD	04.27.2021	JKR	B CA K MG NA	
676492-003	S	Background 8 3'	10.29.2020 00:00	SW6010C_SAR	SAR Metals by SW6010C	HOLD	04.27.2021	JKR	CA MG NA	
676492-003	S	Background 8 3'	10.29.2020 00:00	SM2510B_SAR	Electrical Conductivity (SAR)	HOLD	11.26.2020	JKR		
676492-003	S	Background 8 3'	10.29.2020 00:00	SM2540G-MOIST	Percent Moisture by SM2540G	HOLD	04.27.2021	JKR	MOIST	
676492-003	W	Background 8 3'	10.29.2020 00:00	E300_DISS	Dissolved Anions by EPA 300	HOLD	10.31.2020 00:00	JKR	CL F NO3N SO4	
676492-003	W	Background 8 3'	10.29.2020 00:00	SM1030E	Cation-Anion Balance Calculation	HOLD	11.28.2020	JKR	Cation-Anion Balance	
676492-003	W	Background 8 3'	10.29.2020 00:00	SM2320B	Alkalinity by SM2320B	HOLD	11.12.2020	JKR	ALK	
676492-003	S	Background 8 3'	10.29.2020 00:00	S29B08_Twice	SAR Twice Saturated Extraction	HOLD	08.12.2035	JKR		
676492-004	W	Background 8 4'	10.29.2020 00:00	SW6010B_DISS	Dissolved Metals per ICP by SW846 601	HOLD	04.27.2021	JKR	B CA K MG NA	

Inter-Office Shipment

IOS Number : **72587**

Date/Time: 10.30.2020

Created by: Jessica Kramer

Please send report to: Jessica Kramer

Lab# From: **Midland**

Delivery Priority:

Address: 1211 W. Florida Ave

Lab# To: **Houston**

Air Bill No.: 771954930964

E-Mail: jessica.kramer@eurofinset.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
676492-004	S	Background 8 4'	10.29.2020 00:00	SM2540G-MOIST	Percent Moisture by SM2540G	HOLD	04.27.2021	JKR	MOIST	
676492-004	W	Background 8 4'	10.29.2020 00:00	E300_DISS	Dissolved Anions by EPA 300	HOLD	10.31.2020 00:00	JKR	CL F NO3N SO4	
676492-004	W	Background 8 4'	10.29.2020 00:00	SM1030E	Cation-Anion Balance Calculation	HOLD	11.28.2020	JKR	Cation-Anion Balance	
676492-004	W	Background 8 4'	10.29.2020 00:00	SM2320B	Alkalinity by SM2320B	HOLD	11.12.2020	JKR	ALK	
676492-004	S	Background 8 4'	10.29.2020 00:00	S29B08_Twice	SAR Twice Saturated Extraction	HOLD	08.12.2035	JKR		
676492-004	S	Background 8 4'	10.29.2020 00:00	SW6010C_SAR	SAR Metals by SW6010C	HOLD	04.27.2021	JKR	CA MG NA	
676492-004	S	Background 8 4'	10.29.2020 00:00	SM2510B_SAR	Electrical Conductivity (SAR)	HOLD	11.26.2020	JKR		
676492-005	W	Background 8 5'	10.29.2020 00:00	SW6010B_DISS	Dissolved Metals per ICP by SW846 601	HOLD	04.27.2021	JKR	B CA K MG NA	
676492-005	S	Background 8 5'	10.29.2020 00:00	SW6010C_SAR	SAR Metals by SW6010C	HOLD	04.27.2021	JKR	CA MG NA	
676492-005	S	Background 8 5'	10.29.2020 00:00	S29B08_Twice	SAR Twice Saturated Extraction	HOLD	08.12.2035	JKR		
676492-005	W	Background 8 5'	10.29.2020 00:00	SM2320B	Alkalinity by SM2320B	HOLD	11.12.2020	JKR	ALK	
676492-005	W	Background 8 5'	10.29.2020 00:00	SM1030E	Cation-Anion Balance Calculation	HOLD	11.28.2020	JKR	Cation-Anion Balance	
676492-005	W	Background 8 5'	10.29.2020 00:00	E300_DISS	Dissolved Anions by EPA 300	HOLD	10.31.2020 00:00	JKR	CL F NO3N SO4	
676492-005	S	Background 8 5'	10.29.2020 00:00	SM2540G-MOIST	Percent Moisture by SM2540G	HOLD	04.27.2021	JKR	MOIST	
676492-005	S	Background 8 5'	10.29.2020 00:00	SM2510B_SAR	Electrical Conductivity (SAR)	HOLD	11.26.2020	JKR		
676492-006	W	Background 8 6'	10.29.2020 00:00	SM1030E	Cation-Anion Balance Calculation	11.02.2020	11.28.2020	JKR	Cation-Anion Balance	
676492-006	W	Background 8 6'	10.29.2020 00:00	SM2320B	Alkalinity by SM2320B	11.02.2020	11.12.2020	JKR	ALK	
676492-006	S	Background 8 6'	10.29.2020 00:00	S29B08_Twice	SAR Twice Saturated Extraction	11.02.2020	08.12.2035	JKR		
676492-006	S	Background 8 6'	10.29.2020 00:00	SW6010C_SAR	SAR Metals by SW6010C	11.02.2020	04.27.2021	JKR	CA MG NA	
676492-006	W	Background 8 6'	10.29.2020 00:00	SW6010B_DISS	Dissolved Metals per ICP by SW846 601	11.02.2020	04.27.2021	JKR	B CA K MG NA	
676492-006	W	Background 8 6'	10.29.2020 00:00	E300_DISS	Dissolved Anions by EPA 300	11.02.2020	10.31.2020 00:00	JKR	CL F NO3N SO4	
676492-006	S	Background 8 6'	10.29.2020 00:00	SM2540G-MOIST	Percent Moisture by SM2540G	11.02.2020	04.27.2021	JKR	MOIST	
676492-006	S	Background 8 6'	10.29.2020 00:00	SM2510B_SAR	Electrical Conductivity (SAR)	11.02.2020	11.26.2020	JKR		
676492-007	W	Background 8 7'	10.29.2020 00:00	SM1030E	Cation-Anion Balance Calculation	HOLD	11.28.2020	JKR	Cation-Anion Balance	
676492-007	W	Background 8 7'	10.29.2020 00:00	SM2320B	Alkalinity by SM2320B	HOLD	11.12.2020	JKR	ALK	

Inter Office Shipment or Sample Comments:

Inter-Office Shipment

IOS Number : **72587**

Date/Time: 10.30.2020

Created by: Jessica Kramer

Please send report to: Jessica Kramer

Lab# From: **Midland**

Delivery Priority:

Address: 1211 W. Florida Ave

Lab# To: **Houston**

Air Bill No.: 771954930964

E-Mail: jessica.kramer@eurofinset.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
676492-007	S	Background 8 7"	10.29.2020 00:00	S29B08_Twice	SAR Twice Saturated Extraction	HOLD	08.12.2035	JKR		
676492-007	S	Background 8 7"	10.29.2020 00:00	SW6010C_SAR	SAR Metals by SW6010C	HOLD	04.27.2021	JKR	CA MG NA	
676492-007	W	Background 8 7"	10.29.2020 00:00	SW6010B_DISS	Dissolved Metals per ICP by SW846 601	HOLD	04.27.2021	JKR	B CA K MG NA	
676492-007	W	Background 8 7"	10.29.2020 00:00	E300_DISS	Dissolved Anions by EPA 300	HOLD	10.31.2020 00:00	JKR	CL F NO3N SO4	
676492-007	S	Background 8 7"	10.29.2020 00:00	SM2510B_SAR	Electrical Conductivity (SAR)	HOLD	11.26.2020	JKR		
676492-007	S	Background 8 7"	10.29.2020 00:00	SM2540G-MOIST	Percent Moisture by SM2540G	HOLD	04.27.2021	JKR	MOIST	
676492-008	W	Background 8 8'	10.29.2020 00:00	SW6010B_DISS	Dissolved Metals per ICP by SW846 601	HOLD	04.27.2021	JKR	B CA K MG NA	
676492-008	S	Background 8 8'	10.29.2020 00:00	SW6010C_SAR	SAR Metals by SW6010C	HOLD	04.27.2021	JKR	CA MG NA	
676492-008	S	Background 8 8'	10.29.2020 00:00	S29B08_Twice	SAR Twice Saturated Extraction	HOLD	08.12.2035	JKR		
676492-008	W	Background 8 8'	10.29.2020 00:00	SM2320B	Alkalinity by SM2320B	HOLD	11.12.2020	JKR	ALK	
676492-008	W	Background 8 8'	10.29.2020 00:00	SM1030E	Cation-Anion Balance Calculation	HOLD	11.28.2020	JKR	Cation-Anion Balance	
676492-008	W	Background 8 8'	10.29.2020 00:00	E300_DISS	Dissolved Anions by EPA 300	HOLD	10.31.2020 00:00	JKR	CL F NO3N SO4	
676492-008	S	Background 8 8'	10.29.2020 00:00	SM2510B_SAR	Electrical Conductivity (SAR)	HOLD	11.26.2020	JKR		
676492-008	S	Background 8 8'	10.29.2020 00:00	SM2540G-MOIST	Percent Moisture by SM2540G	HOLD	04.27.2021	JKR	MOIST	
676492-009	W	Background 8 9'	10.29.2020 00:00	SW6010B_DISS	Dissolved Metals per ICP by SW846 601	HOLD	04.27.2021	JKR	B CA K MG NA	
676492-009	S	Background 8 9'	10.29.2020 00:00	SW6010C_SAR	SAR Metals by SW6010C	HOLD	04.27.2021	JKR	CA MG NA	
676492-009	S	Background 8 9'	10.29.2020 00:00	S29B08_Twice	SAR Twice Saturated Extraction	HOLD	08.12.2035	JKR		
676492-009	W	Background 8 9'	10.29.2020 00:00	SM2320B	Alkalinity by SM2320B	HOLD	11.12.2020	JKR	ALK	
676492-009	S	Background 8 9'	10.29.2020 00:00	SM2540G-MOIST	Percent Moisture by SM2540G	HOLD	04.27.2021	JKR	MOIST	
676492-009	S	Background 8 9'	10.29.2020 00:00	SM2510B_SAR	Electrical Conductivity (SAR)	HOLD	11.26.2020	JKR		
676492-009	W	Background 8 9'	10.29.2020 00:00	SM1030E	Cation-Anion Balance Calculation	HOLD	11.28.2020	JKR	Cation-Anion Balance	
676492-009	W	Background 8 9'	10.29.2020 00:00	E300_DISS	Dissolved Anions by EPA 300	HOLD	10.31.2020 00:00	JKR	CL F NO3N SO4	
676492-010	W	Background 8 10'	10.29.2020 00:00	SM1030E	Cation-Anion Balance Calculation	11.02.2020	11.28.2020	JKR	Cation-Anion Balance	
676492-010	W	Background 8 10'	10.29.2020 00:00	E300_DISS	Dissolved Anions by EPA 300	11.02.2020	10.31.2020 00:00	JKR	CL F NO3N SO4	
676492-010	S	Background 8 10'	10.29.2020 00:00	SM2540G-MOIST	Percent Moisture by SM2540G	11.02.2020	04.27.2021	JKR	MOIST	

Inter Office Shipment or Sample Comments:

Relinquished By:

Received By:

Released to Imaging: 7/20/2021 2:26:20 PM

Inter-Office Shipment

IOS Number : **72587**

Date/Time: 10.30.2020

Created by: Jessica Kramer

Please send report to: Jessica Kramer

Lab# From: **Midland**

Delivery Priority:

Address: 1211 W. Florida Ave

Lab# To: **Houston**

Air Bill No.: 771954930964

E-Mail: jessica.kramer@eurofinset.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
676492-010	W	Background 8 10'	10.29.2020 00:00	SM2320B	Alkalinity by SM2320B	11.02.2020	11.12.2020	JKR	ALK	
676492-010	S	Background 8 10'	10.29.2020 00:00	S29B08_Twice	SAR Twice Saturated Extraction	11.02.2020	08.12.2035	JKR		
676492-010	S	Background 8 10'	10.29.2020 00:00	SM2510B_SAR	Electrical Conductivity (SAR)	11.02.2020	11.26.2020	JKR		
676492-010	W	Background 8 10'	10.29.2020 00:00	SW6010B_DISS	Dissolved Metals per ICP by SW846 601	11.02.2020	04.27.2021	JKR	B CA K MG NA	
676492-010	S	Background 8 10'	10.29.2020 00:00	SW6010C_SAR	SAR Metals by SW6010C	11.02.2020	04.27.2021	JKR	CA MG NA	
676492-011	W	Background 8 12'	10.29.2020 00:00	E300_DISS	Dissolved Anions by EPA 300	HOLD	10.31.2020 00:00	JKR	CL F NO3N SO4	
676492-011	S	Background 8 12'	10.29.2020 00:00	SM2540G-MOIST	Percent Moisture by SM2540G	HOLD	04.27.2021	JKR	MOIST	
676492-011	W	Background 8 12'	10.29.2020 00:00	SM2320B	Alkalinity by SM2320B	HOLD	11.12.2020	JKR	ALK	
676492-011	S	Background 8 12'	10.29.2020 00:00	S29B08_Twice	SAR Twice Saturated Extraction	HOLD	08.12.2035	JKR		
676492-011	S	Background 8 12'	10.29.2020 00:00	SM2510B_SAR	Electrical Conductivity (SAR)	HOLD	11.26.2020	JKR		
676492-011	S	Background 8 12'	10.29.2020 00:00	SW6010C_SAR	SAR Metals by SW6010C	HOLD	04.27.2021	JKR	CA MG NA	
676492-011	W	Background 8 12'	10.29.2020 00:00	SM1030E	Cation-Anion Balance Calculation	HOLD	11.28.2020	JKR	Cation-Anion Balance	
676492-011	W	Background 8 12'	10.29.2020 00:00	SW6010B_DISS	Dissolved Metals per ICP by SW846 601	HOLD	04.27.2021	JKR	B CA K MG NA	
676492-012	S	Background 8 14'	10.29.2020 00:00	S29B08_Twice	SAR Twice Saturated Extraction	HOLD	08.12.2035	JKR		
676492-012	S	Background 8 14'	10.29.2020 00:00	SW6010C_SAR	SAR Metals by SW6010C	HOLD	04.27.2021	JKR	CA MG NA	
676492-012	W	Background 8 14'	10.29.2020 00:00	SM2320B	Alkalinity by SM2320B	HOLD	11.12.2020	JKR	ALK	
676492-012	W	Background 8 14'	10.29.2020 00:00	SM1030E	Cation-Anion Balance Calculation	HOLD	11.28.2020	JKR	Cation-Anion Balance	
676492-012	W	Background 8 14'	10.29.2020 00:00	E300_DISS	Dissolved Anions by EPA 300	HOLD	10.31.2020 00:00	JKR	CL F NO3N SO4	
676492-012	S	Background 8 14'	10.29.2020 00:00	SM2540G-MOIST	Percent Moisture by SM2540G	HOLD	04.27.2021	JKR	MOIST	
676492-012	S	Background 8 14'	10.29.2020 00:00	SM2510B_SAR	Electrical Conductivity (SAR)	HOLD	11.26.2020	JKR		
676492-012	W	Background 8 14'	10.29.2020 00:00	SW6010B_DISS	Dissolved Metals per ICP by SW846 601	HOLD	04.27.2021	JKR	B CA K MG NA	
676492-013	W	Background 8 16'	10.29.2020 00:00	SW6010B_DISS	Dissolved Metals per ICP by SW846 601	HOLD	04.27.2021	JKR	B CA K MG NA	
676492-013	W	Background 8 16'	10.29.2020 00:00	E300_DISS	Dissolved Anions by EPA 300	HOLD	10.31.2020 00:00	JKR	CL F NO3N SO4	
676492-013	S	Background 8 16'	10.29.2020 00:00	SM2510B_SAR	Electrical Conductivity (SAR)	HOLD	11.26.2020	JKR		
676492-013	W	Background 8 16'	10.29.2020 00:00	SM2320B	Alkalinity by SM2320B	HOLD	11.12.2020	JKR	ALK	

Inter Office Shipment or Sample Comments:

Date Relinquished:

Date Received:

Released to Imaging: 7/20/2021 2:26:20 PM

Inter-Office Shipment

IOS Number : **72587**

Date/Time: 10.30.2020

Created by: Jessica Kramer

Please send report to: Jessica Kramer

Lab# From: **Midland**

Delivery Priority:

Address: 1211 W. Florida Ave

Lab# To: **Houston**

Air Bill No.: 771954930964

E-Mail: jessica.kramer@eurofinset.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
676492-013	S	Background 8 16'	10.29.2020 00:00	SM2540G-MOIST	Percent Moisture by SM2540G	HOLD	04.27.2021	JKR	MOIST	
676492-013	S	Background 8 16'	10.29.2020 00:00	SW6010C_SAR	SAR Metals by SW6010C	HOLD	04.27.2021	JKR	CA MG NA	
676492-013	W	Background 8 16'	10.29.2020 00:00	SM1030E	Cation-Anion Balance Calculation	HOLD	11.28.2020	JKR	Cation-Anion Balance	
676492-013	S	Background 8 16'	10.29.2020 00:00	S29B08_Twice	SAR Twice Saturated Extraction	HOLD	08.12.2035	JKR		
676492-014	W	Background 8 18'	10.29.2020 00:00	SW6010B_DISS	Dissolved Metals per ICP by SW846 601	11.02.2020	04.27.2021	JKR	B CA K MG NA	
676492-014	S	Background 8 18'	10.29.2020 00:00	SW6010C_SAR	SAR Metals by SW6010C	11.02.2020	04.27.2021	JKR	CA MG NA	
676492-014	W	Background 8 18'	10.29.2020 00:00	SM1030E	Cation-Anion Balance Calculation	11.02.2020	11.28.2020	JKR	Cation-Anion Balance	
676492-014	S	Background 8 18'	10.29.2020 00:00	S29B08_Twice	SAR Twice Saturated Extraction	11.02.2020	08.12.2035	JKR		
676492-014	S	Background 8 18'	10.29.2020 00:00	SM2510B_SAR	Electrical Conductivity (SAR)	11.02.2020	11.26.2020	JKR		
676492-014	S	Background 8 18'	10.29.2020 00:00	SM2540G-MOIST	Percent Moisture by SM2540G	11.02.2020	04.27.2021	JKR	MOIST	
676492-014	W	Background 8 18'	10.29.2020 00:00	SM2320B	Alkalinity by SM2320B	11.02.2020	11.12.2020	JKR	ALK	
676492-014	W	Background 8 18'	10.29.2020 00:00	E300_DISS	Dissolved Anions by EPA 300	11.02.2020	10.31.2020 00:00	JKR	CL F NO3N SO4	

Inter Office Shipment or Sample Comments:



Jessica Kramer

10.30.2020



Hypatia Keys

10.31.2020

Cooler Temperature: 3.3



Inter Office Report- Sample Receipt Checklist

Sent To: Houston

IOS #: 72587

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : hou-203

Sent By: Jessica Kramer

Date Sent: 10.30.2020 02.09 PM

Received By: Hypatia Keys

Date Received: 10.31.2020 09.20 AM

Sample Receipt Checklist

Comments

#1 *Temperature of cooler(s)?	3.3	
#2 *Shipping container in good condition?	Yes	
#3 *Samples received with appropriate temperature?	Yes	
#4 *Custody Seals intact on shipping container/ cooler?	N/A	
#5 *Custody Seals Signed and dated for Containers/coolers	N/A	
#6 *IOS present?	Yes	
#7 Any missing/extra samples?	Yes	Did not receive the water samples for WO 676490 and 676492 only received the soil samples. (1) 250ml HNO3 missing and (3) VOA HCL are missing from WO 676528-008. Did not receive 1 L unpreserved for WO 676536-001
#8 IOS agrees with sample label(s)/matrix?	Yes	
#9 Sample matrix/ properties agree with IOS?	Yes	
#10 Samples in proper container/ bottle?	Yes	
#11 Samples properly preserved?	Yes	676528 1 L preservative label is incorrect.
#12 Sample container(s) intact?	Yes	
#13 Sufficient sample amount for indicated test(s)?	Yes	
#14 All samples received within hold time?	Yes	

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

NonConformance:

Corrective Action Taken:

Nonconformance Documentation

Contact: _____ Contacted by : _____ Date: _____

Checklist reviewed by:

Hypatia Keys

Date: 10.31.2020

Eurofins Xenco, LLC

Prelogin/Nonconformance Report- Sample Log-In

Client: COG Operating LLC

Date/ Time Received: 10.30.2020 01.31.00 PM

Work Order #: 676492

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : IR-8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	13.1
#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)?	Yes Xenco Stafford
#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: 10.30.2020

Checklist reviewed by:



Jessica Kramer

Date: 10.30.2020

Certificate of Analysis Summary 676753

COG Operating LLC, Artesia, NM

Project Name: COG - High Brass

Project Id: COG - High Brass

Contact: Ike Tavarez

Project Location:

Date Received in Lab: Tue 11.03.2020 13:25

Report Date: 11.04.2020 14:12

Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	676753-001	676753-002	676753-003	676753-004	676753-005	
	Field Id:	Confirmation Pipeline Bot	Confirmation Pipeline Bot	Confirmation Pipeline Bot	Confirmation Pipeline Bot	Confirmation Pipeline Bot	
	Depth:						
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	
	Sampled:	11.02.2020 00:00	11.02.2020 00:00	11.02.2020 00:00	11.02.2020 00:00	11.02.2020 00:00	
BTEX by EPA 8021B	Extracted:	11.03.2020 16:00	11.03.2020 16:00	11.03.2020 16:00	11.03.2020 16:00	11.03.2020 16:00	
	Analyzed:	11.03.2020 16:54	11.03.2020 17:15	11.03.2020 17:36	11.03.2020 17:56	11.03.2020 18:17	
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	
		<0.00198 0.00198	<0.00200 0.00200	<0.00201 0.00201	<0.00200 0.00200	<0.00200 0.00200	
Benzene		<0.00198 0.00198	<0.00200 0.00200	<0.00201 0.00201	<0.00200 0.00200	<0.00200 0.00200	
Toluene		<0.00198 0.00198	<0.00200 0.00200	<0.00201 0.00201	<0.00200 0.00200	<0.00200 0.00200	
Ethylbenzene		<0.00198 0.00198	<0.00200 0.00200	<0.00201 0.00201	<0.00200 0.00200	<0.00200 0.00200	
m,p-Xylenes		<0.00397 0.00397	<0.00400 0.00400	<0.00402 0.00402	<0.00401 0.00401	<0.00399 0.00399	
o-Xylene		<0.00198 0.00198	<0.00200 0.00200	<0.00201 0.00201	<0.00200 0.00200	<0.00200 0.00200	
Total Xylenes		<0.00198 0.00198	<0.00200 0.00200	<0.00201 0.00201	<0.00200 0.00200	<0.00200 0.00200	
Total BTEX		<0.00198 0.00198	<0.00200 0.00200	<0.00201 0.00201	<0.00200 0.00200	<0.00200 0.00200	
Chloride by EPA 300	Extracted:	11.03.2020 16:00	11.03.2020 16:00	11.03.2020 16:00	11.03.2020 16:00	11.03.2020 16:00	
	Analyzed:	11.03.2020 18:13	11.03.2020 18:18	11.03.2020 18:34	11.03.2020 18:39	11.03.2020 18:45	
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	
		11.9 4.97	12.0 5.03	12.6 4.99	12.1 5.00	10.3 4.96	
Chloride		11.9 4.97	12.0 5.03	12.6 4.99	12.1 5.00	10.3 4.96	
TPH by SW8015 Mod	Extracted:	11.03.2020 15:00	11.03.2020 15:00	11.03.2020 15:00	11.03.2020 15:00	11.03.2020 15:00	
	Analyzed:	11.03.2020 23:10	11.03.2020 23:29	11.03.2020 23:48	11.04.2020 00:07	11.04.2020 00:26	
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	
		<50.0 50.0	<49.9 49.9	<49.8 49.8	<50.0 50.0	<49.9 49.9	
Gasoline Range Hydrocarbons (GRO)		<50.0 50.0	<49.9 49.9	<49.8 49.8	<50.0 50.0	<49.9 49.9	
Diesel Range Organics (DRO)		<50.0 50.0	<49.9 49.9	<49.8 49.8	<50.0 50.0	<49.9 49.9	
Motor Oil Range Hydrocarbons (MRO)		<50.0 50.0	<49.9 49.9	<49.8 49.8	<50.0 50.0	<49.9 49.9	
Total TPH		<50.0 50.0	<49.9 49.9	<49.8 49.8	<50.0 50.0	<49.9 49.9	

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico



Analytical Report 676753

for

COG Operating LLC

Project Manager: Ike Tavaréz

COG - High Brass

COG - High Brass

11.04.2020

Collected By: Client



1211 W. Florida Ave
Midland TX 79701

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-38), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2020-014), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-20-26), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-18)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-23)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-21)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-20-8)
Xenco-Tampa: Florida (E87429), North Carolina (483)



11.04.2020

Project Manager: **Ike Tavaréz**

COG Operating LLC

2407 Pecos Avenue

Artesia, NM 88210

Reference: Eurofins Xenco, LLC Report No(s): **676753**

COG - High Brass

Project Address:

Ike Tavaréz:

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 Eurofins Xenco, LLC Report Number(s) 676753. 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 Eurofins Xenco, LLC. 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. 676753 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 Eurofins Xenco, LLC to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

A handwritten signature in black ink that reads "Jessica Kramer".

Jessica Kramer

Project Manager

A Small Business and Minority Company

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

**Sample Cross Reference 676753****COG Operating LLC, Artesia, NM**

COG - High Brass

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
Confirmation Pipeline Bottom Hole-1 1'	S	11.02.2020 00:00		676753-001
Confirmation Pipeline Bottom Hole-2 1'	S	11.02.2020 00:00		676753-002
Confirmation Pipeline Bottom Hole- 3 1'	S	11.02.2020 00:00		676753-003
Confirmation Pipeline Bottom Hole-4 1'	S	11.02.2020 00:00		676753-004
Confirmation Pipeline Bottom Hole-5 1'	S	11.02.2020 00:00		676753-005



CASE NARRATIVE

Client Name: COG Operating LLC

Project Name: COG - High Brass

Project ID: COG - High Brass
Work Order Number(s): 676753

Report Date: 11.04.2020
Date Received: 11.03.2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3141292 BTEX by EPA 8021B

Surrogate 4-Bromofluorobenzene recovered below QC limits. Matrix interferences is suspected.

Samples affected are: 676434-005 SD.



Certificate of Analytical Results 676753

COG Operating LLC, Artesia, NM

COG - High Brass

Sample Id: **Confirmation Pipeline Bottom Hole-1 1'** Matrix: Soil Date Received: 11.03.2020 13:25

Lab Sample Id: 676753-001 Date Collected: 11.02.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

Analyst: CHE

Date Prep: 11.03.2020 16:00

% Moisture:

Seq Number: 3141279

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	11.9	4.97	mg/kg	11.03.2020 18:13		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

Analyst: ARM

Date Prep: 11.03.2020 15:00

% Moisture:

Seq Number: 3141318

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	11.03.2020 23:10	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	11.03.2020 23:10	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	11.03.2020 23:10	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	11.03.2020 23:10	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	90	%	70-130	11.03.2020 23:10	
o-Terphenyl	84-15-1	96	%	70-130	11.03.2020 23:10	



Certificate of Analytical Results 676753

COG Operating LLC, Artesia, NM

COG - High Brass

Sample Id: **Confirmation Pipeline Bottom Hole-1 1'** Matrix: Soil Date Received: 11.03.2020 13:25
 Lab Sample Id: 676753-001 Date Collected: 11.02.2020 00:00
 Analytical Method: BTEX by EPA 8021B Prep Method: SW5035A
 Tech: KTL
 Analyst: KTL Date Prep: 11.03.2020 16:00 % Moisture:
 Seq Number: 3141292 Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	11.03.2020 16:54	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	11.03.2020 16:54	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	11.03.2020 16:54	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	11.03.2020 16:54	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	11.03.2020 16:54	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	11.03.2020 16:54	U	1
Total BTEX		<0.00198	0.00198	mg/kg	11.03.2020 16:54	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	91	%	70-130	11.03.2020 16:54		
4-Bromofluorobenzene	460-00-4	82	%	70-130	11.03.2020 16:54		



Certificate of Analytical Results 676753

COG Operating LLC, Artesia, NM

COG - High Brass

Sample Id: **Confirmation Pipeline Bottom Hole-2 1'** Matrix: Soil Date Received: 11.03.2020 13:25

Lab Sample Id: 676753-002 Date Collected: 11.02.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

Analyst: CHE

Date Prep: 11.03.2020 16:00

% Moisture:

Seq Number: 3141279

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	12.0	5.03	mg/kg	11.03.2020 18:18		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

Analyst: ARM

Date Prep: 11.03.2020 15:00

% Moisture:

Seq Number: 3141318

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	11.03.2020 23:29	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	11.03.2020 23:29	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	11.03.2020 23:29	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	11.03.2020 23:29	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	90	%	70-130	11.03.2020 23:29	
o-Terphenyl	84-15-1	96	%	70-130	11.03.2020 23:29	



Certificate of Analytical Results 676753

COG Operating LLC, Artesia, NM

COG - High Brass

Sample Id: **Confirmation Pipeline Bottom Hole-2 1'** Matrix: Soil Date Received: 11.03.2020 13:25

Lab Sample Id: 676753-002 Date Collected: 11.02.2020 00:00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

Analyst: KTL

Date Prep: 11.03.2020 16:00

% Moisture:

Seq Number: 3141292

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	11.03.2020 17:15	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	11.03.2020 17:15	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	11.03.2020 17:15	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	11.03.2020 17:15	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	11.03.2020 17:15	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	11.03.2020 17:15	U	1
Total BTEX		<0.00200	0.00200	mg/kg	11.03.2020 17:15	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	93	%	70-130	11.03.2020 17:15	
1,4-Difluorobenzene	540-36-3	98	%	70-130	11.03.2020 17:15	



Certificate of Analytical Results 676753

COG Operating LLC, Artesia, NM

COG - High Brass

Sample Id: **Confirmation Pipeline Bottom Hole- 3 1'** Matrix: Soil Date Received: 11.03.2020 13:25

Lab Sample Id: 676753-003 Date Collected: 11.02.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

Analyst: CHE

Date Prep: 11.03.2020 16:00

% Moisture:

Basis: Wet Weight

Seq Number: 3141279

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	12.6	4.99	mg/kg	11.03.2020 18:34		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

Analyst: ARM

Date Prep: 11.03.2020 15:00

% Moisture:

Basis: Wet Weight

Seq Number: 3141318

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	11.03.2020 23:48	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	11.03.2020 23:48	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	11.03.2020 23:48	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	11.03.2020 23:48	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	90	%	70-130	11.03.2020 23:48	
o-Terphenyl	84-15-1	97	%	70-130	11.03.2020 23:48	



Certificate of Analytical Results 676753

COG Operating LLC, Artesia, NM

COG - High Brass

Sample Id: **Confirmation Pipeline Bottom Hole- 3 1'** Matrix: Soil Date Received: 11.03.2020 13:25

Lab Sample Id: 676753-003 Date Collected: 11.02.2020 00:00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

Analyst: KTL

Date Prep: 11.03.2020 16:00

% Moisture:
Basis: Wet Weight

Seq Number: 3141292

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	11.03.2020 17:36	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	11.03.2020 17:36	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	11.03.2020 17:36	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	11.03.2020 17:36	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	11.03.2020 17:36	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	11.03.2020 17:36	U	1
Total BTEX		<0.00201	0.00201	mg/kg	11.03.2020 17:36	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	92	%	70-130	11.03.2020 17:36	
1,4-Difluorobenzene	540-36-3	98	%	70-130	11.03.2020 17:36	



Certificate of Analytical Results 676753

COG Operating LLC, Artesia, NM

COG - High Brass

Sample Id: **Confirmation Pipeline Bottom Hole-4 1'** Matrix: Soil Date Received: 11.03.2020 13:25

Lab Sample Id: 676753-004 Date Collected: 11.02.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

Analyst: CHE

Date Prep: 11.03.2020 16:00

% Moisture:

Basis: Wet Weight

Seq Number: 3141279

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	12.1	5.00	mg/kg	11.03.2020 18:39		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

Analyst: ARM

Date Prep: 11.03.2020 15:00

% Moisture:

Basis: Wet Weight

Seq Number: 3141318

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	11.04.2020 00:07	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	11.04.2020 00:07	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	11.04.2020 00:07	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	11.04.2020 00:07	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	92	%	70-130	11.04.2020 00:07	
o-Terphenyl	84-15-1	98	%	70-130	11.04.2020 00:07	



Certificate of Analytical Results 676753

COG Operating LLC, Artesia, NM

COG - High Brass

Sample Id: **Confirmation Pipeline Bottom Hole-4 1'** Matrix: Soil Date Received: 11.03.2020 13:25
 Lab Sample Id: 676753-004 Date Collected: 11.02.2020 00:00
 Analytical Method: BTEX by EPA 8021B Prep Method: SW5035A
 Tech: KTL
 Analyst: KTL Date Prep: 11.03.2020 16:00 % Moisture:
 Seq Number: 3141292 Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	11.03.2020 17:56	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	11.03.2020 17:56	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	11.03.2020 17:56	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	11.03.2020 17:56	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	11.03.2020 17:56	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	11.03.2020 17:56	U	1
Total BTEX		<0.00200	0.00200	mg/kg	11.03.2020 17:56	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	96	%	70-130	11.03.2020 17:56		
1,4-Difluorobenzene	540-36-3	99	%	70-130	11.03.2020 17:56		



Certificate of Analytical Results 676753

COG Operating LLC, Artesia, NM

COG - High Brass

Sample Id: **Confirmation Pipeline Bottom Hole-5 1'** Matrix: Soil Date Received: 11.03.2020 13:25

Lab Sample Id: 676753-005 Date Collected: 11.02.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

Analyst: CHE

Date Prep: 11.03.2020 16:00

% Moisture:

Seq Number: 3141279

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	10.3	4.96	mg/kg	11.03.2020 18:45		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

Analyst: ARM

Date Prep: 11.03.2020 15:00

% Moisture:

Seq Number: 3141318

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	11.04.2020 00:26	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	11.04.2020 00:26	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	11.04.2020 00:26	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	11.04.2020 00:26	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	94	%	70-130	11.04.2020 00:26		
o-Terphenyl	84-15-1	99	%	70-130	11.04.2020 00:26		



Certificate of Analytical Results 676753

COG Operating LLC, Artesia, NM

COG - High Brass

Sample Id: **Confirmation Pipeline Bottom Hole-5 1'** Matrix: Soil Date Received: 11.03.2020 13:25

Lab Sample Id: 676753-005 Date Collected: 11.02.2020 00:00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

Analyst: KTL

Date Prep: 11.03.2020 16:00

% Moisture:
Basis: Wet Weight

Seq Number: 3141292

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	11.03.2020 18:17	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	11.03.2020 18:17	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	11.03.2020 18:17	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	11.03.2020 18:17	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	11.03.2020 18:17	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	11.03.2020 18:17	U	1
Total BTEX		<0.00200	0.00200	mg/kg	11.03.2020 18:17	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	91	%	70-130	11.03.2020 18:17	
1,4-Difluorobenzene	540-36-3	99	%	70-130	11.03.2020 18:17	

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. **ND** Not Detected.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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

COG Operating LLC

COG - High Brass

Analytical Method: Chloride by EPA 300

Seq Number: 3141279

MB Sample Id: 7714419-1-BLK

Matrix: Solid

LCS Sample Id: 7714419-1-BKS

Prep Method: E300P

Date Prep: 11.03.2020

LCSD Sample Id: 7714419-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	261	104	263	105	90-110	1	20	mg/kg	11.03.2020 16:22	

Analytical Method: Chloride by EPA 300

Seq Number: 3141279

Parent Sample Id: 676000-033

Matrix: Soil

MS Sample Id: 676000-033 S

Prep Method: E300P

Date Prep: 11.03.2020

MSD Sample Id: 676000-033 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	26.0	248	309	114	306	113	90-110	1	20	mg/kg	11.03.2020 18:03	X

Analytical Method: Chloride by EPA 300

Seq Number: 3141279

Parent Sample Id: 676596-001

Matrix: Soil

MS Sample Id: 676596-001 S

Prep Method: E300P

Date Prep: 11.03.2020

MSD Sample Id: 676596-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	88.8	253	355	105	359	107	90-110	1	20	mg/kg	11.03.2020 16:41	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3141318

MB Sample Id: 7714444-1-BLK

Matrix: Solid

LCS Sample Id: 7714444-1-BKS

Prep Method: SW8015P

Date Prep: 11.03.2020

LCSD Sample Id: 7714444-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.0	1000	916	92	937	94	70-130	2	20	mg/kg	11.03.2020 21:14	
Diesel Range Organics (DRO)	<50.0	1000	1070	107	1090	109	70-130	2	20	mg/kg	11.03.2020 21:14	
Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date			
1-Chlorooctane	102		103		118		70-130	%	11.03.2020 21:14			
o-Terphenyl	121		113		116		70-130	%	11.03.2020 21:14			

Analytical Method: TPH by SW8015 Mod

Seq Number: 3141318

Matrix: Solid

MB Sample Id: 7714444-1-BLK

Prep Method: SW8015P

Date Prep: 11.03.2020

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	11.03.2020 20:55	

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

COG - High Brass

Analytical Method: TPH by SW8015 Mod

Seq Number: 3141318

Parent Sample Id: 676697-021

Matrix: Soil

MS Sample Id: 676697-021 S

Prep Method: SW8015P

Date Prep: 11.03.2020

MSD Sample Id: 676697-021 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<49.9	997	940	94	945	95	70-130	1	20	mg/kg	11.03.2020 22:12	
Diesel Range Organics (DRO)	<49.9	997	1110	111	1170	117	70-130	5	20	mg/kg	11.03.2020 22:12	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	115		102		70-130	%	11.03.2020 22:12
o-Terphenyl	121		123		70-130	%	11.03.2020 22:12

Analytical Method: BTEX by EPA 8021B

Seq Number: 3141292

MB Sample Id: 7714448-1-BLK

Matrix: Solid

LCS Sample Id: 7714448-1-BKS

Prep Method: SW5035A

Date Prep: 11.03.2020

LCSD Sample Id: 7714448-1-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	0.100	0.0744	74	0.0824	82	70-130	10	35	mg/kg	11.03.2020 11:41	
Toluene	<0.00200	0.100	0.102	102	0.107	107	70-130	5	35	mg/kg	11.03.2020 11:41	
Ethylbenzene	<0.00200	0.100	0.115	115	0.119	119	70-130	3	35	mg/kg	11.03.2020 11:41	
m,p-Xylenes	<0.00400	0.200	0.240	120	0.246	123	70-130	2	35	mg/kg	11.03.2020 11:41	
o-Xylene	<0.00200	0.100	0.119	119	0.118	118	70-130	1	35	mg/kg	11.03.2020 11:41	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	98		84		85		70-130	%	11.03.2020 11:41
4-Bromofluorobenzene	96		122		114		70-130	%	11.03.2020 11:41

Analytical Method: BTEX by EPA 8021B

Seq Number: 3141292

Parent Sample Id: 676434-005

Matrix: Soil

MS Sample Id: 676434-005 S

Prep Method: SW5035A

Date Prep: 11.03.2020

MSD Sample Id: 676434-005 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	0.00370	4	0.0545	55	70-130	175	35	mg/kg	11.03.2020 13:46	XF
Toluene	<0.00199	0.0996	0.00542	5	<0.00200	0	70-130	200	35	mg/kg	11.03.2020 13:46	XF
Ethylbenzene	<0.00199	0.0996	0.00570	6	<0.00200	0	70-130	200	35	mg/kg	11.03.2020 13:46	XF
m,p-Xylenes	<0.00398	0.199	0.0112	6	<0.00401	0	70-130	200	35	mg/kg	11.03.2020 13:46	XF
o-Xylene	<0.00199	0.0996	0.00649	7	<0.00200	0	70-130	200	35	mg/kg	11.03.2020 13:46	XF

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	100		95		70-130	%	11.03.2020 13:46
4-Bromofluorobenzene	100		0	**	70-130	%	11.03.2020 13:46

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

ORIGINAL COPY

Eurofins Xenco, LLC

Prelogin/Nonconformance Report- Sample Log-In

Client: COG Operating LLC

Date/ Time Received: 11.03.2020 01.25.00 PM

Work Order #: 676753

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : IR-8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	4
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	N/A
#5 Custody Seals intact on sample bottles?	N/A
#6 *Custody Seals Signed and dated?	N/A
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	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: 11.03.2020

Checklist reviewed by:



Jessica Kramer

Date: 11.04.2020

Certificate of Analysis Summary 677687



COG Operating LLC, Artesia, NM

Project Name: High Brass 002H (6-13-20)

Project Id: COG - High Brass

Date Received in Lab: Thu 11.12.2020 10:51

Contact: Ike Tavarez

Report Date: 11.16.2020 14:30

Project Location:

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i> <i>Field Id:</i> <i>Depth:</i> <i>Matrix:</i> <i>Sampled:</i>	677687-001 2 Track SW North SOIL 11.11.2020 00:00	677687-002 2 Track SW East 1 SOIL 11.11.2020 00:00	677687-003 2 Track SW East 2 SOIL 11.11.2020 00:00	677687-004 2 Track SW East 3 SOIL 11.11.2020 00:00	677687-005 2 Track SW East 4 SOIL 11.11.2020 00:00	677687-006 2 Track SW West 1 SOIL 11.11.2020 00:00
BTEX by EPA 8021B	<i>Extracted:</i> <i>Analyzed:</i> <i>Units/RL:</i>	11.14.2020 07:15 11.14.2020 23:44 mg/kg RL	11.14.2020 07:15 11.15.2020 00:05 mg/kg RL	11.14.2020 07:15 11.15.2020 00:26 mg/kg RL	11.14.2020 07:15 11.15.2020 00:46 mg/kg RL	11.14.2020 07:15 11.15.2020 01:07 mg/kg RL	11.14.2020 07:15 11.15.2020 01:27 mg/kg RL
Benzene		<0.00202 0.00202	<0.00200 0.00200	<0.00201 0.00201	<0.00198 0.00198	<0.00200 0.00200	<0.00199 0.00199
Toluene		<0.00202 0.00202	<0.00200 0.00200	<0.00201 0.00201	<0.00198 0.00198	<0.00200 0.00200	<0.00199 0.00199
Ethylbenzene		<0.00202 0.00202	<0.00200 0.00200	<0.00201 0.00201	<0.00198 0.00198	<0.00200 0.00200	<0.00199 0.00199
m,p-Xylenes		<0.00404 0.00404	<0.00399 0.00399	<0.00402 0.00402	<0.00396 0.00396	<0.00400 0.00400	<0.00398 0.00398
o-Xylene		<0.00202 0.00202	<0.00200 0.00200	<0.00201 0.00201	<0.00198 0.00198	<0.00200 0.00200	<0.00199 0.00199
Total Xylenes		<0.00202 0.00202	<0.00200 0.00200	<0.00201 0.00201	<0.00198 0.00198	<0.00200 0.00200	<0.00199 0.00199
Total BTEX		<0.00202 0.00202	<0.00200 0.00200	<0.00201 0.00201	<0.00198 0.00198	<0.00200 0.00200	<0.00199 0.00199
Chloride by EPA 300	<i>Extracted:</i> <i>Analyzed:</i> <i>Units/RL:</i>	11.12.2020 17:10 11.13.2020 00:04 mg/kg RL	11.12.2020 17:10 11.13.2020 00:09 mg/kg RL	11.12.2020 17:10 11.13.2020 00:25 mg/kg RL	11.12.2020 17:10 11.13.2020 00:31 mg/kg RL	11.12.2020 17:10 11.13.2020 00:46 mg/kg RL	11.12.2020 18:05 11.13.2020 09:26 mg/kg RL
Chloride		14.3 5.01	10.7 5.03	8.61 5.04	9.04 5.00	10.8 5.04	5.04 5.00
TPH by SW8015 Mod	<i>Extracted:</i> <i>Analyzed:</i> <i>Units/RL:</i>	11.12.2020 12:00 11.12.2020 22:26 mg/kg RL	11.12.2020 12:00 11.12.2020 23:33 mg/kg RL	11.12.2020 12:00 11.12.2020 23:55 mg/kg RL	11.12.2020 12:00 11.13.2020 00:17 mg/kg RL	11.12.2020 12:00 11.13.2020 00:40 mg/kg RL	11.12.2020 12:00 11.13.2020 01:02 mg/kg RL
Gasoline Range Hydrocarbons (GRO)		<50.0 50.0	<50.0 50.0	<49.9 49.9	<50.0 50.0	<49.8 49.8	<50.0 50.0
Diesel Range Organics (DRO)		62.5 50.0	<50.0 50.0	<49.9 49.9	64.0 50.0	<49.8 49.8	<50.0 50.0
Motor Oil Range Hydrocarbons (MRO)		<50.0 50.0	<50.0 50.0	<49.9 49.9	<50.0 50.0	<49.8 49.8	<50.0 50.0
Total TPH		62.5 50.0	<50.0 50.0	<49.9 49.9	64.0 50.0	<49.8 49.8	<50.0 50.0

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

Certificate of Analysis Summary 677687



COG Operating LLC, Artesia, NM

Project Name: High Brass 002H (6-13-20)

Project Id: COG - High Brass

Date Received in Lab: Thu 11.12.2020 10:51

Contact: Ike Tavarez

Report Date: 11.16.2020 14:30

Project Location:

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i> <i>Field Id:</i> <i>Depth:</i> <i>Matrix:</i> <i>Sampled:</i>	677687-007 2 Track SW West 2 SOIL 11.11.2020 00:00	677687-008 2 Track SW West 3 SOIL 11.11.2020 00:00	677687-009 2 Track SW West 4 SOIL 11.11.2020 00:00	677687-010 2 Track Bottom Hole 1 2' SOIL 11.11.2020 00:00	677687-011 2 Track Bottom Hole 2 2' SOIL 11.11.2020 00:00	677687-012 2 Track Bottom Hole 3 2' SOIL 11.11.2020 00:00
BTEX by EPA 8021B	<i>Extracted:</i> <i>Analyzed:</i> <i>Units/RL:</i>	11.14.2020 07:15 11.15.2020 01:48 mg/kg RL	11.14.2020 07:15 11.15.2020 02:09 mg/kg RL	11.14.2020 07:15 11.15.2020 02:29 mg/kg RL	11.14.2020 07:15 11.15.2020 02:50 mg/kg RL	11.14.2020 07:15 11.15.2020 04:13 mg/kg RL	11.14.2020 07:15 11.15.2020 04:33 mg/kg RL
Benzene		<0.00201 0.00201	<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200	<0.00202 0.00202	<0.00200 0.00200
Toluene		<0.00201 0.00201	<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200	<0.00202 0.00202	<0.00200 0.00200
Ethylbenzene		<0.00201 0.00201	<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200	<0.00202 0.00202	<0.00200 0.00200
m,p-Xylenes		<0.00402 0.00402	<0.00401 0.00401	<0.00398 0.00398	<0.00399 0.00399	<0.00403 0.00403	<0.00399 0.00399
o-Xylene		<0.00201 0.00201	<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200	<0.00202 0.00202	<0.00200 0.00200
Total Xylenes		<0.00201 0.00201	<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200	<0.00202 0.00202	<0.00200 0.00200
Total BTEX		<0.00201 0.00201	<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200	<0.00202 0.00202	<0.00200 0.00200
Chloride by EPA 300	<i>Extracted:</i> <i>Analyzed:</i> <i>Units/RL:</i>	11.12.2020 18:05 11.13.2020 09:46 mg/kg RL	11.12.2020 18:05 11.13.2020 09:53 mg/kg RL	11.12.2020 18:05 11.13.2020 09:59 mg/kg RL	11.12.2020 18:05 11.13.2020 10:06 mg/kg RL	11.12.2020 18:05 11.13.2020 12:48 mg/kg RL	11.12.2020 18:05 11.13.2020 12:55 mg/kg RL
Chloride		<5.03 5.03	<5.02 5.02	<5.05 5.05	<5.01 5.01	<4.97 4.97	<5.00 5.00
TPH by SW8015 Mod	<i>Extracted:</i> <i>Analyzed:</i> <i>Units/RL:</i>	11.12.2020 12:00 11.13.2020 01:23 mg/kg RL	11.12.2020 12:00 11.13.2020 01:45 mg/kg RL	11.12.2020 12:00 11.13.2020 02:07 mg/kg RL	11.12.2020 12:00 11.13.2020 02:29 mg/kg RL	11.12.2020 12:00 11.13.2020 03:12 mg/kg RL	11.12.2020 12:00 11.13.2020 03:33 mg/kg RL
Gasoline Range Hydrocarbons (GRO)		<49.9 49.9	<50.0 50.0	<50.0 50.0	<50.0 50.0	<49.9 49.9	<49.9 49.9
Diesel Range Organics (DRO)		59.3 49.9	55.5 50.0	<50.0 50.0	<50.0 50.0	68.6 49.9	62.2 49.9
Motor Oil Range Hydrocarbons (MRO)		<49.9 49.9	<50.0 50.0	<50.0 50.0	<50.0 50.0	<49.9 49.9	<49.9 49.9
Total TPH		59.3 49.9	55.5 50.0	<50.0 50.0	<50.0 50.0	68.6 49.9	62.2 49.9

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

Certificate of Analysis Summary 677687

COG Operating LLC, Artesia, NM

Project Name: High Brass 002H (6-13-20)

Project Id: COG - High Brass

Contact: Ike Tavarez

Project Location:

Date Received in Lab: Thu 11.12.2020 10:51

Report Date: 11.16.2020 14:30

Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	677687-013	677687-014				
	Field Id:	2 Track Bottom Hole 4 2'	M SW South 2				
	Depth:						
	Matrix:	SOIL	SOIL				
	Sampled:	11.11.2020 00:00	11.11.2020 00:00				
BTEX by EPA 8021B	Extracted:	11.14.2020 07:15	11.14.2020 07:15				
	Analyzed:	11.15.2020 04:54	11.15.2020 05:15				
	Units/RL:	mg/kg RL	mg/kg RL				
Benzene		<0.00198 0.00198	<0.00199 0.00199				
Toluene		<0.00198 0.00198	<0.00199 0.00199				
Ethylbenzene		<0.00198 0.00198	<0.00199 0.00199				
m,p-Xylenes		<0.00396 0.00396	<0.00398 0.00398				
o-Xylene		<0.00198 0.00198	<0.00199 0.00199				
Total Xylenes		<0.00198 0.00198	<0.00199 0.00199				
Total BTEX		<0.00198 0.00198	<0.00199 0.00199				
Chloride by EPA 300	Extracted:	11.12.2020 18:05	11.12.2020 18:05				
	Analyzed:	11.13.2020 13:01	11.13.2020 10:46				
	Units/RL:	mg/kg RL	mg/kg RL				
Chloride		<5.00 5.00	20.4 5.02				
TPH by SW8015 Mod	Extracted:	11.12.2020 12:00	11.12.2020 12:00				
	Analyzed:	11.13.2020 03:54	11.13.2020 04:16				
	Units/RL:	mg/kg RL	mg/kg RL				
Gasoline Range Hydrocarbons (GRO)		<49.8 49.8	<49.9 49.9				
Diesel Range Organics (DRO)		60.4 49.8	<49.9 49.9				
Motor Oil Range Hydrocarbons (MRO)		<49.8 49.8	<49.9 49.9				
Total TPH		60.4 49.8	<49.9 49.9				

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico



Analytical Report 677687

for

COG Operating LLC

Project Manager: Ike Tavaréz

High Brass 002H (6-13-20)

COG - High Brass

11.16.2020

Collected By: Client



**1211 W. Florida Ave
Midland TX 79701**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-38), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2020-014), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-20-26), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-18)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-23)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-21)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-20-8)
Xenco-Tampa: Florida (E87429), North Carolina (483)



11.16.2020

Project Manager: **Ike Tavaréz**

COG Operating LLC

2407 Pecos Avenue

Artesia, NM 88210

Reference: Eurofins Xenco, LLC Report No(s): **677687**

High Brass 002H (6-13-20)

Project Address:

Ike Tavaréz:

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 Eurofins Xenco, LLC Report Number(s) 677687. 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 Eurofins Xenco, LLC. 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. 677687 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 Eurofins Xenco, LLC to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

A handwritten signature in black ink that reads "Jessica Kramer".

Jessica Kramer

Project Manager

A Small Business and Minority Company

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

**Sample Cross Reference 677687****COG Operating LLC, Artesia, NM**

High Brass 002H (6-13-20)

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
2 Track SW North	S	11.11.2020 00:00		677687-001
2 Track SW East 1	S	11.11.2020 00:00		677687-002
2 Track SW East 2	S	11.11.2020 00:00		677687-003
2 Track SW East 3	S	11.11.2020 00:00		677687-004
2 Track SW East 4	S	11.11.2020 00:00		677687-005
2 Track SW West 1	S	11.11.2020 00:00		677687-006
2 Track SW West 2	S	11.11.2020 00:00		677687-007
2 Track SW West 3	S	11.11.2020 00:00		677687-008
2 Track SW West 4	S	11.11.2020 00:00		677687-009
2 Track Bottom Hole 1 2'	S	11.11.2020 00:00		677687-010
2 Track Bottom Hole 2 2'	S	11.11.2020 00:00		677687-011
2 Track Bottom Hole 3 2'	S	11.11.2020 00:00		677687-012
2 Track Bottom Hole 4 2'	S	11.11.2020 00:00		677687-013
M SW South 2	S	11.11.2020 00:00		677687-014

**CASE NARRATIVE****Client Name: COG Operating LLC****Project Name: High Brass 002H (6-13-20)**

Project ID: COG - High Brass
Work Order Number(s): 677687

Report Date: 11.16.2020
Date Received: 11.12.2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3142327 BTEX by EPA 8021B

Surrogate 4-Bromofluorobenzene recovered below QC limits. Matrix interferences is suspected.

Samples affected are: 677687-014.

Lab Sample ID 677687-001 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Ethylbenzene, m,p-Xylenes, 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: 677687-001, -002, -003, -004, -005, -006, -007, -008, -009, -010, -011, -012, -013, -014.

The Laboratory Control Sample for m,p-Xylenes, Ethylbenzene, o-Xylene is within laboratory Control Limits, therefore the data was accepted.



Certificate of Analytical Results 677687

COG Operating LLC, Artesia, NM

High Brass 002H (6-13-20)

Sample Id: 2 Track SW North

Matrix: Soil

Date Received: 11.12.2020 10:51

Lab Sample Id: 677687-001

Date Collected: 11.11.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: CHE

Date Prep: 11.12.2020 17:10

% Moisture:

Seq Number: 3142164

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	14.3	5.01	mg/kg	11.13.2020 00:04		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

Analyst: ARM

Date Prep: 11.12.2020 12:00

% Moisture:

Seq Number: 3142206

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	11.12.2020 22:26	U	1
Diesel Range Organics (DRO)	C10C28DRO	62.5	50.0	mg/kg	11.12.2020 22:26		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	11.12.2020 22:26	U	1
Total TPH	PHC635	62.5	50.0	mg/kg	11.12.2020 22:26		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	118	%	70-130	11.12.2020 22:26		
o-Terphenyl	84-15-1	119	%	70-130	11.12.2020 22:26		



Certificate of Analytical Results 677687

COG Operating LLC, Artesia, NM

High Brass 002H (6-13-20)

Sample Id: 2 Track SW North

Matrix: Soil

Date Received: 11.12.2020 10:51

Lab Sample Id: 677687-001

Date Collected: 11.11.2020 00:00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

Analyst: KTL

Date Prep: 11.14.2020 07:15

% Moisture:

Seq Number: 3142327

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	11.14.2020 23:44	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	11.14.2020 23:44	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	11.14.2020 23:44	UX	1
m,p-Xylenes	179601-23-1	<0.00404	0.00404	mg/kg	11.14.2020 23:44	UX	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	11.14.2020 23:44	UX	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	11.14.2020 23:44	U	1
Total BTEX		<0.00202	0.00202	mg/kg	11.14.2020 23:44	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	95	%	70-130	11.14.2020 23:44		
1,4-Difluorobenzene	540-36-3	101	%	70-130	11.14.2020 23:44		



Certificate of Analytical Results 677687

COG Operating LLC, Artesia, NM

High Brass 002H (6-13-20)

Sample Id: 2 Track SW East 1

Matrix: Soil

Date Received: 11.12.2020 10:51

Lab Sample Id: 677687-002

Date Collected: 11.11.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: CHE

Date Prep: 11.12.2020 17:10

% Moisture:

Seq Number: 3142164

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	10.7	5.03	mg/kg	11.13.2020 00:09		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

Analyst: ARM

Date Prep: 11.12.2020 12:00

% Moisture:

Seq Number: 3142206

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	11.12.2020 23:33	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	11.12.2020 23:33	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	11.12.2020 23:33	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	11.12.2020 23:33	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	113	%	70-130	11.12.2020 23:33	
o-Terphenyl	84-15-1	113	%	70-130	11.12.2020 23:33	



Certificate of Analytical Results 677687

COG Operating LLC, Artesia, NM

High Brass 002H (6-13-20)

Sample Id: 2 Track SW East 1

Matrix: Soil

Date Received: 11.12.2020 10:51

Lab Sample Id: 677687-002

Date Collected: 11.11.2020 00:00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

Analyst: KTL

Date Prep: 11.14.2020 07:15

% Moisture:

Seq Number: 3142327

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	11.15.2020 00:05	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	11.15.2020 00:05	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	11.15.2020 00:05	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	11.15.2020 00:05	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	11.15.2020 00:05	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	11.15.2020 00:05	U	1
Total BTEX		<0.00200	0.00200	mg/kg	11.15.2020 00:05	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	105	%	70-130	11.15.2020 00:05		
1,4-Difluorobenzene	540-36-3	108	%	70-130	11.15.2020 00:05		



Certificate of Analytical Results 677687

COG Operating LLC, Artesia, NM

High Brass 002H (6-13-20)

Sample Id: 2 Track SW East 2

Matrix: Soil

Date Received: 11.12.2020 10:51

Lab Sample Id: 677687-003

Date Collected: 11.11.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: CHE

Date Prep: 11.12.2020 17:10

% Moisture:

Seq Number: 3142164

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	8.61	5.04	mg/kg	11.13.2020 00:25		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

Analyst: ARM

Date Prep: 11.12.2020 12:00

% Moisture:

Seq Number: 3142206

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	11.12.2020 23:55	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	11.12.2020 23:55	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	11.12.2020 23:55	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	11.12.2020 23:55	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	113	%	70-130	11.12.2020 23:55		
o-Terphenyl	84-15-1	112	%	70-130	11.12.2020 23:55		



Certificate of Analytical Results 677687

COG Operating LLC, Artesia, NM

High Brass 002H (6-13-20)

Sample Id: 2 Track SW East 2

Matrix: Soil

Date Received: 11.12.2020 10:51

Lab Sample Id: 677687-003

Date Collected: 11.11.2020 00:00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

Analyst: KTL

Date Prep: 11.14.2020 07:15

% Moisture:

Seq Number: 3142327

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	11.15.2020 00:26	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	11.15.2020 00:26	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	11.15.2020 00:26	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	11.15.2020 00:26	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	11.15.2020 00:26	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	11.15.2020 00:26	U	1
Total BTEX		<0.00201	0.00201	mg/kg	11.15.2020 00:26	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	104	%	70-130	11.15.2020 00:26		
4-Bromofluorobenzene	460-00-4	106	%	70-130	11.15.2020 00:26		



Certificate of Analytical Results 677687

COG Operating LLC, Artesia, NM

High Brass 002H (6-13-20)

Sample Id: 2 Track SW East 3

Matrix: Soil

Date Received: 11.12.2020 10:51

Lab Sample Id: 677687-004

Date Collected: 11.11.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: CHE

Date Prep: 11.12.2020 17:10

% Moisture:

Seq Number: 3142164

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	9.04	5.00	mg/kg	11.13.2020 00:31		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

Analyst: ARM

Date Prep: 11.12.2020 12:00

% Moisture:

Seq Number: 3142206

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	11.13.2020 00:17	U	1
Diesel Range Organics (DRO)	C10C28DRO	64.0	50.0	mg/kg	11.13.2020 00:17		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	11.13.2020 00:17	U	1
Total TPH	PHC635	64.0	50.0	mg/kg	11.13.2020 00:17		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	114	%	70-130	11.13.2020 00:17	
o-Terphenyl	84-15-1	114	%	70-130	11.13.2020 00:17	



Certificate of Analytical Results 677687

COG Operating LLC, Artesia, NM

High Brass 002H (6-13-20)

Sample Id: 2 Track SW East 3

Matrix: Soil

Date Received: 11.12.2020 10:51

Lab Sample Id: 677687-004

Date Collected: 11.11.2020 00:00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

Analyst: KTL

Date Prep: 11.14.2020 07:15

% Moisture:

Seq Number: 3142327

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	11.15.2020 00:46	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	11.15.2020 00:46	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	11.15.2020 00:46	U	1
m,p-Xylenes	179601-23-1	<0.00396	0.00396	mg/kg	11.15.2020 00:46	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	11.15.2020 00:46	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	11.15.2020 00:46	U	1
Total BTEX		<0.00198	0.00198	mg/kg	11.15.2020 00:46	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	105	%	70-130	11.15.2020 00:46	
4-Bromofluorobenzene	460-00-4	106	%	70-130	11.15.2020 00:46	



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COG Operating LLC, Artesia, NM

High Brass 002H (6-13-20)

Sample Id: 2 Track SW East 4

Matrix: Soil

Date Received: 11.12.2020 10:51

Lab Sample Id: 677687-005

Date Collected: 11.11.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: CHE

Date Prep: 11.12.2020 17:10

% Moisture:

Seq Number: 3142164

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	10.8	5.04	mg/kg	11.13.2020 00:46		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

Analyst: ARM

Date Prep: 11.12.2020 12:00

% Moisture:

Seq Number: 3142206

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	11.13.2020 00:40	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	11.13.2020 00:40	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	11.13.2020 00:40	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	11.13.2020 00:40	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	120	%	70-130	11.13.2020 00:40	
o-Terphenyl	84-15-1	117	%	70-130	11.13.2020 00:40	



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COG Operating LLC, Artesia, NM

High Brass 002H (6-13-20)

Sample Id: 2 Track SW East 4

Matrix: Soil

Date Received: 11.12.2020 10:51

Lab Sample Id: 677687-005

Date Collected: 11.11.2020 00:00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

Analyst: KTL

Date Prep: 11.14.2020 07:15

% Moisture:

Seq Number: 3142327

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	11.15.2020 01:07	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	11.15.2020 01:07	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	11.15.2020 01:07	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	11.15.2020 01:07	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	11.15.2020 01:07	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	11.15.2020 01:07	U	1
Total BTEX		<0.00200	0.00200	mg/kg	11.15.2020 01:07	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	110	%	70-130	11.15.2020 01:07		
4-Bromofluorobenzene	460-00-4	103	%	70-130	11.15.2020 01:07		



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COG Operating LLC, Artesia, NM

High Brass 002H (6-13-20)

Sample Id: 2 Track SW West 1

Matrix: Soil

Date Received: 11.12.2020 10:51

Lab Sample Id: 677687-006

Date Collected: 11.11.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

Analyst: CHE

Date Prep: 11.12.2020 18:05

% Moisture:

Seq Number: 3142228

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	5.04	5.00	mg/kg	11.13.2020 09:26		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

Analyst: ARM

Date Prep: 11.12.2020 12:00

% Moisture:

Seq Number: 3142206

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	11.13.2020 01:02	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	11.13.2020 01:02	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	11.13.2020 01:02	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	11.13.2020 01:02	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	113	%	70-130	11.13.2020 01:02	
o-Terphenyl	84-15-1	114	%	70-130	11.13.2020 01:02	



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COG Operating LLC, Artesia, NM

High Brass 002H (6-13-20)

Sample Id: 2 Track SW West 1

Matrix: Soil

Date Received: 11.12.2020 10:51

Lab Sample Id: 677687-006

Date Collected: 11.11.2020 00:00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

Analyst: KTL

Date Prep: 11.14.2020 07:15

% Moisture:

Seq Number: 3142327

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	11.15.2020 01:27	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	11.15.2020 01:27	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	11.15.2020 01:27	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	11.15.2020 01:27	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	11.15.2020 01:27	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	11.15.2020 01:27	U	1
Total BTEX		<0.00199	0.00199	mg/kg	11.15.2020 01:27	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	119	%	70-130	11.15.2020 01:27		
1,4-Difluorobenzene	540-36-3	90	%	70-130	11.15.2020 01:27		



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COG Operating LLC, Artesia, NM

High Brass 002H (6-13-20)

Sample Id: 2 Track SW West 2

Matrix: Soil

Date Received: 11.12.2020 10:51

Lab Sample Id: 677687-007

Date Collected: 11.11.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

Analyst: CHE

Date Prep: 11.12.2020 18:05

% Moisture:

Seq Number: 3142228

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<5.03	5.03	mg/kg	11.13.2020 09:46	U	1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

Analyst: ARM

Date Prep: 11.12.2020 12:00

% Moisture:

Seq Number: 3142206

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	11.13.2020 01:23	U	1
Diesel Range Organics (DRO)	C10C28DRO	59.3	49.9	mg/kg	11.13.2020 01:23		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	11.13.2020 01:23	U	1
Total TPH	PHC635	59.3	49.9	mg/kg	11.13.2020 01:23		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	116	%	70-130	11.13.2020 01:23	
o-Terphenyl	84-15-1	119	%	70-130	11.13.2020 01:23	



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COG Operating LLC, Artesia, NM

High Brass 002H (6-13-20)

Sample Id: 2 Track SW West 2

Matrix: Soil

Date Received: 11.12.2020 10:51

Lab Sample Id: 677687-007

Date Collected: 11.11.2020 00:00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

Analyst: KTL

Date Prep: 11.14.2020 07:15

% Moisture:

Seq Number: 3142327

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	11.15.2020 01:48	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	11.15.2020 01:48	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	11.15.2020 01:48	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	11.15.2020 01:48	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	11.15.2020 01:48	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	11.15.2020 01:48	U	1
Total BTEX		<0.00201	0.00201	mg/kg	11.15.2020 01:48	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	83	%	70-130	11.15.2020 01:48	
4-Bromofluorobenzene	460-00-4	118	%	70-130	11.15.2020 01:48	



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COG Operating LLC, Artesia, NM

High Brass 002H (6-13-20)

Sample Id: 2 Track SW West 3

Matrix: Soil

Date Received: 11.12.2020 10:51

Lab Sample Id: 677687-008

Date Collected: 11.11.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

Analyst: CHE

Date Prep: 11.12.2020 18:05

% Moisture:

Seq Number: 3142228

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<5.02	5.02	mg/kg	11.13.2020 09:53	U	1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

Analyst: ARM

Date Prep: 11.12.2020 12:00

% Moisture:

Seq Number: 3142206

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	11.13.2020 01:45	U	1
Diesel Range Organics (DRO)	C10C28DRO	55.5	50.0	mg/kg	11.13.2020 01:45		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	11.13.2020 01:45	U	1
Total TPH	PHC635	55.5	50.0	mg/kg	11.13.2020 01:45		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	113	%	70-130	11.13.2020 01:45	
o-Terphenyl	84-15-1	115	%	70-130	11.13.2020 01:45	



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COG Operating LLC, Artesia, NM

High Brass 002H (6-13-20)

Sample Id: 2 Track SW West 3

Matrix: Soil

Date Received: 11.12.2020 10:51

Lab Sample Id: 677687-008

Date Collected: 11.11.2020 00:00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

Analyst: KTL

Date Prep: 11.14.2020 07:15

% Moisture:

Seq Number: 3142327

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	11.15.2020 02:09	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	11.15.2020 02:09	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	11.15.2020 02:09	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	11.15.2020 02:09	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	11.15.2020 02:09	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	11.15.2020 02:09	U	1
Total BTEX		<0.00200	0.00200	mg/kg	11.15.2020 02:09	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	98	%	70-130	11.15.2020 02:09	
1,4-Difluorobenzene	540-36-3	96	%	70-130	11.15.2020 02:09	



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COG Operating LLC, Artesia, NM

High Brass 002H (6-13-20)

Sample Id: 2 Track SW West 4

Matrix: Soil

Date Received: 11.12.2020 10:51

Lab Sample Id: 677687-009

Date Collected: 11.11.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

Analyst: CHE

Date Prep: 11.12.2020 18:05

% Moisture:

Seq Number: 3142228

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<5.05	5.05	mg/kg	11.13.2020 09:59	U	1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

Analyst: ARM

Date Prep: 11.12.2020 12:00

% Moisture:

Seq Number: 3142206

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	11.13.2020 02:07	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	11.13.2020 02:07	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	11.13.2020 02:07	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	11.13.2020 02:07	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	111	%	70-130	11.13.2020 02:07	
o-Terphenyl	84-15-1	109	%	70-130	11.13.2020 02:07	



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COG Operating LLC, Artesia, NM

High Brass 002H (6-13-20)

Sample Id: 2 Track SW West 4

Matrix: Soil

Date Received: 11.12.2020 10:51

Lab Sample Id: 677687-009

Date Collected: 11.11.2020 00:00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

Analyst: KTL

Date Prep: 11.14.2020 07:15

% Moisture:

Seq Number: 3142327

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	11.15.2020 02:29	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	11.15.2020 02:29	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	11.15.2020 02:29	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	11.15.2020 02:29	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	11.15.2020 02:29	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	11.15.2020 02:29	U	1
Total BTEX		<0.00199	0.00199	mg/kg	11.15.2020 02:29	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	96	%	70-130	11.15.2020 02:29		
4-Bromofluorobenzene	460-00-4	105	%	70-130	11.15.2020 02:29		



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COG Operating LLC, Artesia, NM

High Brass 002H (6-13-20)

Sample Id: 2 Track Bottom Hole 1 2'

Matrix: Soil

Date Received: 11.12.2020 10:51

Lab Sample Id: 677687-010

Date Collected: 11.11.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

Analyst: CHE

Date Prep: 11.12.2020 18:05

% Moisture:

Seq Number: 3142228

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<5.01	5.01	mg/kg	11.13.2020 10:06	U	1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

Analyst: ARM

Date Prep: 11.12.2020 12:00

% Moisture:

Seq Number: 3142206

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	11.13.2020 02:29	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	11.13.2020 02:29	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	11.13.2020 02:29	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	11.13.2020 02:29	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	113	%	70-130	11.13.2020 02:29	
o-Terphenyl	84-15-1	113	%	70-130	11.13.2020 02:29	



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COG Operating LLC, Artesia, NM

High Brass 002H (6-13-20)

Sample Id: 2 Track Bottom Hole 1 2'

Matrix: Soil

Date Received: 11.12.2020 10:51

Lab Sample Id: 677687-010

Date Collected: 11.11.2020 00:00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

Analyst: KTL

Date Prep: 11.14.2020 07:15

% Moisture:

Seq Number: 3142327

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	11.15.2020 02:50	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	11.15.2020 02:50	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	11.15.2020 02:50	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	11.15.2020 02:50	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	11.15.2020 02:50	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	11.15.2020 02:50	U	1
Total BTEX		<0.00200	0.00200	mg/kg	11.15.2020 02:50	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	84	%	70-130	11.15.2020 02:50	
4-Bromofluorobenzene	460-00-4	125	%	70-130	11.15.2020 02:50	



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COG Operating LLC, Artesia, NM

High Brass 002H (6-13-20)

Sample Id: 2 Track Bottom Hole 2 2'

Matrix: Soil

Date Received: 11.12.2020 10:51

Lab Sample Id: 677687-011

Date Collected: 11.11.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

Analyst: CHE

Date Prep: 11.12.2020 18:05

% Moisture:

Seq Number: 3142228

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.97	4.97	mg/kg	11.13.2020 12:48	U	1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

Analyst: ARM

Date Prep: 11.12.2020 12:00

% Moisture:

Seq Number: 3142206

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	11.13.2020 03:12	U	1
Diesel Range Organics (DRO)	C10C28DRO	68.6	49.9	mg/kg	11.13.2020 03:12		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	11.13.2020 03:12	U	1
Total TPH	PHC635	68.6	49.9	mg/kg	11.13.2020 03:12		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	103	%	70-130	11.13.2020 03:12	
o-Terphenyl	84-15-1	101	%	70-130	11.13.2020 03:12	



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COG Operating LLC, Artesia, NM

High Brass 002H (6-13-20)

Sample Id: 2 Track Bottom Hole 2 2'

Matrix: Soil

Date Received: 11.12.2020 10:51

Lab Sample Id: 677687-011

Date Collected: 11.11.2020 00:00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

Analyst: KTL

Date Prep: 11.14.2020 07:15

% Moisture:

Seq Number: 3142327

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	11.15.2020 04:13	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	11.15.2020 04:13	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	11.15.2020 04:13	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	11.15.2020 04:13	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	11.15.2020 04:13	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	11.15.2020 04:13	U	1
Total BTEX		<0.00202	0.00202	mg/kg	11.15.2020 04:13	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	97	%	70-130	11.15.2020 04:13	
4-Bromofluorobenzene	460-00-4	96	%	70-130	11.15.2020 04:13	



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COG Operating LLC, Artesia, NM

High Brass 002H (6-13-20)

Sample Id: 2 Track Bottom Hole 3 2'

Matrix: Soil

Date Received: 11.12.2020 10:51

Lab Sample Id: 677687-012

Date Collected: 11.11.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

Analyst: CHE

Date Prep: 11.12.2020 18:05

% Moisture:

Seq Number: 3142228

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<5.00	5.00	mg/kg	11.13.2020 12:55	U	1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

Analyst: ARM

Date Prep: 11.12.2020 12:00

% Moisture:

Seq Number: 3142206

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	11.13.2020 03:33	U	1
Diesel Range Organics (DRO)	C10C28DRO	62.2	49.9	mg/kg	11.13.2020 03:33		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	11.13.2020 03:33	U	1
Total TPH	PHC635	62.2	49.9	mg/kg	11.13.2020 03:33		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	119	%	70-130	11.13.2020 03:33	
o-Terphenyl	84-15-1	118	%	70-130	11.13.2020 03:33	



Certificate of Analytical Results 677687

COG Operating LLC, Artesia, NM

High Brass 002H (6-13-20)

Sample Id: 2 Track Bottom Hole 3 2'

Matrix: Soil

Date Received: 11.12.2020 10:51

Lab Sample Id: 677687-012

Date Collected: 11.11.2020 00:00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

Analyst: KTL

Date Prep: 11.14.2020 07:15

% Moisture:

Seq Number: 3142327

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	11.15.2020 04:33	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	11.15.2020 04:33	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	11.15.2020 04:33	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	11.15.2020 04:33	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	11.15.2020 04:33	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	11.15.2020 04:33	U	1
Total BTEX		<0.00200	0.00200	mg/kg	11.15.2020 04:33	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	88	%	70-130	11.15.2020 04:33	
4-Bromofluorobenzene	460-00-4	104	%	70-130	11.15.2020 04:33	



Certificate of Analytical Results 677687

COG Operating LLC, Artesia, NM

High Brass 002H (6-13-20)

Sample Id: 2 Track Bottom Hole 4 2'

Matrix: Soil

Date Received: 11.12.2020 10:51

Lab Sample Id: 677687-013

Date Collected: 11.11.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

Analyst: CHE

Date Prep: 11.12.2020 18:05

% Moisture:

Seq Number: 3142228

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<5.00	5.00	mg/kg	11.13.2020 13:01	U	1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

Analyst: ARM

Date Prep: 11.12.2020 12:00

% Moisture:

Seq Number: 3142206

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	11.13.2020 03:54	U	1
Diesel Range Organics (DRO)	C10C28DRO	60.4	49.8	mg/kg	11.13.2020 03:54		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	11.13.2020 03:54	U	1
Total TPH	PHC635	60.4	49.8	mg/kg	11.13.2020 03:54		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	117	%	70-130	11.13.2020 03:54	
o-Terphenyl	84-15-1	117	%	70-130	11.13.2020 03:54	



Certificate of Analytical Results 677687

COG Operating LLC, Artesia, NM

High Brass 002H (6-13-20)

Sample Id: 2 Track Bottom Hole 4 2'

Matrix: Soil

Date Received: 11.12.2020 10:51

Lab Sample Id: 677687-013

Date Collected: 11.11.2020 00:00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

Analyst: KTL

Date Prep: 11.14.2020 07:15

% Moisture:

Seq Number: 3142327

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	11.15.2020 04:54	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	11.15.2020 04:54	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	11.15.2020 04:54	U	1
m,p-Xylenes	179601-23-1	<0.00396	0.00396	mg/kg	11.15.2020 04:54	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	11.15.2020 04:54	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	11.15.2020 04:54	U	1
Total BTEX		<0.00198	0.00198	mg/kg	11.15.2020 04:54	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	124	%	70-130	11.15.2020 04:54	
1,4-Difluorobenzene	540-36-3	89	%	70-130	11.15.2020 04:54	



Certificate of Analytical Results 677687

COG Operating LLC, Artesia, NM

High Brass 002H (6-13-20)

Sample Id: **M SW South 2**

Matrix: Soil

Date Received: 11.12.2020 10:51

Lab Sample Id: 677687-014

Date Collected: 11.11.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

Analyst: CHE

Date Prep: 11.12.2020 18:05

% Moisture:

Seq Number: 3142228

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	20.4	5.02	mg/kg	11.13.2020 10:46		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

Analyst: ARM

Date Prep: 11.12.2020 12:00

% Moisture:

Seq Number: 3142206

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	11.13.2020 04:16	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	11.13.2020 04:16	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	11.13.2020 04:16	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	11.13.2020 04:16	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	118	%	70-130	11.13.2020 04:16	
o-Terphenyl	84-15-1	118	%	70-130	11.13.2020 04:16	



Certificate of Analytical Results 677687

COG Operating LLC, Artesia, NM

High Brass 002H (6-13-20)

Sample Id: **M SW South 2**

Matrix: Soil

Date Received: 11.12.2020 10:51

Lab Sample Id: 677687-014

Date Collected: 11.11.2020 00:00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

Analyst: KTL

Date Prep: 11.14.2020 07:15

% Moisture:

Seq Number: 3142327

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	11.15.2020 05:15	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	11.15.2020 05:15	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	11.15.2020 05:15	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	11.15.2020 05:15	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	11.15.2020 05:15	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	11.15.2020 05:15	U	1
Total BTEX		<0.00199	0.00199	mg/kg	11.15.2020 05:15	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	60	%	70-130	11.15.2020 05:15	**
1,4-Difluorobenzene	540-36-3	95	%	70-130	11.15.2020 05:15	

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. **ND** Not Detected.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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



COG Operating LLC

High Brass 002H (6-13-20)

Analytical Method: Chloride by EPA 300

Seq Number: 3142164

MB Sample Id: 7715092-1-BLK

Matrix: Solid

LCS Sample Id: 7715092-1-BKS

Prep Method: E300P

Date Prep: 11.12.2020

LCSD Sample Id: 7715092-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	261	104	262	105	90-110	0	20	mg/kg	11.12.2020 22:45	

Analytical Method: Chloride by EPA 300

Seq Number: 3142228

MB Sample Id: 7715103-1-BLK

Matrix: Solid

LCS Sample Id: 7715103-1-BKS

Prep Method: E300P

Date Prep: 11.12.2020

LCSD Sample Id: 7715103-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	256	102	256	102	90-110	0	20	mg/kg	11.13.2020 09:13	

Analytical Method: Chloride by EPA 300

Seq Number: 3142164

Parent Sample Id: 677577-026

Matrix: Soil

MS Sample Id: 677577-026 S

Prep Method: E300P

Date Prep: 11.12.2020

MSD Sample Id: 677577-026 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	82.0	250	340	103	339	103	90-110	0	20	mg/kg	11.12.2020 23:01	

Analytical Method: Chloride by EPA 300

Seq Number: 3142164

Parent Sample Id: 677687-002

Matrix: Soil

MS Sample Id: 677687-002 S

Prep Method: E300P

Date Prep: 11.12.2020

MSD Sample Id: 677687-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	10.7	252	274	104	273	104	90-110	0	20	mg/kg	11.13.2020 00:15	

Analytical Method: Chloride by EPA 300

Seq Number: 3142228

Parent Sample Id: 677687-006

Matrix: Soil

MS Sample Id: 677687-006 S

Prep Method: E300P

Date Prep: 11.12.2020

MSD Sample Id: 677687-006 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	5.04	250	262	103	262	103	90-110	0	20	mg/kg	11.13.2020 09:33	

Analytical Method: Chloride by EPA 300

Seq Number: 3142228

Parent Sample Id: 677689-002

Matrix: Soil

MS Sample Id: 677689-002 S

Prep Method: E300P

Date Prep: 11.12.2020

MSD Sample Id: 677689-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	25.8	253	303	110	299	108	90-110	1	20	mg/kg	11.13.2020 13:15	

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



COG Operating LLC

High Brass 002H (6-13-20)

Analytical Method: TPH by SW8015 Mod

Seq Number: 3142206

MB Sample Id: 7715108-1-BLK

Matrix: Solid

LCS Sample Id: 7715108-1-BKS

Prep Method: SW8015P

Date Prep: 11.12.2020

LCSD Sample Id: 7715108-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.0	1000	1120	112	1080	108	70-130	4	20	mg/kg	11.12.2020 21:42	
Diesel Range Organics (DRO)	<50.0	1000	1180	118	1140	114	70-130	3	20	mg/kg	11.12.2020 21:42	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	113		129		123		70-130	%	11.12.2020 21:42
o-Terphenyl	120		121		126		70-130	%	11.12.2020 21:42

Analytical Method: TPH by SW8015 Mod

Seq Number: 3142206

Matrix: Solid

MB Sample Id: 7715108-1-BLK

Prep Method: SW8015P

Date Prep: 11.12.2020

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	11.12.2020 21:20	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3142206

Matrix: Soil

Parent Sample Id: 677687-001

MS Sample Id: 677687-001 S

Prep Method: SW8015P

Date Prep: 11.12.2020

MSD Sample Id: 677687-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<49.9	997	916	92	917	92	70-130	0	20	mg/kg	11.12.2020 22:48	
Diesel Range Organics (DRO)	62.5	997	1050	99	1080	102	70-130	3	20	mg/kg	11.12.2020 22:48	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	110		114		70-130	%	11.12.2020 22:48
o-Terphenyl	113		113		70-130	%	11.12.2020 22:48

Analytical Method: BTEX by EPA 8021B

Seq Number: 3142327

Matrix: Solid

MB Sample Id: 7715225-1-BLK

LCS Sample Id: 7715225-1-BKS

Prep Method: SW5035A

Date Prep: 11.14.2020

LCSD Sample Id: 7715225-1-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	0.100	0.119	119	0.112	112	70-130	6	35	mg/kg	11.14.2020 21:20	
Toluene	<0.00200	0.100	0.105	105	0.0996	100	70-130	5	35	mg/kg	11.14.2020 21:20	
Ethylbenzene	<0.00200	0.100	0.0965	97	0.0925	93	70-130	4	35	mg/kg	11.14.2020 21:20	
m,p-Xylenes	<0.00400	0.200	0.184	92	0.176	88	70-130	4	35	mg/kg	11.14.2020 21:20	
o-Xylene	<0.00200	0.100	0.0910	91	0.0874	87	70-130	4	35	mg/kg	11.14.2020 21:20	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	91		103		93		70-130	%	11.14.2020 21:20
4-Bromofluorobenzene	104		90		92		70-130	%	11.14.2020 21:20

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

High Brass 002H (6-13-20)

Analytical Method: BTEX by EPA 8021B

Seq Number: 3142327

Parent Sample Id: 677687-001

Matrix: Soil

MS Sample Id: 677687-001 S

Prep Method: SW5035A

Date Prep: 11.14.2020

MSD Sample Id: 677687-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.0966	97	0.0952	94	70-130	1	35	mg/kg	11.14.2020 22:01	
Toluene	<0.00200	0.100	0.0749	75	0.0751	74	70-130	0	35	mg/kg	11.14.2020 22:01	
Ethylbenzene	<0.00200	0.100	0.0681	68	0.0674	67	70-130	1	35	mg/kg	11.14.2020 22:01	X
m,p-Xylenes	<0.00401	0.200	0.115	58	0.115	57	70-130	0	35	mg/kg	11.14.2020 22:01	X
o-Xylene	<0.00200	0.100	0.0649	65	0.0635	63	70-130	2	35	mg/kg	11.14.2020 22:01	X

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	95		96		70-130	%	11.14.2020 22:01
4-Bromofluorobenzene	98		97		70-130	%	11.14.2020 22:01

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



One Concho Center/600/111111
Avenue/Midland, Texas
Tel (432) 683-7443

Client Name:		COG		Site Manager:		Ike Tavaraz itavaraz@concho.com Robert Grubbs Jr rgrubbs@concho.com	
Project Name:		High Brass 002H (6-13-20)		Project #:			
Project Location: (county, state)		Eddy County, NM		Project #:			
Invoice to:		COG		Sampler Signature:		Robert Grubbs Jr	
Receiving Laboratory:		Xenco		Sampler Signature:		Robert Grubbs Jr	
Comments:							

LAB # (USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING		MATRIX		PRESERVATIVE METHOD		# CONTAINERS	FILTERED (Y/N)	TPH TX1005 (Ext to C35)	BTEX 8021B	TPH 8015M (GRO - DRO - MRO)	Chloride	1:10 Extract	Hold	
		DATE	TIME	WATER	SOIL	HCL	HNO ₃									ICE
	2 Track SW North	11/1/2020		X				X		X	X	X				
	2 Track SW East 1	11/1/2020		X				X		X	X	X				
	2 Track SW East 2	11/1/2020		X				X		X	X	X				
	2 Track SW East 3	11/1/2020		X				X		X	X	X				
	2 Track SW East 4	11/1/2020		X				X		X	X	X				
	2 Track SW West 1	11/1/2020		X				X		X	X	X				
	2 Track SW West 2	11/1/2020		X				X		X	X	X				
	2 Track SW West 3	11/1/2020		X				X		X	X	X				
	2 Track SW West 4	11/1/2020		X				X		X	X	X				
	2 Track Bottom Hole 1 2'	11/1/2020		X				X		X	X	X				

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Robert Grubbs Jr	11/12/2020	1051	<i>[Signature]</i>		1051
Relinquished by:	Date:	Time:	Received by:	Date:	Time:

LAB USE ONLY	REMARKS
Sample Temperature	X RUSH: Same Day 24 hr 48 hr 72 hr
-0.5/-0	Rush Charges Authorized
	Special Report Limits or TRRP Report

ORIGINAL COPY



**One Concho Center/600/Illinois
Avenue/Midland, Texas
Tel (432) 683-7443**

[illegible]

Eurofins Xenco, LLC

Prelogin/Nonconformance Report- Sample Log-In

Client: COG Operating LLC

Date/ Time Received: 11.12.2020 10.51.00 AM

Work Order #: 677687

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : IR8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	0
#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: 11.12.2020

Checklist reviewed by:



Jessica Kramer

Date: 11.13.2020

Certificate of Analysis Summary 680767

COG Operating LLC, Artesia, NM

Project Name: High Brass 002H (6-13-20)

Project Id: COG - High Brass

Contact: Ike Tavaréz

Project Location: Eddy County, NM

Date Received in Lab: Fri 12.11.2020 13:25

Report Date: 12.14.2020 16:30

Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	680767-001	680767-002	680767-003	680767-004	680767-005	680767-006
	Field Id:	2 Track Bore Hole-1 0'-1'	2 Track Bore Hole-1 3'-4'	2 Track Bore Hole-1 5'-6'	2 Track Bore Hole-1 7'-8'	2 Track Bore Hole-1 9'-1'	2 Track Bore Hole-1 14'-
	Depth:						
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	12.10.2020 00:00	12.10.2020 00:00	12.10.2020 00:00	12.10.2020 00:00	12.10.2020 00:00	12.10.2020 00:00
Chloride by EPA 300	Extracted:	12.11.2020 17:45	12.11.2020 17:45	12.11.2020 17:45	12.11.2020 17:45	12.11.2020 17:45	12.11.2020 17:45
	Analyzed:	12.12.2020 16:32	12.12.2020 16:37	12.12.2020 16:42	12.12.2020 16:47	12.12.2020 16:52	12.12.2020 16:58
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		794 4.99	940 4.97	753 4.95	761 4.96	858 4.98	323 4.98

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico



Certificate of Analysis Summary 680767

COG Operating LLC, Artesia, NM

Project Name: High Brass 002H (6-13-20)

Project Id: COG - High Brass

Contact: Ike Tavaréz

Project Location: Eddy County, NM

Date Received in Lab: Fri 12.11.2020 13:25

Report Date: 12.14.2020 16:30

Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	680767-007	680767-008	680767-009	680767-012	680767-013	680767-014
	Field Id:	2 Track Bore Hole-1 19'-	2 Track Bore Hole-1 24'-	2 Track Bore Hole-1 29'-	2 Track Bore Hole-2 0-1'	2 Track Bore Hole-2 3'-4	2 Track Bore Hole-2 5'-6
	Depth:						
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	12.10.2020 00:00	12.10.2020 00:00	12.10.2020 00:00	12.10.2020 00:00	12.10.2020 00:00	12.10.2020 00:00
Chloride by EPA 300	Extracted:	12.11.2020 17:45	12.11.2020 18:00	12.11.2020 18:00	12.11.2020 18:00	12.11.2020 18:00	12.11.2020 18:00
	Analyzed:	12.12.2020 17:03	12.11.2020 21:43	12.11.2020 21:58	12.12.2020 13:10	12.12.2020 13:15	12.12.2020 13:20
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		70.6 4.98	16.2 4.96	8.62 5.02	4340 24.9	4350 25.3	4050 25.2

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico



Certificate of Analysis Summary 680767



COG Operating LLC, Artesia, NM

Project Name: High Brass 002H (6-13-20)

Project Id: COG - High Brass

Date Received in Lab: Fri 12.11.2020 13:25

Contact: Ike Tavaréz

Report Date: 12.14.2020 16:30

Project Location: Eddy County, NM

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	680767-015	680767-016	680767-017	680767-018	680767-019	680767-020
	<i>Field Id:</i>	2 Track Bore Hole- 2 7"-8	2 Track Bore Hole-2 9'-1	2 Track Bore Hole- 2 14'-	2 Track Bore Hole-2 19'-	2 Track Bore Hole-2 24'-	2 Track Bore Hole-2 29-3
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	12.10.2020 00:00	12.10.2020 00:00	12.10.2020 00:00	12.10.2020 00:00	12.10.2020 00:00	12.10.2020 00:00
Chloride by EPA 300	<i>Extracted:</i>	12.11.2020 18:00	12.11.2020 18:00	12.11.2020 18:00	12.11.2020 18:00	12.11.2020 18:00	12.11.2020 18:00
	<i>Analyzed:</i>	12.12.2020 13:26	12.11.2020 22:35	12.11.2020 22:40	12.11.2020 22:45	12.11.2020 22:50	12.11.2020 22:56
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		2760 24.9	374 4.99	593 5.00	255 4.97	650 4.98	29.7 5.02

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

Analytical Report 680767

for

COG Operating LLC

Project Manager: Ike Tavaréz

High Brass 002H (6-13-20)

COG - High Brass

12.14.2020

Collected By: Client



**1211 W. Florida Ave
Midland TX 79701**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-38), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2020-014), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-20-26), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-18)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-23)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-21)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-20-8)
Xenco-Tampa: Florida (E87429), North Carolina (483)



12.14.2020

Project Manager: **Ike Tavaréz**

COG Operating LLC

2407 Pecos Avenue

Artesia, NM 88210

Reference: Eurofins Xenco, LLC Report No(s): **680767**

High Brass 002H (6-13-20)

Project Address: Eddy County, NM

Ike Tavaréz:

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 Eurofins Xenco, LLC Report Number(s) 680767. 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 Eurofins Xenco, LLC. 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. 680767 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 Eurofins Xenco, LLC to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

A handwritten signature in black ink that reads "Jessica Kramer".

Jessica Kramer

Project Manager

A Small Business and Minority Company

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico



Sample Cross Reference 680767

COG Operating LLC, Artesia, NM

High Brass 002H (6-13-20)

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
2 Track Bore Hole-1 0-1'	S	12.10.2020 00:00		680767-001
2 Track Bore Hole-1 3'-4'	S	12.10.2020 00:00		680767-002
2 Track Bore Hole-1 5'-6'	S	12.10.2020 00:00		680767-003
2 Track Bore Hole-1 7'-8'	S	12.10.2020 00:00		680767-004
2 Track Bore Hole-1 9'-10'	S	12.10.2020 00:00		680767-005
2 Track Bore Hole-1 14'-15'	S	12.10.2020 00:00		680767-006
2 Track Bore Hole-1 19'-20'	S	12.10.2020 00:00		680767-007
2 Track Bore Hole-1 24'-25'	S	12.10.2020 00:00		680767-008
2 Track Bore Hole-1 29'-30'	S	12.10.2020 00:00		680767-009
2 Track Bore Hole-2 0-1'	S	12.10.2020 00:00		680767-012
2 Track Bore Hole-2 3'-4'	S	12.10.2020 00:00		680767-013
2 Track Bore Hole-2 5'-6'	S	12.10.2020 00:00		680767-014
2 Track Bore Hole- 2 7'-8'	S	12.10.2020 00:00		680767-015
2 Track Bore Hole-2 9'-10'	S	12.10.2020 00:00		680767-016
2 Track Bore Hole- 2 14'-15'	S	12.10.2020 00:00		680767-017
2 Track Bore Hole-2 19'-20'	S	12.10.2020 00:00		680767-018
2 Track Bore Hole-2 24'-25'	S	12.10.2020 00:00		680767-019
2 Track Bore Hole-2 29-30'	S	12.10.2020 00:00		680767-020
2 Track Bore Hole-1 39'-40'	S	12.10.2020 00:00		Not Analyzed
2 Track Bore Hole- 1 49'-50'	S	12.10.2020 00:00		Not Analyzed
2 Track Bore Hole-2 30'-40'	S	12.10.2020 00:00		Not Analyzed
2 Track Bore Hole-2 49'-50'	S	12.10.2020 00:00		Not Analyzed



CASE NARRATIVE

Client Name: COG Operating LLC

Project Name: High Brass 002H (6-13-20)

Project ID: COG - High Brass
Work Order Number(s): 680767

Report Date: 12.14.2020
Date Received: 12.11.2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

**Certificate of Analytical Results 680767****COG Operating LLC, Artesia, NM**

High Brass 002H (6-13-20)

Sample Id: 2 Track Bore Hole-1 0-1'

Matrix: Soil

Date Received: 12.11.2020 13:25

Lab Sample Id: 680767-001

Date Collected: 12.10.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 12.11.2020 17:45

% Moisture:

Seq Number: 3144712

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	794	4.99	mg/kg	12.12.2020 16:32		1

**Certificate of Analytical Results 680767****COG Operating LLC, Artesia, NM**

High Brass 002H (6-13-20)

Sample Id: 2 Track Bore Hole-1 3'-4'

Matrix: Soil

Date Received: 12.11.2020 13:25

Lab Sample Id: 680767-002

Date Collected: 12.10.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 12.11.2020 17:45

% Moisture:

Seq Number: 3144712

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	940	4.97	mg/kg	12.12.2020 16:37		1

**Certificate of Analytical Results 680767****COG Operating LLC, Artesia, NM**

High Brass 002H (6-13-20)

Sample Id: 2 Track Bore Hole-1 5'-6'

Matrix: Soil

Date Received: 12.11.2020 13:25

Lab Sample Id: 680767-003

Date Collected: 12.10.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 12.11.2020 17:45

% Moisture:

Seq Number: 3144712

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	753	4.95	mg/kg	12.12.2020 16:42		1



Certificate of Analytical Results 680767

COG Operating LLC, Artesia, NM

High Brass 002H (6-13-20)

Sample Id: 2 Track Bore Hole-1 7'-8'

Matrix: Soil

Date Received: 12.11.2020 13:25

Lab Sample Id: 680767-004

Date Collected: 12.10.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 12.11.2020 17:45

% Moisture:

Seq Number: 3144712

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	761	4.96	mg/kg	12.12.2020 16:47		1



Certificate of Analytical Results 680767

COG Operating LLC, Artesia, NM

High Brass 002H (6-13-20)

Sample Id: 2 Track Bore Hole-1 9'-10'

Matrix: Soil

Date Received: 12.11.2020 13:25

Lab Sample Id: 680767-005

Date Collected: 12.10.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 12.11.2020 17:45

% Moisture:

Seq Number: 3144712

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	858	4.98	mg/kg	12.12.2020 16:52		1

**Certificate of Analytical Results 680767****COG Operating LLC, Artesia, NM**

High Brass 002H (6-13-20)

Sample Id: 2 Track Bore Hole-1 14'-15'

Matrix: Soil

Date Received: 12.11.2020 13:25

Lab Sample Id: 680767-006

Date Collected: 12.10.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 12.11.2020 17:45

% Moisture:

Seq Number: 3144712

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	323	4.98	mg/kg	12.12.2020 16:58		1

**Certificate of Analytical Results 680767****COG Operating LLC, Artesia, NM**

High Brass 002H (6-13-20)

Sample Id: 2 Track Bore Hole-1 19'-20'

Matrix: Soil

Date Received: 12.11.2020 13:25

Lab Sample Id: 680767-007

Date Collected: 12.10.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 12.11.2020 17:45

% Moisture:

Seq Number: 3144712

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	70.6	4.98	mg/kg	12.12.2020 17:03		1

**Certificate of Analytical Results 680767****COG Operating LLC, Artesia, NM**

High Brass 002H (6-13-20)

Sample Id: 2 Track Bore Hole-1 24'-25'

Matrix: Soil

Date Received: 12.11.2020 13:25

Lab Sample Id: 680767-008

Date Collected: 12.10.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 12.11.2020 18:00

% Moisture:

Seq Number: 3144714

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	16.2	4.96	mg/kg	12.11.2020 21:43		1

**Certificate of Analytical Results 680767****COG Operating LLC, Artesia, NM**

High Brass 002H (6-13-20)

Sample Id: 2 Track Bore Hole-1 29'-30'

Matrix: Soil

Date Received: 12.11.2020 13:25

Lab Sample Id: 680767-009

Date Collected: 12.10.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 12.11.2020 18:00

% Moisture:

Seq Number: 3144714

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	8.62	5.02	mg/kg	12.11.2020 21:58		1



Certificate of Analytical Results 680767

COG Operating LLC, Artesia, NM

High Brass 002H (6-13-20)

Sample Id: 2 Track Bore Hole-2 0-1'

Matrix: Soil

Date Received: 12.11.2020 13:25

Lab Sample Id: 680767-012

Date Collected: 12.10.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 12.11.2020 18:00

% Moisture:

Seq Number: 3144714

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	4340	24.9	mg/kg	12.12.2020 13:10		5

**Certificate of Analytical Results 680767****COG Operating LLC, Artesia, NM**

High Brass 002H (6-13-20)

Sample Id: 2 Track Bore Hole-2 3'-4'

Matrix: Soil

Date Received: 12.11.2020 13:25

Lab Sample Id: 680767-013

Date Collected: 12.10.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 12.11.2020 18:00

% Moisture:

Seq Number: 3144714

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	4350	25.3	mg/kg	12.12.2020 13:15		5

**Certificate of Analytical Results 680767****COG Operating LLC, Artesia, NM**

High Brass 002H (6-13-20)

Sample Id: 2 Track Bore Hole-2 5'-6'

Matrix: Soil

Date Received: 12.11.2020 13:25

Lab Sample Id: 680767-014

Date Collected: 12.10.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 12.11.2020 18:00

% Moisture:

Seq Number: 3144714

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	4050	25.2	mg/kg	12.12.2020 13:20		5

**Certificate of Analytical Results 680767****COG Operating LLC, Artesia, NM**

High Brass 002H (6-13-20)

Sample Id: 2 Track Bore Hole- 2 7'-8'

Matrix: Soil

Date Received: 12.11.2020 13:25

Lab Sample Id: 680767-015

Date Collected: 12.10.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 12.11.2020 18:00

% Moisture:

Seq Number: 3144714

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	2760	24.9	mg/kg	12.12.2020 13:26		5

**Certificate of Analytical Results 680767****COG Operating LLC, Artesia, NM**

High Brass 002H (6-13-20)

Sample Id: **2 Track Bore Hole-2 9'-10'**

Matrix: Soil

Date Received: 12.11.2020 13:25

Lab Sample Id: 680767-016

Date Collected: 12.10.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 12.11.2020 18:00

% Moisture:

Seq Number: 3144714

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	374	4.99	mg/kg	12.11.2020 22:35		1

**Certificate of Analytical Results 680767****COG Operating LLC, Artesia, NM**

High Brass 002H (6-13-20)

Sample Id: 2 Track Bore Hole- 2 14'-15'

Matrix: Soil

Date Received: 12.11.2020 13:25

Lab Sample Id: 680767-017

Date Collected: 12.10.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 12.11.2020 18:00

% Moisture:

Seq Number: 3144714

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	593	5.00	mg/kg	12.11.2020 22:40		1

**Certificate of Analytical Results 680767****COG Operating LLC, Artesia, NM**

High Brass 002H (6-13-20)

Sample Id: 2 Track Bore Hole-2 19'-20'

Matrix: Soil

Date Received: 12.11.2020 13:25

Lab Sample Id: 680767-018

Date Collected: 12.10.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 12.11.2020 18:00

% Moisture:

Seq Number: 3144714

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	255	4.97	mg/kg	12.11.2020 22:45		1

**Certificate of Analytical Results 680767****COG Operating LLC, Artesia, NM**

High Brass 002H (6-13-20)

Sample Id: 2 Track Bore Hole-2 24'-25'

Matrix: Soil

Date Received: 12.11.2020 13:25

Lab Sample Id: 680767-019

Date Collected: 12.10.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 12.11.2020 18:00

% Moisture:

Seq Number: 3144714

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	650	4.98	mg/kg	12.11.2020 22:50		1

**Certificate of Analytical Results 680767****COG Operating LLC, Artesia, NM**

High Brass 002H (6-13-20)

Sample Id: 2 Track Bore Hole-2 29-30'

Matrix: Soil

Date Received: 12.11.2020 13:25

Lab Sample Id: 680767-020

Date Collected: 12.10.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 12.11.2020 18:00

% Moisture:

Seq Number: 3144714

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	29.7	5.02	mg/kg	12.11.2020 22:56		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. **ND** Not Detected.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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



COG Operating LLC

High Brass 002H (6-13-20)

Analytical Method: Chloride by EPA 300

Seq Number: 3144712

MB Sample Id: 7716948-1-BLK

Matrix: Solid

LCS Sample Id: 7716948-1-BKS

Prep Method: E300P

Date Prep: 12.11.2020

LCSD Sample Id: 7716948-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	259	104	258	103	90-110	0	20	mg/kg	12.12.2020 14:32	

Analytical Method: Chloride by EPA 300

Seq Number: 3144714

MB Sample Id: 7716949-1-BLK

Matrix: Solid

LCS Sample Id: 7716949-1-BKS

Prep Method: E300P

Date Prep: 12.11.2020

LCSD Sample Id: 7716949-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	259	104	259	104	90-110	0	20	mg/kg	12.12.2020 21:32	

Analytical Method: Chloride by EPA 300

Seq Number: 3144712

Parent Sample Id: 680433-006

Matrix: Solid

MS Sample Id: 680433-006 S

Prep Method: E300P

Date Prep: 12.11.2020

MSD Sample Id: 680433-006 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	3.89	252	261	102	258	101	90-110	1	20	mg/kg	12.12.2020 16:00	

Analytical Method: Chloride by EPA 300

Seq Number: 3144712

Parent Sample Id: 680447-015

Matrix: Soil

MS Sample Id: 680447-015 S

Prep Method: E300P

Date Prep: 12.11.2020

MSD Sample Id: 680447-015 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<4.97	249	253	102	252	101	90-110	0	20	mg/kg	12.12.2020 14:48	

Analytical Method: Chloride by EPA 300

Seq Number: 3144714

Parent Sample Id: 680767-008

Matrix: Soil

MS Sample Id: 680767-008 S

Prep Method: E300P

Date Prep: 12.11.2020

MSD Sample Id: 680767-008 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	16.2	248	278	106	277	105	90-110	0	20	mg/kg	12.11.2020 21:48	

Analytical Method: Chloride by EPA 300

Seq Number: 3144714

Parent Sample Id: 680767-020

Matrix: Soil

MS Sample Id: 680767-020 S

Prep Method: E300P

Date Prep: 12.11.2020

MSD Sample Id: 680767-020 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	29.7	251	291	104	291	104	90-110	0	20	mg/kg	12.11.2020 23:01	

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



**One Concho Center/600/Illinois
Avenue/Midland, Texas
Tel (432) 683-7443**

68076

[illegible]



**One Concho Center/600/Illinois
Avenue/Midland, Texas
Tel (432) 683-7443**

680767

[illegible]



**One Concho Center/600/Illinois
Avenue/Midland, Texas
Tel (432) 683-7443**

680761

[illegible]

Eurofins Xenco, LLC

Prelogin/Nonconformance Report- Sample Log-In

Client: COG Operating LLC

Date/ Time Received: 12.11.2020 01.25.00 PM

Work Order #: 680767

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : IR8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	17.9
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	No
#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: 12.11.2020

Checklist reviewed by:



Jessica Kramer

Date: 12.14.2020

Certificate of Analysis Summary 680768

COG Operating LLC, Artesia, NM

Project Name: High Brass 002H (6-13-20)

Project Id: COG - High Brass

Contact: Ike Tavaréz

Project Location: Eddy County, NM

Date Received in Lab: Fri 12.11.2020 13:25

Report Date: 12.14.2020 16:31

Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	680768-001	680768-002	680768-003	680768-004	680768-005	680768-006
	Field Id:	Main Bore Hole-1 0-1'	Main Bore Hole-1 3'-4'	Main Bore Hole-1 5'-6'	Main Bore Hole-1 7'-8'	Main Bore Hole-1 9'-10'	Main Bore Hole-1 14'-15'
	Depth:						
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	12.09.2020 00:00	12.09.2020 00:00	12.09.2020 00:00	12.09.2020 00:00	12.09.2020 00:00	12.09.2020 00:00
Chloride by EPA 300	Extracted:	12.11.2020 18:00	12.11.2020 18:00	12.11.2020 18:00	12.11.2020 18:00	12.11.2020 18:00	12.11.2020 18:00
	Analyzed:	12.12.2020 13:31	12.12.2020 13:36	12.11.2020 23:32	12.11.2020 23:37	12.11.2020 23:42	12.11.2020 23:48
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		5950 25.0	2400 24.8	838 5.01	555 5.03	659 5.05	490 5.00

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico



Certificate of Analysis Summary 680768



COG Operating LLC, Artesia, NM

Project Name: High Brass 002H (6-13-20)

Project Id: COG - High Brass

Date Received in Lab: Fri 12.11.2020 13:25

Contact: Ike Tavaréz

Report Date: 12.14.2020 16:31

Project Location: Eddy County, NM

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	680768-007	680768-008	680768-009	680768-012	680768-013	680768-014
	<i>Field Id:</i>	Main Bore Hole-1 19'-20'	Main Bore Hole-1 24'-25'	Main Bore Hole-1 29'-30'	Main Bore Hole-2 0-1'	Main Bore Hole-2 3'-4'	Main Bore Hole-2 5'-6'
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	12.09.2020 00:00	12.09.2020 00:00	12.09.2020 00:00	12.09.2020 00:00	12.09.2020 00:00	12.09.2020 00:00
Chloride by EPA 300	<i>Extracted:</i>	12.11.2020 18:00	12.11.2020 18:00	12.11.2020 18:00	12.11.2020 18:20	12.11.2020 18:20	12.11.2020 18:20
	<i>Analyzed:</i>	12.11.2020 23:53	12.11.2020 23:58	12.12.2020 00:03	12.12.2020 14:10	12.11.2020 23:37	12.12.2020 14:26
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		471 5.00	471 5.00	345 5.04	1540 X 25.0	1060 4.97	1530 25.2

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

Certificate of Analysis Summary 680768

COG Operating LLC, Artesia, NM

Project Name: High Brass 002H (6-13-20)

Project Id: COG - High Brass

Date Received in Lab: Fri 12.11.2020 13:25

Contact: Ike Tavaréz

Report Date: 12.14.2020 16:31

Project Location: Eddy County, NM

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	680768-015	680768-016	680768-017	680768-018	680768-019	680768-020
	<i>Field Id:</i>	Main Bore Hole-2 7'-8'	Main Bore Hole-2 9'-10'	Main Bore Hole-2 14'-15'	Main Bore Hole-2 19'-20'	Main Bore Hole-2 24'-25'	Main Bore Hole-2 29'-30'
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	12.09.2020 00:00	12.09.2020 00:00	12.09.2020 00:00	12.09.2020 00:00	12.09.2020 00:00	12.09.2020 00:00
Chloride by EPA 300	<i>Extracted:</i>	12.11.2020 18:20	12.11.2020 18:20	12.11.2020 18:20	12.11.2020 18:20	12.11.2020 18:20	12.11.2020 18:20
	<i>Analyzed:</i>	12.11.2020 23:48	12.11.2020 23:54	12.12.2020 00:11	12.12.2020 00:16	12.12.2020 00:22	12.12.2020 00:27
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		1110 4.96	1480 4.99	853 4.99	766 4.97	539 4.96	353 4.97

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico



Certificate of Analysis Summary 680768

COG Operating LLC, Artesia, NM

Project Name: High Brass 002H (6-13-20)

Project Id: COG - High Brass

Contact: Ike Tavaréz

Project Location: Eddy County, NM

Date Received in Lab: Fri 12.11.2020 13:25

Report Date: 12.14.2020 16:31

Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	680768-023	680768-024	680768-025	680768-026	680768-027	680768-028
	Field Id:	Main Bore Hole-3 0-1'	Main Bore Hole-3 3'-4'	Main Bore Hole-3 5'-6'	Main Bore Hole-3 7'-8'	Main Bore Hole-3 9'-10'	Main Bore Hole-3 14'-15'
	Depth:						
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	12.10.2020 00:00	12.10.2020 00:00	12.10.2020 00:00	12.10.2020 00:00	12.10.2020 00:00	12.10.2020 00:00
Chloride by EPA 300	Extracted:	12.11.2020 18:20	12.11.2020 18:20	12.11.2020 18:20	12.11.2020 18:20	12.11.2020 18:20	12.11.2020 18:20
	Analyzed:	12.12.2020 14:32	12.12.2020 14:37	12.12.2020 00:55	12.12.2020 01:01	12.12.2020 01:17	12.12.2020 01:23
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		1480 24.8	1920 25.0	1320 4.98	1350 5.02	1230 5.02	1220 4.99

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico



Certificate of Analysis Summary 680768

COG Operating LLC, Artesia, NM

Project Name: High Brass 002H (6-13-20)

Project Id: COG - High Brass

Contact: Ike Tavaréz

Project Location: Eddy County, NM

Date Received in Lab: Fri 12.11.2020 13:25

Report Date: 12.14.2020 16:31

Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	680768-029	680768-030	680768-031			
	Field Id:	Main Bore Hole-3 19'-20	Main Bore Hole-3 24'-25	Main Bore Hole-3 29'-30			
	Depth:						
	Matrix:	SOIL	SOIL	SOIL			
	Sampled:	12.10.2020 00:00	12.10.2020 00:00	12.10.2020 00:00			
Chloride by EPA 300	Extracted:	12.11.2020 18:20	12.11.2020 18:20	12.11.2020 18:20			
	Analyzed:	12.12.2020 01:28	12.12.2020 01:34	12.12.2020 01:39			
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL			
Chloride		738 4.99	650 4.98	472 50.3			

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico



Analytical Report 680768

for

COG Operating LLC

Project Manager: Ike Tavaréz

High Brass 002H (6-13-20)

COG - High Brass

12.14.2020

Collected By: Client



**1211 W. Florida Ave
Midland TX 79701**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-38), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2020-014), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-20-26), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-18)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-23)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-21)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-20-8)
Xenco-Tampa: Florida (E87429), North Carolina (483)



12.14.2020

Project Manager: **Ike Tavaréz**

COG Operating LLC

2407 Pecos Avenue

Artesia, NM 88210

Reference: Eurofins Xenco, LLC Report No(s): **680768**

High Brass 002H (6-13-20)

Project Address: Eddy County, NM

Ike Tavaréz:

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 Eurofins Xenco, LLC Report Number(s) 680768. 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 Eurofins Xenco, LLC. 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. 680768 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 Eurofins Xenco, LLC to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

A handwritten signature in black ink that reads "Jessica Kramer".

Jessica Kramer

Project Manager

A Small Business and Minority Company

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico



Sample Cross Reference 680768

COG Operating LLC, Artesia, NM

High Brass 002H (6-13-20)

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
Main Bore Hole-1 0-1'	S	12.09.2020 00:00		680768-001
Main Bore Hole-1 3'-4'	S	12.09.2020 00:00		680768-002
Main Bore Hole-1 5'-6'	S	12.09.2020 00:00		680768-003
Main Bore Hole-1 7'-8'	S	12.09.2020 00:00		680768-004
Main Bore Hole-1 9'-10'	S	12.09.2020 00:00		680768-005
Main Bore Hole-1 14'-15'	S	12.09.2020 00:00		680768-006
Main Bore Hole-1 19'-20'	S	12.09.2020 00:00		680768-007
Main Bore Hole-1 24'-25'	S	12.09.2020 00:00		680768-008
Main Bore Hole-1 29'-30'	S	12.09.2020 00:00		680768-009
Main Bore Hole-2 0-1'	S	12.09.2020 00:00		680768-012
Main Bore Hole-2 3'-4'	S	12.09.2020 00:00		680768-013
Main Bore Hole-2 5'-6'	S	12.09.2020 00:00		680768-014
Main Bore Hole-2 7'-8'	S	12.09.2020 00:00		680768-015
Main Bore Hole-2 9'-10'	S	12.09.2020 00:00		680768-016
Main Bore Hole-2 14'-15'	S	12.09.2020 00:00		680768-017
Main Bore Hole-2 19'-20'	S	12.09.2020 00:00		680768-018
Main Bore Hole-2 24'-25'	S	12.09.2020 00:00		680768-019
Main Bore Hole-2 29'-30'	S	12.09.2020 00:00		680768-020
Main Bore Hole-3 0-1'	S	12.10.2020 00:00		680768-023
Main Bore Hole-3 3'-4'	S	12.10.2020 00:00		680768-024
Main Bore Hole-3 5'-6'	S	12.10.2020 00:00		680768-025
Main Bore Hole-3 7'-8'	S	12.10.2020 00:00		680768-026
Main Bore Hole-3 9'-10'	S	12.10.2020 00:00		680768-027
Main Bore Hole-3 14'-15'	S	12.10.2020 00:00		680768-028
Main Bore Hole-3 19'-20'	S	12.10.2020 00:00		680768-029
Main Bore Hole-3 24'-25'	S	12.10.2020 00:00		680768-030
Main Bore Hole-3 29'-30'	S	12.10.2020 00:00		680768-031
Main Bore Hole-1 39'-40'	S	12.09.2020 00:00		Not Analyzed
Main Bore Hole-1 49'-50'	S	12.09.2020 00:00		Not Analyzed
Main Bore Hole-2 39'-40'	S	12.09.2020 00:00		Not Analyzed
Main Bore Hole-3 49'-50'	S	12.09.2020 00:00		Not Analyzed
Main Bore Hole-3 39'-40'	S	12.10.2020 00:00		Not Analyzed
Main Bore Hole-3 49'-50'	S	12.10.2020 00:00		Not Analyzed

**CASE NARRATIVE****Client Name: COG Operating LLC****Project Name: High Brass 002H (6-13-20)**

Project ID: COG - High Brass
Work Order Number(s): 680768

Report Date: 12.14.2020
Date Received: 12.11.2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3144716 Chloride by EPA 300

Lab Sample ID 680768-024 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: 680768-012, -013, -014, -015, -016, -017, -018, -019, -020, -023, -024, -025, -026, -027, -028, -029, -030, -031.

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

**Certificate of Analytical Results 680768****COG Operating LLC, Artesia, NM**

High Brass 002H (6-13-20)

Sample Id: **Main Bore Hole-1 0-1'**

Matrix: Soil

Date Received: 12.11.2020 13:25

Lab Sample Id: 680768-001

Date Collected: 12.09.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 12.11.2020 18:00

% Moisture:

Seq Number: 3144714

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	5950	25.0	mg/kg	12.12.2020 13:31		5

**Certificate of Analytical Results 680768****COG Operating LLC, Artesia, NM**

High Brass 002H (6-13-20)

Sample Id: **Main Bore Hole-1 3'-4'**

Matrix: Soil

Date Received: 12.11.2020 13:25

Lab Sample Id: 680768-002

Date Collected: 12.09.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 12.11.2020 18:00

% Moisture:

Seq Number: 3144714

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	2400	24.8	mg/kg	12.12.2020 13:36		5

**Certificate of Analytical Results 680768****COG Operating LLC, Artesia, NM**

High Brass 002H (6-13-20)

Sample Id: **Main Bore Hole-1 5'-6'**

Matrix: Soil

Date Received: 12.11.2020 13:25

Lab Sample Id: 680768-003

Date Collected: 12.09.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 12.11.2020 18:00

% Moisture:

Seq Number: 3144714

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	838	5.01	mg/kg	12.11.2020 23:32		1

**Certificate of Analytical Results 680768****COG Operating LLC, Artesia, NM**

High Brass 002H (6-13-20)

Sample Id: **Main Bore Hole-1 7'-8'**

Matrix: Soil

Date Received: 12.11.2020 13:25

Lab Sample Id: 680768-004

Date Collected: 12.09.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 12.11.2020 18:00

% Moisture:

Seq Number: 3144714

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	555	5.03	mg/kg	12.11.2020 23:37		1

**Certificate of Analytical Results 680768****COG Operating LLC, Artesia, NM**

High Brass 002H (6-13-20)

Sample Id: **Main Bore Hole-1 9'-10'**

Matrix: Soil

Date Received: 12.11.2020 13:25

Lab Sample Id: 680768-005

Date Collected: 12.09.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 12.11.2020 18:00

% Moisture:

Seq Number: 3144714

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	659	5.05	mg/kg	12.11.2020 23:42		1

**Certificate of Analytical Results 680768****COG Operating LLC, Artesia, NM**

High Brass 002H (6-13-20)

Sample Id: **Main Bore Hole-1 14'-15'**

Matrix: Soil

Date Received: 12.11.2020 13:25

Lab Sample Id: 680768-006

Date Collected: 12.09.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 12.11.2020 18:00

% Moisture:

Seq Number: 3144714

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	490	5.00	mg/kg	12.11.2020 23:48		1

**Certificate of Analytical Results 680768****COG Operating LLC, Artesia, NM**

High Brass 002H (6-13-20)

Sample Id: **Main Bore Hole-1 19'-20'**

Matrix: Soil

Date Received: 12.11.2020 13:25

Lab Sample Id: 680768-007

Date Collected: 12.09.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 12.11.2020 18:00

% Moisture:

Seq Number: 3144714

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	471	5.00	mg/kg	12.11.2020 23:53		1

**Certificate of Analytical Results 680768****COG Operating LLC, Artesia, NM**

High Brass 002H (6-13-20)

Sample Id: **Main Bore Hole-1 24'-'25'**

Matrix: Soil

Date Received: 12.11.2020 13:25

Lab Sample Id: 680768-008

Date Collected: 12.09.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 12.11.2020 18:00

% Moisture:

Seq Number: 3144714

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	471	5.00	mg/kg	12.11.2020 23:58		1

**Certificate of Analytical Results 680768****COG Operating LLC, Artesia, NM**

High Brass 002H (6-13-20)

Sample Id: **Main Bore Hole-1 29'-30'**

Matrix: Soil

Date Received: 12.11.2020 13:25

Lab Sample Id: 680768-009

Date Collected: 12.09.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 12.11.2020 18:00

% Moisture:

Seq Number: 3144714

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	345	5.04	mg/kg	12.12.2020 00:03		1

**Certificate of Analytical Results 680768****COG Operating LLC, Artesia, NM**

High Brass 002H (6-13-20)

Sample Id: **Main Bore Hole-2 0-1'**

Matrix: Soil

Date Received: 12.11.2020 13:25

Lab Sample Id: 680768-012

Date Collected: 12.09.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 12.11.2020 18:20

% Moisture:

Seq Number: 3144716

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1540	25.0	mg/kg	12.12.2020 14:10	X	5

**Certificate of Analytical Results 680768****COG Operating LLC, Artesia, NM**

High Brass 002H (6-13-20)

Sample Id: **Main Bore Hole-2 3'-4'**

Matrix: Soil

Date Received: 12.11.2020 13:25

Lab Sample Id: 680768-013

Date Collected: 12.09.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 12.11.2020 18:20

% Moisture:

Seq Number: 3144716

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1060	4.97	mg/kg	12.11.2020 23:37		1

**Certificate of Analytical Results 680768****COG Operating LLC, Artesia, NM**

High Brass 002H (6-13-20)

Sample Id: **Main Bore Hole-2 5'-6'**

Matrix: Soil

Date Received: 12.11.2020 13:25

Lab Sample Id: 680768-014

Date Collected: 12.09.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 12.11.2020 18:20

% Moisture:

Seq Number: 3144716

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1530	25.2	mg/kg	12.12.2020 14:26		5

**Certificate of Analytical Results 680768****COG Operating LLC, Artesia, NM**

High Brass 002H (6-13-20)

Sample Id: **Main Bore Hole-2 7'-8'**

Matrix: Soil

Date Received: 12.11.2020 13:25

Lab Sample Id: 680768-015

Date Collected: 12.09.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 12.11.2020 18:20

% Moisture:

Seq Number: 3144716

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1110	4.96	mg/kg	12.11.2020 23:48		1



Certificate of Analytical Results 680768

COG Operating LLC, Artesia, NM

High Brass 002H (6-13-20)

Sample Id: **Main Bore Hole-2 9'-10'**

Matrix: Soil

Date Received: 12.11.2020 13:25

Lab Sample Id: 680768-016

Date Collected: 12.09.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 12.11.2020 18:20

% Moisture:

Seq Number: 3144716

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1480	4.99	mg/kg	12.11.2020 23:54		1



Certificate of Analytical Results 680768

COG Operating LLC, Artesia, NM

High Brass 002H (6-13-20)

Sample Id: **Main Bore Hole-2 14'-15'**

Matrix: Soil

Date Received: 12.11.2020 13:25

Lab Sample Id: 680768-017

Date Collected: 12.09.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 12.11.2020 18:20

% Moisture:

Seq Number: 3144716

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	853	4.99	mg/kg	12.12.2020 00:11		1

**Certificate of Analytical Results 680768****COG Operating LLC, Artesia, NM**

High Brass 002H (6-13-20)

Sample Id: **Main Bore Hole-2 19'-20'**

Matrix: Soil

Date Received: 12.11.2020 13:25

Lab Sample Id: 680768-018

Date Collected: 12.09.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 12.11.2020 18:20

% Moisture:

Seq Number: 3144716

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	766	4.97	mg/kg	12.12.2020 00:16		1

**Certificate of Analytical Results 680768****COG Operating LLC, Artesia, NM**

High Brass 002H (6-13-20)

Sample Id: **Main Bore Hole-2 24'-25'**

Matrix: Soil

Date Received: 12.11.2020 13:25

Lab Sample Id: 680768-019

Date Collected: 12.09.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 12.11.2020 18:20

% Moisture:

Seq Number: 3144716

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	539	4.96	mg/kg	12.12.2020 00:22		1

**Certificate of Analytical Results 680768****COG Operating LLC, Artesia, NM**

High Brass 002H (6-13-20)

Sample Id: **Main Bore Hole-2 29'-30'**

Matrix: Soil

Date Received: 12.11.2020 13:25

Lab Sample Id: 680768-020

Date Collected: 12.09.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 12.11.2020 18:20

% Moisture:

Seq Number: 3144716

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	353	4.97	mg/kg	12.12.2020 00:27		1



Certificate of Analytical Results 680768

COG Operating LLC, Artesia, NM

High Brass 002H (6-13-20)

Sample Id: **Main Bore Hole-3 0-1'**

Matrix: Soil

Date Received: 12.11.2020 13:25

Lab Sample Id: 680768-023

Date Collected: 12.10.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 12.11.2020 18:20

% Moisture:

Seq Number: 3144716

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1480	24.8	mg/kg	12.12.2020 14:32		5

**Certificate of Analytical Results 680768****COG Operating LLC, Artesia, NM**

High Brass 002H (6-13-20)

Sample Id: **Main Bore Hole-3 3'-4'**

Matrix: Soil

Date Received: 12.11.2020 13:25

Lab Sample Id: 680768-024

Date Collected: 12.10.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 12.11.2020 18:20

% Moisture:

Seq Number: 3144716

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1920	25.0	mg/kg	12.12.2020 14:37		5

**Certificate of Analytical Results 680768****COG Operating LLC, Artesia, NM**

High Brass 002H (6-13-20)

Sample Id: **Main Bore Hole-3 5'-6'**

Matrix: Soil

Date Received: 12.11.2020 13:25

Lab Sample Id: 680768-025

Date Collected: 12.10.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 12.11.2020 18:20

% Moisture:

Seq Number: 3144716

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1320	4.98	mg/kg	12.12.2020 00:55		1

**Certificate of Analytical Results 680768****COG Operating LLC, Artesia, NM**

High Brass 002H (6-13-20)

Sample Id: **Main Bore Hole-3 7'-8'**

Matrix: Soil

Date Received: 12.11.2020 13:25

Lab Sample Id: 680768-026

Date Collected: 12.10.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 12.11.2020 18:20

% Moisture:

Seq Number: 3144716

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1350	5.02	mg/kg	12.12.2020 01:01		1



Certificate of Analytical Results 680768

COG Operating LLC, Artesia, NM

High Brass 002H (6-13-20)

Sample Id: **Main Bore Hole-3 9'-10'**

Matrix: Soil

Date Received: 12.11.2020 13:25

Lab Sample Id: 680768-027

Date Collected: 12.10.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 12.11.2020 18:20

% Moisture:

Seq Number: 3144716

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1230	5.02	mg/kg	12.12.2020 01:17		1

**Certificate of Analytical Results 680768****COG Operating LLC, Artesia, NM**

High Brass 002H (6-13-20)

Sample Id: **Main Bore Hole-3 14'-15'**

Matrix: Soil

Date Received: 12.11.2020 13:25

Lab Sample Id: 680768-028

Date Collected: 12.10.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 12.11.2020 18:20

% Moisture:

Seq Number: 3144716

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1220	4.99	mg/kg	12.12.2020 01:23		1

**Certificate of Analytical Results 680768****COG Operating LLC, Artesia, NM**

High Brass 002H (6-13-20)

Sample Id: **Main Bore Hole-3 19'-20'**

Matrix: Soil

Date Received: 12.11.2020 13:25

Lab Sample Id: 680768-029

Date Collected: 12.10.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 12.11.2020 18:20

% Moisture:

Seq Number: 3144716

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	738	4.99	mg/kg	12.12.2020 01:28		1



Certificate of Analytical Results 680768

COG Operating LLC, Artesia, NM

High Brass 002H (6-13-20)

Sample Id: **Main Bore Hole-3 24'-25'**

Matrix: Soil

Date Received: 12.11.2020 13:25

Lab Sample Id: 680768-030

Date Collected: 12.10.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 12.11.2020 18:20

% Moisture:

Seq Number: 3144716

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	650	4.98	mg/kg	12.12.2020 01:34		1



Certificate of Analytical Results 680768

COG Operating LLC, Artesia, NM

High Brass 002H (6-13-20)

Sample Id: **Main Bore Hole-3 29'-30'**

Matrix: Soil

Date Received: 12.11.2020 13:25

Lab Sample Id: 680768-031

Date Collected: 12.10.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 12.11.2020 18:20

% Moisture:

Seq Number: 3144716

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	472	50.3	mg/kg	12.12.2020 01:39		10

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. **ND** Not Detected.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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



COG Operating LLC

High Brass 002H (6-13-20)

Analytical Method: Chloride by EPA 300

Seq Number: 3144714

MB Sample Id: 7716949-1-BLK

Matrix: Solid

LCS Sample Id: 7716949-1-BKS

Prep Method: E300P

Date Prep: 12.11.2020

LCSD Sample Id: 7716949-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	259	104	259	104	90-110	0	20	mg/kg	12.11.2020 21:32	

Analytical Method: Chloride by EPA 300

Seq Number: 3144716

MB Sample Id: 7716957-1-BLK

Matrix: Solid

LCS Sample Id: 7716957-1-BKS

Prep Method: E300P

Date Prep: 12.11.2020

LCSD Sample Id: 7716957-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	262	105	262	105	90-110	0	20	mg/kg	12.11.2020 23:10	

Analytical Method: Chloride by EPA 300

Seq Number: 3144714

Parent Sample Id: 680767-008

Matrix: Soil

MS Sample Id: 680767-008 S

Prep Method: E300P

Date Prep: 12.11.2020

MSD Sample Id: 680767-008 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	16.2	248	278	106	277	105	90-110	0	20	mg/kg	12.11.2020 21:48	

Analytical Method: Chloride by EPA 300

Seq Number: 3144714

Parent Sample Id: 680767-020

Matrix: Soil

MS Sample Id: 680767-020 S

Prep Method: E300P

Date Prep: 12.11.2020

MSD Sample Id: 680767-020 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	29.7	251	291	104	291	104	90-110	0	20	mg/kg	12.11.2020 23:01	

Analytical Method: Chloride by EPA 300

Seq Number: 3144716

Parent Sample Id: 680768-012

Matrix: Soil

MS Sample Id: 680768-012 S

Prep Method: E300P

Date Prep: 12.11.2020

MSD Sample Id: 680768-012 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	1540	1250	2990	116	3000	117	90-110	0	20	mg/kg	12.12.2020 14:15	X

Analytical Method: Chloride by EPA 300

Seq Number: 3144716

Parent Sample Id: 680768-024

Matrix: Soil

MS Sample Id: 680768-024 S

Prep Method: E300P

Date Prep: 12.11.2020

MSD Sample Id: 680768-024 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	1920	1250	3280	109	3270	108	90-110	0	20	mg/kg	12.12.2020 14:43	

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)

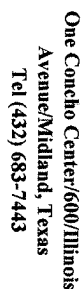
LCS = Laboratory Control Sample
 A = Parent Result
 C = MS/LCS Result
 E = MSD/LCSD Result

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

**One Concho Center/600/Illinois
Avenue/Midland, Texas
Tel (432) 683-7443**

680768

[illegible]



680768

ORIGINAL COPY

Analysis Request of Chain of Custody Record

Page 3 of 4



CONCHO

One Concho Center/600/Illinois
Avenue/Midland, Texas
Tel (432) 683-7443

Client Name:

COG

Site Manager:

Ike Tavaraz itavaraz@concho.com
Robert Grubbs Jr rgrubbs@concho.com

Project Name:

High Brass 002H (6-13-20)

Project Location:

Eddy County, NM

Project #:

Invoice to:

COG

Receiving Laboratory:

Xenco

Sampler Signature:

Robert Grubbs Jr

Comments:

LAB #
(USE ONLY)

SAMPLE IDENTIFICATION

LAB # (USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING		MATRIX		PRESERVATIVE METHOD		# CONTAINERS	FILTERED (Y/N)	TPH TX1005 (Ext to	BTX 8021B	TPH 8015M (GRO	Chloride																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										</
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Relinquished by:

Date:

Time:

Robert Grubbs Jr 12/11/2020 1:32:55

Relinquished by:

Date:

Time:

Received by:

Date:

Time:

Received by: 12/11/20 1:32:25

Relinquished by:

Date:

Time:

Received by:

Date:

Time:

LAB USE ONLY

Sample Temperature

(17.9)

REMARKS

If Chlorides Exceeds 600 run deeped horizon.

X

RUSH: Same Day 24 hr 48 hr 72 hr

Rush Charges Authorized

Special Report Limits or TRRP Report

ORIGINAL COPY

(Circle) HAND DELIVERED FEDEX UPS Tracking #



**One Concho Center/600/Illinois
Avenue/Midland, Texas
Tel (432) 683-7443**

680768

[illegible]

Eurofins Xenco, LLC

Prelogin/Nonconformance Report- Sample Log-In

Client: COG Operating LLC

Date/ Time Received: 12.11.2020 01.25.00 PM

Work Order #: 680768

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : IR8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	17.9
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	No
#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: 12.11.2020

Checklist reviewed by:



Jessica Kramer

Date: 12.14.2020

Certificate of Analysis Summary 680770

COG Operating LLC, Artesia, NM

Project Name: High Brass 002H (6-13-20)

Project Id: COG - High Brass

Contact: Ike Tavaréz

Project Location: Eddy County, NM

Date Received in Lab: Fri 12.11.2020 13:25

Report Date: 12.14.2020 16:30

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	680770-001	680770-002	680770-003	680770-004	680770-005	680770-006
	<i>Field Id:</i>	Background Bore Hole 14'	Background Bore Hole 19'	Background Bore Hole 24'	Background Bore Hole 29'	Background Bore Hole 39'	Background Bore Hole 49'
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	12.10.2020 00:00	12.10.2020 00:00	12.10.2020 00:00	12.10.2020 00:00	12.10.2020 00:00	12.10.2020 00:00
Chloride by EPA 300	<i>Extracted:</i>	12.11.2020 18:45	12.11.2020 18:45	12.11.2020 18:45	12.11.2020 18:45	12.11.2020 18:45	12.11.2020 18:45
	<i>Analyzed:</i>	12.12.2020 03:36	12.12.2020 03:42	12.12.2020 03:58	12.12.2020 04:04	12.12.2020 04:20	12.12.2020 14:54
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		621 50.1	793 24.8	450 49.9	175 50.2	59.9 25.0	42.7 4.98

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico



Analytical Report 680770

for

COG Operating LLC

Project Manager: Ike Tavaréz

High Brass 002H (6-13-20)

COG - High Brass

12.14.2020

Collected By: Client



**1211 W. Florida Ave
Midland TX 79701**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-38), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2020-014), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-20-26), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-18)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-23)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-21)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-20-8)
Xenco-Tampa: Florida (E87429), North Carolina (483)



12.14.2020

Project Manager: **Ike Tavaréz**

COG Operating LLC

2407 Pecos Avenue

Artesia, NM 88210

Reference: Eurofins Xenco, LLC Report No(s): **680770**

High Brass 002H (6-13-20)

Project Address: Eddy County, NM

Ike Tavaréz:

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 Eurofins Xenco, LLC Report Number(s) 680770. 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 Eurofins Xenco, LLC. 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. 680770 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 Eurofins Xenco, LLC to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

A handwritten signature in black ink that reads "Jessica Kramer".

Jessica Kramer

Project Manager

A Small Business and Minority Company

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

**Sample Cross Reference 680770****COG Operating LLC, Artesia, NM**

High Brass 002H (6-13-20)

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
Background Bore Hole 14'-15'	S	12.10.2020 00:00		680770-001
Background Bore Hole 19'-20'	S	12.10.2020 00:00		680770-002
Background Bore Hole 24'-25'	S	12.10.2020 00:00		680770-003
Background Bore Hole 29'-30'	S	12.10.2020 00:00		680770-004
Background Bore Hole 39'-40'	S	12.10.2020 00:00		680770-005
Background Bore Hole 49'-50'	S	12.10.2020 00:00		680770-006



CASE NARRATIVE

Client Name: COG Operating LLC

Project Name: High Brass 002H (6-13-20)

Project ID: COG - High Brass
Work Order Number(s): 680770

Report Date: 12.14.2020
Date Received: 12.11.2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

**Certificate of Analytical Results 680770****COG Operating LLC, Artesia, NM**

High Brass 002H (6-13-20)

Sample Id: **Background Bore Hole 14'-15'**

Matrix: Soil

Date Received: 12.11.2020 13:25

Lab Sample Id: 680770-001

Date Collected: 12.10.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 12.11.2020 18:45

% Moisture:

Seq Number: 3144717

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	621	50.1	mg/kg	12.12.2020 03:36		10

**Certificate of Analytical Results 680770****COG Operating LLC, Artesia, NM**

High Brass 002H (6-13-20)

Sample Id: **Background Bore Hole 19'-20'**

Matrix: Soil

Date Received: 12.11.2020 13:25

Lab Sample Id: 680770-002

Date Collected: 12.10.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 12.11.2020 18:45

% Moisture:

Seq Number: 3144717

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	793	24.8	mg/kg	12.12.2020 03:42		5



Certificate of Analytical Results 680770

COG Operating LLC, Artesia, NM

High Brass 002H (6-13-20)

Sample Id: **Background Bore Hole 24'-25'**

Matrix: Soil

Date Received: 12.11.2020 13:25

Lab Sample Id: 680770-003

Date Collected: 12.10.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 12.11.2020 18:45

% Moisture:

Seq Number: 3144717

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	450	49.9	mg/kg	12.12.2020 03:58		10

**Certificate of Analytical Results 680770****COG Operating LLC, Artesia, NM**

High Brass 002H (6-13-20)

Sample Id: **Background Bore Hole 29'-30'**

Matrix: Soil

Date Received: 12.11.2020 13:25

Lab Sample Id: 680770-004

Date Collected: 12.10.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 12.11.2020 18:45

% Moisture:

Seq Number: 3144717

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	175	50.2	mg/kg	12.12.2020 04:04		10



Certificate of Analytical Results 680770

COG Operating LLC, Artesia, NM

High Brass 002H (6-13-20)

Sample Id: **Background Bore Hole 39'-40'**

Matrix: Soil

Date Received: 12.11.2020 13:25

Lab Sample Id: 680770-005

Date Collected: 12.10.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 12.11.2020 18:45

% Moisture:

Seq Number: 3144717

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	59.9	25.0	mg/kg	12.12.2020 04:20		5



Certificate of Analytical Results 680770

COG Operating LLC, Artesia, NM

High Brass 002H (6-13-20)

Sample Id: **Background Bore Hole 49'-50'**

Matrix: Soil

Date Received: 12.11.2020 13:25

Lab Sample Id: 680770-006

Date Collected: 12.10.2020 00:00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 12.11.2020 18:45

% Moisture:

Seq Number: 3144717

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	42.7	4.98	mg/kg	12.12.2020 14:54		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. **ND** Not Detected.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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



COG Operating LLC
High Brass 002H (6-13-20)

Analytical Method: Chloride by EPA 300

Seq Number: 3144717

MB Sample Id: 7716959-1-BLK

Matrix: Solid

LCS Sample Id: 7716959-1-BKS

Prep Method: E300P

Date Prep: 12.11.2020

LCSD Sample Id: 7716959-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	263	105	262	105	90-110	0	20	mg/kg	12.12.2020 02:13	

Analytical Method: Chloride by EPA 300

Seq Number: 3144717

Parent Sample Id: 680769-003

Matrix: Soil

MS Sample Id: 680769-003 S

Prep Method: E300P

Date Prep: 12.11.2020

MSD Sample Id: 680769-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	304	1260	1600	103	1600	103	90-110	0	20	mg/kg	12.12.2020 02:30	

Analytical Method: Chloride by EPA 300

Seq Number: 3144717

Parent Sample Id: 680770-002

Matrix: Soil

MS Sample Id: 680770-002 S

Prep Method: E300P

Date Prep: 12.11.2020

MSD Sample Id: 680770-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	793	1240	2100	105	2100	105	90-110	0	20	mg/kg	12.12.2020 03:47	

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

ORIGINAL COPY

Eurofins Xenco, LLC

Prelogin/Nonconformance Report- Sample Log-In

Client: COG Operating LLC

Date/ Time Received: 12.11.2020 01.25.00 PM

Work Order #: 680770

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : IR8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	17.9
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	No
#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: 12.11.2020

Checklist reviewed by:



Jessica Kramer

Date: 12.14.2020

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720

District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720

District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170

District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

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

CONDITIONS

Action 20943

CONDITIONS

Operator: COG OPERATING LLC 600 W Illinois Ave Midland, TX 79701	OGRID: 229137
	Action Number: 20943
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
ceads	None	7/20/2021