2057 Commerce Drive
Midland, TX 79703

432.520.7720 PHONE
432.520.7701 FAX

www.trcsolutions.com

APPROVED
By Olivia Yu at 3:48 pm, Sep 05, 2017

NMOCD approves of the delineation completed for 1RP-4648. The conditions of approval for remediation:
1) Laboratory analyses (BTEX and TPH extended) of bottom and sidewall confirmation samples for the proposed excavation in the area represented by T2.
2) Statement of liner integrity and photo documentation of the release in the secondary containment.
3) Blended soil for backfilling must have laboratory analyses (BTEX and TPH extended) of 1 soil sample per 50 yd3, which are within permissible levels.

August 15, 2017

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

Henryetta Price
Carlsbad Field Office
United States Department of the Interior
Bureau of Land Management
620 E. Greene Street
Carlsbad, New Mexico 88220

Re: Soil Investigation Summary and Proposed Remediation Workplan
Sneed 9 Federal Com #002H (1RP-4648)
GPS: N 32.8536568° W 103.7796249°
Unit Letter "D", Section 9, Township 17 South, Range 32 East
Lea County, New Mexico

Dear Ms. Yu and Ms. Price,

TRC Environmental Corporation (TRC), on behalf of COG Operating, LLC (COG) has prepared this Soil Investigation Summary and Proposed Remediation Workplan (Workplan) for the Sneed 9 Federal Com #002H Release Site (Release Site). The purpose of this Workplan is to propose remediation activities designed to advance the Sneed 9 Federal Com #002H Release Site toward an NMOCD approved Site Closure Status. The legal description of the Release Site is Unit Letter "D", Section 9, Township 17 South, Range 32 East, in Lea County, New Mexico. The GPS coordinates for the site are N 32.8536568° W 103.7796249°. The subject property is administered by the United States Bureau of Land Management (BLM). A Site Location Map and Site Map are provided as Figure 1 and Figure 2, respectively.

On March 19, 2017, COG discovered a crude oil and produced water release from the Free Water Knock Out (FWKO) located within the Sneed 9 Federal Com #002H lined secondary containment. The release was contained partially in the lined secondary containment and impacted the caliche pad north of the facility. The release area outside of the lined secondary containment measured approximately 9,218 square feet. On March 20, 2017, a COG representative verbally notified the NMOCD and BLM and submitted a Release Notification and Corrective Action (Form C-141) to the NMOCD on March 22, 2017. During initial response activities, COG dispatched a vacuum truck to remove all freestanding fluids. Approximately one hundred

and five (105) barrels of fluid was released from the FWKO, with approximately forty nine (49) barrels recovered. The Form C-141 is attached to this report.

A groundwater database maintained by The New Mexico Office of the State Engineer (NMOSE) did not identify any registered water wells in Section 9, Township 17 South, Range 32 East. A reference map utilized by the New Mexico Oil Conservation Division (NMOCD) Hobbs District Office indicates groundwater should be encountered at approximately one hundred twenty-five (125) feet below ground surface (bgs). Based on the NMOCD site classification system, zero (0) points will be assigned to the subject area ranking as a result of this criterion.
No water wells were observed within one-thousand (1,000) feet of the Release Site. Based on the NMOCD site classification system, zero (0) points will be assigned to the subject area ranking as a result of this criterion.

No surface water was observed within one-thousand (1,000) feet of the release. Based on the NMOCD site classification system, zero (0) points will be assigned to the subject area ranking as a result of this criterion.

Based on the NMOCD Site Classification criteria, the Release Site soil remediation levels are 10 mg/Kg for benzene, 50 mg/Kg for benzene, toluene, ethylbenzene and xylenes (BTEX), and five thousand (5,000) mg/Kg for total petroleum hydrocarbons (TPH). Per NMOCD request, chloride remediation levels for the Release Site will be 600 mg/Kg.

On April 27, 2017, a Concho Representative collected sixteen (16) delineation soil samples (T1-Surface, T1-1', T1-2', T1-3', T1-4', T1-6', T1-8', T1-10', T2-Surface, T2-1', T2-2', T2-3', T2-4', T2-6', T2-8', and T2-10') from the impacted area. The soil samples were submitted to Xenco Laboratories in Midland, Texas for determination of concentrations of BTEX using Method SW 846-8021B, TPH using Method SW 846-8015M, and chloride using Method E 300.1. The analytical results indicated benzene concentrations were less than the applicable laboratory Method Detection Limit (MDL) and NMOCD regulatory guidelines for the submitted soil samples. The laboratory results indicated BTEX concentrations ranged from less than the applicable laboratory MDL for soil samples T1-3', T1-6', T1-8', T1-10', T2-3', T2-4', T2-6', T2-8', and T2-10' to 63.18 mg/Kg for soil sample T2-Surface. A review of laboratory analytical results indicated all collected soil samples were below NMOCD regulatory guidelines with the exception of soil sample T2-Surface. The laboratory results indicated TPH concentrations ranged from less than the applicable laboratory MDL for soil samples T1-1', T1-3', T1-4', T1-6', T1-8', T1-10', T2-3', T2-4', T2-6', T2-8', and T2-10' to 7,845 mg/Kg for soil sample T2-Surface. A review of laboratory analytical results indicated TPH concentrations were below NMOCD regulatory guidelines for the submitted soil samples, with the exception of soil sample T2-Surface, which was above NMOCD regulatory guidelines. Chloride concentrations ranged from less than the laboratory applicable MDL for soil samples T2-1', T2-3', T2-4', T2-6', T2-8', and T2-10' to 179 mg/Kg for soil sample T1-10', which indicated chloride concentrations were below NMOCD regulatory guidelines for all collected soil samples. The laboratory analytical results are attached to this report.

Based on the analytical results of the soil samples collected on April 27, 2017, COG proposes the following field activities designed to remediate the Sneed 9 Federal Com #002H Release:

- Utilizing a backhoe, excavate the area represented by soil sample T2 to approximately six (6) inches bgs. Excavated soil will be temporarily stockpiled on a plastic liner adjacent to the

excavation. Based on laboratory results of the area represented by soil samples T1, no excavation activities will be performed in the area represented by soil sample T1, with the exception of any visibly stained areas which will be aesthetically addressed.

- A minimum of one (1) composite soil sample will be collected for each 500 cubic yards of excavated material and submitted to the laboratory for BTEX, TPH, and chloride analysis.
- On receipt of favorable analytical results (below the regulatory guidelines reference above) the excavation will be backfilled with the remediated soil.
- If laboratory results indicate TPH and/or BTEX concentrations of the excavated soil exceed NMOCD regulatory guidelines, the excavated soil will be transported under manifest to an NMOCD approved disposal facility and the excavated area will be backfilled with "like" non-impacted soil.
- Prepare and submit a "Remediation Summary and Site Closure Request" to the NMOCD and BLM.

COG is prepared to begin the activities outlined in this Proposed Remediation Workplan on NMOCD and BLM approval.

If you have any questions, or if additional information is required, please feel free to call me at 432-520-7720 (office) or 432-664-6699 (cell).

Thank you,

Nikki Green
Project Manager
TRC Environmental Corporation

Jeffrey Kindley, PG
Senior Project Manager
TRC Environmental Corporation

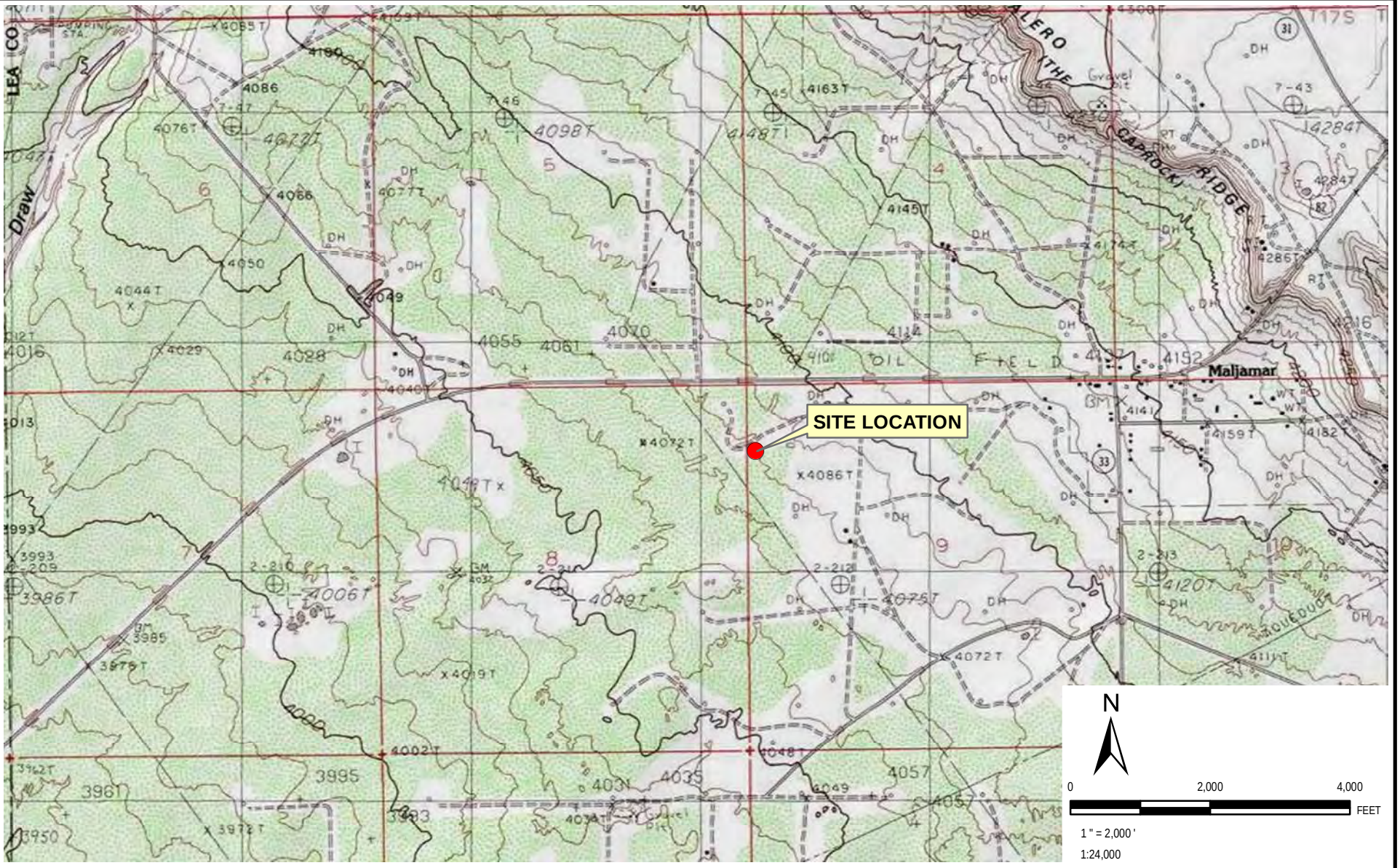
Attachments:

Figure 1 - Site Location Map
Figure 2 - Site Map
Table 1 - Concentrations of Benzene, BTEX, TPH and Chloride in Soil
Laboratory Analytical Results
Release Notification and Corrective Action (Form C-141)

cc: Rebecca Haskell
COG Operating, LLC
600 W. Illinois Avenue
Midland, Texas 79701

File

J:\Concho\279784_Sneed\279784_1.mxd -- Saved By: MLOVELACE on 7/18/2017, 16:18:05 PM



TRC
2075 Commerce Drive
Midland, TX 79703
Phone: 432.520.770
TRC - GIS

TITLE:

FIGURE 1
SITE LOCATION MAP

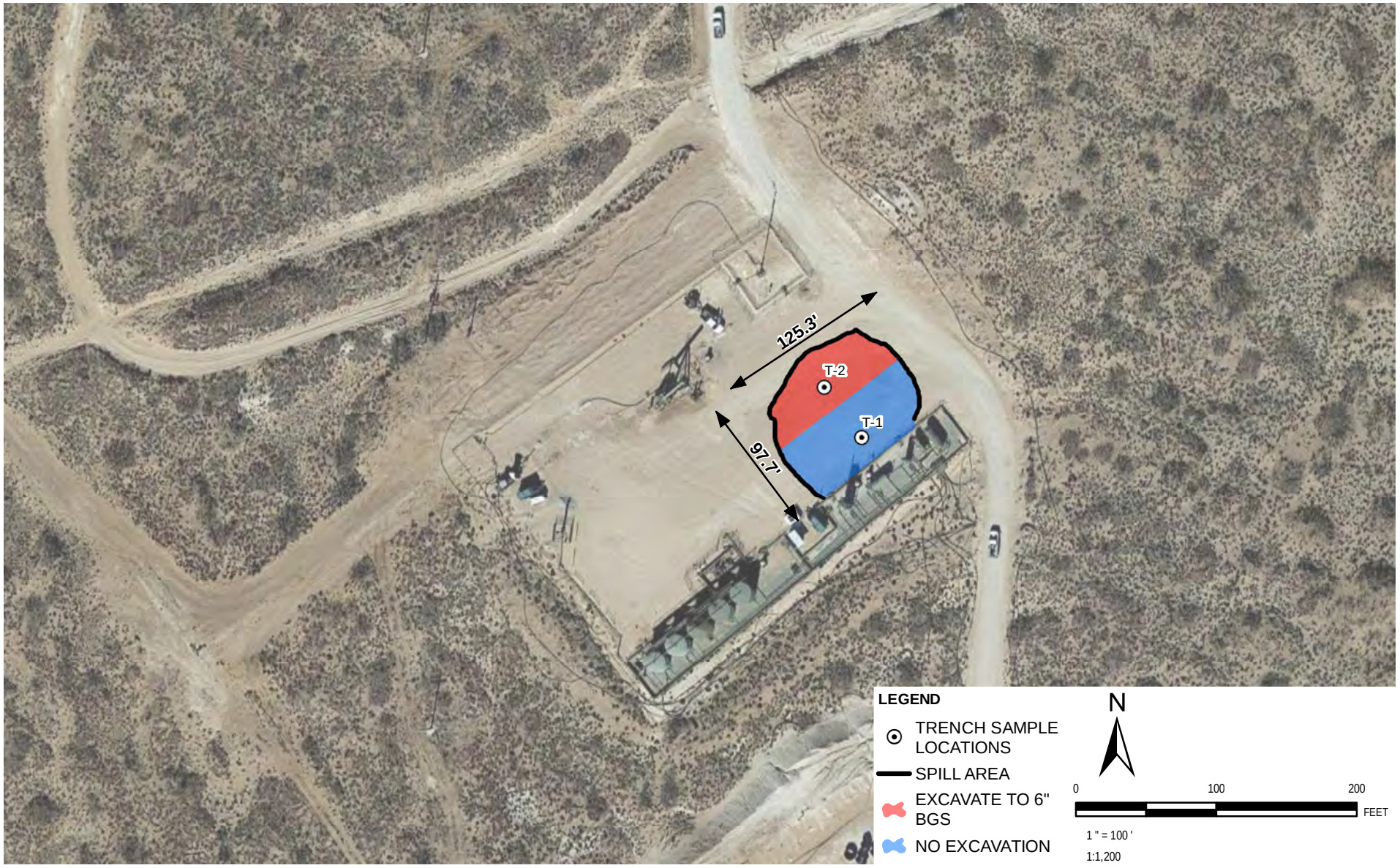
PROJECT:

SNEED 9 FEDERAL COM #002H
LEA COUNTY, NEW MEXICO
COG OPERATING, LLC

DRAWN BY:	MLOVELACE
CHECKED BY:	NGREEN
APPROVED BY:	NGREEN
DATE:	JULY 2017
PROJ. NO.:	279784
GPS:	LAT. N 32.8536568, LONG. W 103.779625

NW1/4 NW1/4 SEC 9 T17S R32E

J:\Concho\279784_Sneed\279784_2.mxd -- Saved By: MLOVELACE on 8/7/2017, 14:53:23 PM



TRC

2075 Commerce Drive
Midland, TX 79703
Phone: 432.520.770

TRC - GIS

TITLE:

FIGURE 2
SITE MAP

PROJECT:

SNEED 9 FEDERAL COM #002H
LEA COUNTY, NEW MEXICO
COG OPERATING, LLC.

DRAWN BY:	MLOVELACE
CHECKED BY:	NGREEN
APPROVED BY:	NGREEN
DATE:	AUGUST 2017
PROJ. NO.:	279784
GPS:	LAT. N 32.8536568, LONG. W 103.779625

NW1/4 NW1/4 SEC 9 T17S R32E

TABLE 1

CONCENTRATIONS OF BENZENE, BTEX, TPH AND CHLORIDE IN SOIL

COG Operating LLC
Sneed 9 Federal Com #002H
LEA COUNTY, NEW MEXICO

All concentrations are reported in mg/Kg

SAMPLE LOCATION	SAMPLE DATE	SOIL STATUS	METHODS: SW 846-8021b						METHOD: SW 8015M				E 300.1
			BENZENE	TOLUENE	ETHYL-BENZENE	m, p - XYLENES	o - XYLENE	TOTAL BTEX	TPH GRO C_6-C_{10}	TPH DRO C_{10}-C_{28}	TPH ORO C_{28}-C_{35}	TOTAL TPH C_6-C_{35}	CHLORIDE
NMOCD Site Classification Criteria			**10**					**50**				**5,000**	**600**
T1-Surface	4/27/2017	Trench	<0.00202	<0.00202	0.0676	0.131	0.0818	0.2804	426	975	113	1,514	66.4
T1-1'	4/27/2017	Trench	<0.00199	<0.00199	<0.00199	<0.00398	0.00254	0.00254	<15.0	<15.0	<15.0	<15.0	32.4
T1-2'	4/27/2017	Trench	<0.00199	<0.00199	<0.00199	0.00585	0.0156	0.02145	<15.0	41.0	<15.0	41.0	59.9
T1-3'	4/27/2017	Trench	<0.00202	<0.00202	<0.00202	<0.00404	<0.00202	<0.00404	<15.0	<15.0	<15.0	<15.0	46.2
T1-4'	4/27/2017	Trench	<0.00370	<0.00370	0.00970	<0.00741	<0.00370	0.00970	<15.0	<15.0	<15.0	<15.0	48.9
T1-6'	4/27/2017	Trench	<0.00199	<0.00199	<0.00199	<0.00398	<0.00199	<0.00398	<15.0	<15.0	<15.0	<15.0	9.44
T1-8'	4/27/2017	Trench	<0.00197	<0.00197	<0.00197	<0.00394	<0.00197	<0.00394	<15.0	<15.0	<15.0	<15.0	100
T1-10'	4/27/2017	Trench	<0.00200	<0.00200	<0.00200	<0.00401	<0.00200	<0.00401	<15.0	<15.0	<15.0	<15.0	179
T2-Surface	4/27/2017	Trench	<0.0998	2.98	19.9	27.1	13.2	**63.18**	2,640	4,570	635	**7,845**	14.5
T2-1'	4/27/2017	Trench	<0.00199	<0.00199	<0.00199	<0.00398	0.00818	0.00818	<14.9	20.5	<14.9	20.5	<4.93
T2-2'	4/27/2017	Trench	<0.00377	0.00692	0.0382	0.0789	0.0549	0.17892	55.0	137	<15.0	192	5.04
T2-3'	4/27/2017	Trench	<0.00344	<0.00344	<0.00344	<0.00687	<0.00344	<0.00687	<15.0	<15.0	<15.0	<15.0	<4.95
T2-4'	4/27/2017	Trench	<0.00369	<0.00369	<0.00369	<0.00738	<0.00369	<0.00738	<14.9	<14.9	<14.9	<14.9	<5.00
T2-6'	4/27/2017	Trench	<0.00200	<0.00200	<0.00200	<0.00399	<0.00200	<0.00399	<15.0	<15.0	<15.0	<15.0	<4.86
T2-8'	4/27/2017	Trench	<0.00380	<0.00380	<0.00380	<0.00760	<0.00380	<0.00760	<15.0	<15.0	<15.0	<15.0	<4.98
T2-10'	4/27/2017	Trench	<0.00202	<0.00202	<0.00202	<0.00403	<0.00202	<0.00403	<15.0	<15.0	<15.0	<15.0	<4.91

Certificate of Analysis Summary 552076

COG Operating LLC, Artesia, NM

Project Name: Sneed Federal #002H

Project Id:

Contact: Aaron Lieb

Project Location: Sneed Federal #002H

Date Received in Lab: Fri Apr-28-17 11:00 am

Report Date: 05-MAY-17

Project Manager: Liz Givens

Analysis Requested													
	Lab Id:	552076-001		552076-002		552076-003		552076-004		552076-005		552076-006	
	Field Id:	T1- Surface		T1- 1'		T1- 2'		T1- 3'		T1- 4'		T1- 6'	
	Depth:			1 ft		2 ft		3 ft		4 ft		6 ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Apr-27-17 08:30		Apr-27-17 08:35		Apr-27-17 08:40		Apr-27-17 08:42		Apr-27-17 08:44		Apr-27-17 08:48	
BTEX by EPA 8021B	***Extracted:***	May-02-17 14:00		May-02-17 14:00		May-03-17 16:00		May-03-17 16:00		May-04-17 11:55		May-03-17 16:00	
	Analyzed:	May-02-17 21:32		May-02-17 21:16		May-04-17 11:59		May-04-17 12:15		May-04-17 21:58		May-04-17 12:48	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		<0.00202	0.00202	<0.00199	0.00199	<0.00199	0.00199	<0.00202	0.00202	<0.00370	0.00370	<0.00199	0.00199
Toluene		<0.00202	0.00202	<0.00199	0.00199	<0.00199	0.00199	<0.00202	0.00202	<0.00370	0.00370	<0.00199	0.00199
Ethylbenzene		0.0676	0.00202	<0.00199	0.00199	<0.00199	0.00199	<0.00202	0.00202	0.00970	0.00370	<0.00199	0.00199
m,p-Xylenes		0.131	0.00404	<0.00398	0.00398	0.00585	0.00398	<0.00404	0.00404	<0.00741	0.00741	<0.00398	0.00398
o-Xylene		0.0818	0.00202	0.00254	0.00199	0.0156	0.00199	<0.00202	0.00202	<0.00370	0.00370	<0.00199	0.00199
Total Xylenes		0.213	0.00202	0.00254	0.00199	0.0215	0.00199	<0.00202	0.00202	<0.00370	0.00370	<0.00199	0.00199
Total BTEX		0.280	0.00202	0.00254	0.00199	0.0215	0.00199	<0.00202	0.00202	0.00970	0.00370	<0.00199	0.00199
Inorganic Anions by EPA 300/300.1	***Extracted:***	May-02-17 14:30		May-02-17 14:30		May-02-17 14:30		May-02-17 14:30		May-02-17 14:30		May-02-17 14:30	
	Analyzed:	May-02-17 15:08		May-02-17 15:30		May-02-17 15:38		May-02-17 15:46		May-02-17 15:53		May-02-17 16:16	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		66.4	4.91	32.4	4.93	59.9	4.95	46.2	4.98	48.9	4.99	9.44	4.90
TPH By SW8015 Mod	***Extracted:***	May-02-17 11:00		May-02-17 11:00		May-02-17 11:00		May-02-17 11:00		May-02-17 11:00		May-02-17 11:00	
	Analyzed:	May-02-17 22:36		May-02-17 22:56		May-02-17 23:17		May-02-17 23:38		May-02-17 23:59		May-03-17 00:19	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
C6-C10 Gasoline Range Hydrocarbons		426	15.0	<15.0	15.0	<15.0	15.0	<15.0	15.0	<15.0	15.0	<15.0	15.0
C10-C28 Diesel Range Hydrocarbons		975	15.0	<15.0	15.0	41.0	15.0	<15.0	15.0	<15.0	15.0	<15.0	15.0
C28-C35 Oil Range Hydrocarbons		113	15.0	<15.0	15.0	<15.0	15.0	<15.0	15.0	<15.0	15.0	<15.0	15.0
Total TPH		1510	15.0	<15.0	15.0	41.0	15.0	<15.0	15.0	<15.0	15.0	<15.0	15.0

Brandi Ritcherson
Project Manager

Certificate of Analysis Summary 552076

COG Operating LLC, Artesia, NM

Project Name: Sneed Federal #002H

Project Id:

Contact: Aaron Lieb

Project Location: Sneed Federal #002H

Date Received in Lab: Fri Apr-28-17 11:00 am

Report Date: 05-MAY-17

Project Manager: Liz Givens

Analysis Requested	*Lab Id:*	552076-007		552076-008		552076-009		552076-010		552076-011		552076-012	
	Field Id:	T1- 8'		T1- 10'		T2-Surface		T2-1'		T2-2'		T2-3'	
	Depth:	8 ft		10 ft				1 ft		2 ft		3 ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Apr-27-17 08:50		Apr-27-17 08:55		Apr-27-17 09:00		Apr-27-17 09:02		Apr-27-17 09:05		Apr-27-17 09:10	
BTEX by EPA 8021B	*Extracted:*	May-03-17 16:00		May-03-17 16:00		May-04-17 11:55		May-04-17 11:55		May-04-17 11:55		May-04-17 11:55	
	Analyzed:	May-04-17 13:04		May-04-17 13:20		May-05-17 13:06		May-04-17 18:29		May-05-17 11:12		May-04-17 19:01	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		<0.00197	0.00197	<0.00200	0.00200	<0.0998	0.0998	<0.00199	0.00199	<0.00377	0.00377	<0.00344	0.00344
Toluene		<0.00197	0.00197	<0.00200	0.00200	2.98	0.0998	<0.00199	0.00199	0.00692	0.00377	<0.00344	0.00344
Ethylbenzene		<0.00197	0.00197	<0.00200	0.00200	19.9	0.0998	<0.00199	0.00199	0.0382	0.00377	<0.00344	0.00344
m,p-Xylenes		<0.00394	0.00394	<0.00401	0.00401	27.1	0.200	<0.00398	0.00398	0.0789	0.00755	<0.00687	0.00687
o-Xylene		<0.00197	0.00197	<0.00200	0.00200	13.2	0.0998	0.00818	0.00199	0.0549	0.00377	<0.00344	0.00344
Total Xylenes		<0.00197	0.00197	<0.00200	0.00200	40.3	0.0998	0.00818	0.00199	0.134	0.00377	<0.00344	0.00344
Total BTEX		<0.00197	0.00197	<0.00200	0.00200	63.2	0.0998	0.00818	0.00199	0.179	0.00377	<0.00344	0.00344
Inorganic Anions by EPA 300/300.1	*Extracted:*	May-02-17 14:30		May-02-17 14:30		May-02-17 14:30		May-02-17 14:30		May-02-17 14:30		May-02-17 14:30	
	Analyzed:	May-02-17 16:24		May-02-17 16:31		May-02-17 16:39		May-02-17 16:46		May-02-17 16:54		May-02-17 17:17	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		100	4.92	179	4.98	14.5	4.93	<4.93	4.93	5.04	4.94	<4.95	4.95
TPH By SW8015 Mod	*Extracted:*	May-02-17 11:00		May-02-17 11:00		May-02-17 11:00		May-02-17 11:00		May-02-17 11:00		May-02-17 11:00	
	Analyzed:	May-03-17 00:40		May-03-17 01:00		May-03-17 01:21		May-03-17 01:41		May-03-17 02:42		May-03-17 03:03	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
C6-C10 Gasoline Range Hydrocarbons		<15.0	15.0	<15.0	15.0	2640	74.9	<14.9	14.9	55.0	15.0	<15.0	15.0
C10-C28 Diesel Range Hydrocarbons		<15.0	15.0	<15.0	15.0	4570	74.9	20.5	14.9	137	15.0	<15.0	15.0
C28-C35 Oil Range Hydrocarbons		<15.0	15.0	<15.0	15.0	635	74.9	<14.9	14.9	<15.0	15.0	<15.0	15.0
Total TPH		<15.0	15.0	<15.0	15.0	7850	74.9	20.5	14.9	192	15.0	<15.0	15.0

Brandi Ritcherson
Project Manager

Certificate of Analysis Summary 552076

COG Operating LLC, Artesia, NM

Project Name: Sneed Federal #002H

Project Id:
Contact: Aaron Lieb
Project Location: Sneed Federal #002H

Date Received in Lab: Fri Apr-28-17 11:00 am
Report Date: 05-MAY-17
Project Manager: Liz Givens

Analysis Requested													
	Lab Id:	552076-013		552076-014		552076-015		552076-016					
	Field Id:	T2-4'		T2-6'		T2-8'		T2-10'					
	Depth:	4 ft		6 ft		8 ft		10 ft					
	Matrix:	SOIL		SOIL		SOIL		SOIL					
	Sampled:	Apr-27-17 09:12		Apr-27-17 09:15		Apr-27-17 09:20		Apr-27-17 09:25					
BTEX by EPA 8021B	***Extracted:***	May-04-17 11:55		May-04-17 11:55		May-04-17 11:55		May-04-17 11:55					
	Analyzed:	May-05-17 11:27		May-04-17 18:13		May-05-17 11:43		May-04-17 19:49					
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL				
Benzene		<0.00369	0.00369	<0.00200	0.00200	<0.00380	0.00380	<0.00202	0.00202				
Toluene		<0.00369	0.00369	<0.00200	0.00200	<0.00380	0.00380	<0.00202	0.00202				
Ethylbenzene		<0.00369	0.00369	<0.00200	0.00200	<0.00380	0.00380	<0.00202	0.00202				
m,p-Xylenes		<0.00738	0.00738	<0.00399	0.00399	<0.00760	0.00760	<0.00403	0.00403				
o-Xylene		<0.00369	0.00369	<0.00200	0.00200	<0.00380	0.00380	<0.00202	0.00202				
Total Xylenes		<0.00369	0.00369	<0.00200	0.00200	<0.00380	0.00380	<0.00202	0.00202				
Total BTEX		<0.00369	0.00369	<0.00200	0.00200	<0.00380	0.00380	<0.00202	0.00202				
Inorganic Anions by EPA 300/300.1	***Extracted:***	May-02-17 14:30		May-02-17 14:30		May-02-17 14:30		May-02-17 14:30					
	Analyzed:	May-02-17 17:24		May-02-17 17:47		May-02-17 17:55		May-02-17 18:02					
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL				
Chloride		<5.00	5.00	<4.86	4.86	<4.98	4.98	<4.91	4.91				
TPH By SW8015 Mod	***Extracted:***	May-02-17 11:00		May-02-17 11:00		May-02-17 11:00		May-02-17 11:00					
	Analyzed:	May-03-17 03:23		May-03-17 03:43		May-03-17 04:03		May-03-17 04:23					
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL				
C6-C10 Gasoline Range Hydrocarbons		<14.9	14.9	<15.0	15.0	<15.0	15.0	<15.0	15.0				
C10-C28 Diesel Range Hydrocarbons		<14.9	14.9	<15.0	15.0	<15.0	15.0	<15.0	15.0				
C28-C35 Oil Range Hydrocarbons		<14.9	14.9	<15.0	15.0	<15.0	15.0	<15.0	15.0				
Total TPH		<14.9	14.9	<15.0	15.0	<15.0	15.0	<15.0	15.0				

Brandi Ritcherson
Project Manager

Analytical Report 552076

for

COG Operating LLC

Project Manager: Aaron Lieb

Sneed Federal #002H

05-MAY-17

Collected By: Client

1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab code: TX00122):
Texas (T104704215), Arizona (AZ0765), Florida (E871002), Louisiana (03054)
Oklahoma (9218)

Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295)
Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400)
Xenco-San Antonio: Texas (T104704534)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona(AZ0757)
Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)

05-MAY-17

Project Manager: **Aaron Lieb**
COG Operating LLC
2407 Pecos Avenue
Artesia, NM 88210

Reference: XENCO Report No(s): **552076**
Sneed Federal #002H
Project Address: Sneed Federal #002H

Aaron Lieb:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 552076. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

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

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 552076 will be filed for 60 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

Brandi Ritcherson
Project Manager

Sample Cross Reference 552076

COG Operating LLC, Artesia, NM

Sneed Federal #002H

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
T1- Surface	S	04-27-17 08:30		552076-001
T1- 1'	S	04-27-17 08:35	- 1 ft	552076-002
T1- 2'	S	04-27-17 08:40	- 2 ft	552076-003
T1- 3'	S	04-27-17 08:42	- 3 ft	552076-004
T1- 4'	S	04-27-17 08:44	- 4 ft	552076-005
T1- 6'	S	04-27-17 08:48	- 6 ft	552076-006
T1- 8'	S	04-27-17 08:50	- 8 ft	552076-007
T1- 10'	S	04-27-17 08:55	- 10 ft	552076-008
T2-Surface	S	04-27-17 09:00	N/A	552076-009
T2-1'	S	04-27-17 09:02	- 1 ft	552076-010
T2-2'	S	04-27-17 09:05	- 2 ft	552076-011
T2-3'	S	04-27-17 09:10	- 3 ft	552076-012
T2-4'	S	04-27-17 09:12	- 4 ft	552076-013
T2-6'	S	04-27-17 09:15	- 6 ft	552076-014
T2-8'	S	04-27-17 09:20	- 8 ft	552076-015
T2-10'	S	04-27-17 09:25	- 10 ft	552076-016

Client Name: COG Operating LLC
Project Name: Sneed Federal #002H

Project ID:
Work Order Number(s): *552076*

Report Date: *05-MAY-17*
Date Received: *04/28/2017*

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3016335 BTEX by EPA 8021B
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Batch: LBA-3016591 BTEX by EPA 8021B
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Batch: LBA-3016595 BTEX by EPA 8021B
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Certificate of Analytical Results 552076

COG Operating LLC, Artesia, NM

Sneed Federal #002H

Sample Id:	**T1- Surface**	Matrix:	Soil	Date Received:	04.28.17 11.00
Lab Sample Id:	552076-001	Date Collected:	04.27.17 08.30		

Analytical Method:	Inorganic Anions by EPA 300/300.1			Prep Method:	E300P
Tech:	MGO			% Moisture:	
Analyst:	MGO	Date Prep:	05.02.17 14.30	Basis:	Wet Weight
Seq Number:	3016347				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**66.4**	4.91	mg/kg	05.02.17 15.08		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	05.02.17 11.00	Basis:	Wet Weight
Seq Number:	3016317				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	**426**	15.0	mg/kg	05.02.17 22.36		1
C10-C28 Diesel Range Hydrocarbons	C10C28DRO	**975**	15.0	mg/kg	05.02.17 22.36		1
C28-C35 Oil Range Hydrocarbons	PHCG2835	**113**	15.0	mg/kg	05.02.17 22.36		1
Total TPH	PHC635	**1510**	15.0	mg/kg	05.02.17 22.36		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	118	%	70-135	05.02.17 22.36	
o-Terphenyl	84-15-1	115	%	70-135	05.02.17 22.36	

Certificate of Analytical Results 552076

COG Operating LLC, Artesia, NM

Sneed Federal #002H

Sample Id:	**T1- Surface**	Matrix:	Soil	Date Received:	04.28.17 11.00
Lab Sample Id:	552076-001	Date Collected:	04.27.17 08.30		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	05.02.17 14.00	Basis:	Wet Weight
Seq Number:	3016335				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	05.02.17 21.32	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	05.02.17 21.32	U	1
Ethylbenzene	100-41-4	**0.0676**	0.00202	mg/kg	05.02.17 21.32		1
m,p-Xylenes	179601-23-1	**0.131**	0.00404	mg/kg	05.02.17 21.32		1
o-Xylene	95-47-6	**0.0818**	0.00202	mg/kg	05.02.17 21.32		1
Total Xylenes	1330-20-7	**0.213**	0.00202	mg/kg	05.02.17 21.32		1
Total BTEX		**0.280**	0.00202	mg/kg	05.02.17 21.32		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	111	%	80-120	05.02.17 21.32	
1,4-Difluorobenzene	540-36-3	101	%	80-120	05.02.17 21.32	

Certificate of Analytical Results 552076

COG Operating LLC, Artesia, NM

Sneed Federal #002H

Sample Id:	**T1- 1'**	Matrix:	Soil	Date Received:	04.28.17 11.00
Lab Sample Id:	552076-002	Date Collected:	04.27.17 08.35	Sample Depth:	1 ft

Analytical Method:	Inorganic Anions by EPA 300/300.1			Prep Method:	E300P
Tech:	MGO			% Moisture:	
Analyst:	MGO	Date Prep:	05.02.17 14.30	Basis:	Wet Weight
Seq Number:	3016347				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**32.4**	4.93	mg/kg	05.02.17 15.30		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	05.02.17 11.00	Basis:	Wet Weight
Seq Number:	3016317				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	05.02.17 22.56	U	1
C10-C28 Diesel Range Hydrocarbons	C10C28DRO	<15.0	15.0	mg/kg	05.02.17 22.56	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<15.0	15.0	mg/kg	05.02.17 22.56	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	05.02.17 22.56	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	97	%	70-135	05.02.17 22.56	
o-Terphenyl	84-15-1	100	%	70-135	05.02.17 22.56	

Certificate of Analytical Results 552076

COG Operating LLC, Artesia, NM

Sneed Federal #002H

Sample Id:	**T1- 1'**	Matrix:	Soil	Date Received:	04.28.17 11.00
Lab Sample Id:	552076-002	Date Collected:	04.27.17 08.35	Sample Depth:	1 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	05.02.17 14.00	Basis:	Wet Weight
Seq Number:	3016335				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	05.02.17 21.16	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	05.02.17 21.16	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	05.02.17 21.16	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	05.02.17 21.16	U	1
o-Xylene	95-47-6	**0.00254**	0.00199	mg/kg	05.02.17 21.16		1
Total Xylenes	1330-20-7	**0.00254**	0.00199	mg/kg	05.02.17 21.16		1
Total BTEX		**0.00254**	0.00199	mg/kg	05.02.17 21.16		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	88	%	80-120	05.02.17 21.16	
1,4-Difluorobenzene	540-36-3	115	%	80-120	05.02.17 21.16	

Certificate of Analytical Results 552076

COG Operating LLC, Artesia, NM

Sneed Federal #002H

Sample Id:	**T1- 2'**	Matrix:	Soil	Date Received:	04.28.17 11.00
Lab Sample Id:	552076-003	Date Collected:	04.27.17 08.40	Sample Depth:	2 ft

Analytical Method:	Inorganic Anions by EPA 300/300.1			Prep Method:	E300P
Tech:	MGO			% Moisture:	
Analyst:	MGO	Date Prep:	05.02.17 14.30	Basis:	Wet Weight
Seq Number:	3016347				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**59.9**	4.95	mg/kg	05.02.17 15.38		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	05.02.17 11.00	Basis:	Wet Weight
Seq Number:	3016317				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	05.02.17 23.17	U	1
C10-C28 Diesel Range Hydrocarbons	C10C28DRO	**41.0**	15.0	mg/kg	05.02.17 23.17		1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<15.0	15.0	mg/kg	05.02.17 23.17	U	1
Total TPH	PHC635	**41.0**	15.0	mg/kg	05.02.17 23.17		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	99	%	70-135	05.02.17 23.17	
o-Terphenyl	84-15-1	105	%	70-135	05.02.17 23.17	

Certificate of Analytical Results 552076

COG Operating LLC, Artesia, NM

Sneed Federal #002H

Sample Id:	**T1- 2'**	Matrix:	Soil	Date Received:	04.28.17 11.00
Lab Sample Id:	552076-003	Date Collected:	04.27.17 08.40	Sample Depth:	2 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	05.03.17 16.00	Basis:	Wet Weight
Seq Number:	3016591				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	05.04.17 11.59	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	05.04.17 11.59	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	05.04.17 11.59	U	1
m,p-Xylenes	179601-23-1	**0.00585**	0.00398	mg/kg	05.04.17 11.59		1
o-Xylene	95-47-6	**0.0156**	0.00199	mg/kg	05.04.17 11.59		1
Total Xylenes	1330-20-7	**0.0215**	0.00199	mg/kg	05.04.17 11.59		1
Total BTEX		**0.0215**	0.00199	mg/kg	05.04.17 11.59		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	113	%	80-120	05.04.17 11.59	
4-Bromofluorobenzene	460-00-4	90	%	80-120	05.04.17 11.59	

Certificate of Analytical Results 552076

COG Operating LLC, Artesia, NM

Sneed Federal #002H

Sample Id:	**T1- 3'**	Matrix:	Soil	Date Received:	04.28.17 11.00
Lab Sample Id:	552076-004	Date Collected:	04.27.17 08.42	Sample Depth:	3 ft

Analytical Method:	Inorganic Anions by EPA 300/300.1			Prep Method:	E300P
Tech:	MGO			% Moisture:	
Analyst:	MGO	Date Prep:	05.02.17 14.30	Basis:	Wet Weight
Seq Number:	3016347				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**46.2**	4.98	mg/kg	05.02.17 15.46		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	05.02.17 11.00	Basis:	Wet Weight
Seq Number:	3016317				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	05.02.17 23.38	U	1
C10-C28 Diesel Range Hydrocarbons	C10C28DRO	<15.0	15.0	mg/kg	05.02.17 23.38	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<15.0	15.0	mg/kg	05.02.17 23.38	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	05.02.17 23.38	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	102	%	70-135	05.02.17 23.38	
o-Terphenyl	84-15-1	109	%	70-135	05.02.17 23.38	

Certificate of Analytical Results 552076

COG Operating LLC, Artesia, NM

Sneed Federal #002H

Sample Id:	**T1- 3'**	Matrix:	Soil	Date Received:	04.28.17 11.00
Lab Sample Id:	552076-004	Date Collected:	04.27.17 08.42	Sample Depth:	3 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	05.03.17 16.00	Basis:	Wet Weight
Seq Number:	3016591				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	05.04.17 12.15	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	05.04.17 12.15	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	05.04.17 12.15	U	1
m,p-Xylenes	179601-23-1	<0.00404	0.00404	mg/kg	05.04.17 12.15	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	05.04.17 12.15	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	05.04.17 12.15	U	1
Total BTEX		<0.00202	0.00202	mg/kg	05.04.17 12.15	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	100	%	80-120	05.04.17 12.15	
1,4-Difluorobenzene	540-36-3	119	%	80-120	05.04.17 12.15	

Certificate of Analytical Results 552076

COG Operating LLC, Artesia, NM

Sneed Federal #002H

Sample Id:	**T1- 4'**	Matrix:	Soil	Date Received:	04.28.17 11.00
Lab Sample Id:	552076-005	Date Collected:	04.27.17 08.44	Sample Depth:	4 ft

Analytical Method:	Inorganic Anions by EPA 300/300.1			Prep Method:	E300P
Tech:	MGO			% Moisture:	
Analyst:	MGO	Date Prep:	05.02.17 14.30	Basis:	Wet Weight
Seq Number:	3016347				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**48.9**	4.99	mg/kg	05.02.17 15.53		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	05.02.17 11.00	Basis:	Wet Weight
Seq Number:	3016317				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	05.02.17 23.59	U	1
C10-C28 Diesel Range Hydrocarbons	C10C28DRO	<15.0	15.0	mg/kg	05.02.17 23.59	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<15.0	15.0	mg/kg	05.02.17 23.59	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	05.02.17 23.59	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	99	%	70-135	05.02.17 23.59	
o-Terphenyl	84-15-1	106	%	70-135	05.02.17 23.59	

Certificate of Analytical Results 552076

COG Operating LLC, Artesia, NM

Sneed Federal #002H

Sample Id:	**T1- 4'**	Matrix:	Soil	Date Received:	04.28.17 11.00
Lab Sample Id:	552076-005	Date Collected:	04.27.17 08.44	Sample Depth:	4 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	05.04.17 11.55	Basis:	Wet Weight
Seq Number:	3016595				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00370	0.00370	mg/kg	05.04.17 21.58	U	1
Toluene	108-88-3	<0.00370	0.00370	mg/kg	05.04.17 21.58	U	1
Ethylbenzene	100-41-4	**0.00970**	0.00370	mg/kg	05.04.17 21.58		1
m,p-Xylenes	179601-23-1	<0.00741	0.00741	mg/kg	05.04.17 21.58	U	1
o-Xylene	95-47-6	<0.00370	0.00370	mg/kg	05.04.17 21.58	U	1
Total Xylenes	1330-20-7	<0.00370	0.00370	mg/kg	05.04.17 21.58	U	1
Total BTEX		**0.00970**	0.00370	mg/kg	05.04.17 21.58		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	117	%	80-120	05.04.17 21.58	
4-Bromofluorobenzene	460-00-4	81	%	80-120	05.04.17 21.58	

Certificate of Analytical Results 552076

COG Operating LLC, Artesia, NM

Sneed Federal #002H

Sample Id:	**T1- 6'**	Matrix:	Soil	Date Received:	04.28.17 11.00
Lab Sample Id:	552076-006	Date Collected:	04.27.17 08.48	Sample Depth:	6 ft

Analytical Method:	Inorganic Anions by EPA 300/300.1			Prep Method:	E300P
Tech:	MGO			% Moisture:	
Analyst:	MGO	Date Prep:	05.02.17 14.30	Basis:	Wet Weight
Seq Number:	3016347				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**9.44**	4.90	mg/kg	05.02.17 16.16		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	05.02.17 11.00	Basis:	Wet Weight
Seq Number:	3016317				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	05.03.17 00.19	U	1
C10-C28 Diesel Range Hydrocarbons	C10C28DRO	<15.0	15.0	mg/kg	05.03.17 00.19	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<15.0	15.0	mg/kg	05.03.17 00.19	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	05.03.17 00.19	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	100	%	70-135	05.03.17 00.19	
o-Terphenyl	84-15-1	106	%	70-135	05.03.17 00.19	

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COG Operating LLC, Artesia, NM

Sneed Federal #002H

Sample Id:	**T1- 6'**	Matrix:	Soil	Date Received:	04.28.17 11.00
Lab Sample Id:	552076-006	Date Collected:	04.27.17 08.48	Sample Depth:	6 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	05.03.17 16.00	Basis:	Wet Weight
Seq Number:	3016591				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	05.04.17 12.48	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	05.04.17 12.48	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	05.04.17 12.48	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	05.04.17 12.48	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	05.04.17 12.48	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	05.04.17 12.48	U	1
Total BTEX		<0.00199	0.00199	mg/kg	05.04.17 12.48	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	110	%	80-120	05.04.17 12.48	
4-Bromofluorobenzene	460-00-4	86	%	80-120	05.04.17 12.48	

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COG Operating LLC, Artesia, NM

Sneed Federal #002H

Sample Id:	**T1- 8'**	Matrix:	Soil	Date Received:	04.28.17 11.00
Lab Sample Id:	552076-007	Date Collected:	04.27.17 08.50	Sample Depth:	8 ft

Analytical Method:	Inorganic Anions by EPA 300/300.1			Prep Method:	E300P
Tech:	MGO			% Moisture:	
Analyst:	MGO	Date Prep:	05.02.17 14.30	Basis:	Wet Weight
Seq Number:	3016347				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**100**	4.92	mg/kg	05.02.17 16.24		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	05.02.17 11.00	Basis:	Wet Weight
Seq Number:	3016317				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	05.03.17 00.40	U	1
C10-C28 Diesel Range Hydrocarbons	C10C28DRO	<15.0	15.0	mg/kg	05.03.17 00.40	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<15.0	15.0	mg/kg	05.03.17 00.40	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	05.03.17 00.40	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	102	%	70-135	05.03.17 00.40	
o-Terphenyl	84-15-1	109	%	70-135	05.03.17 00.40	

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COG Operating LLC, Artesia, NM

Sneed Federal #002H

Sample Id:	**T1- 8'**	Matrix:	Soil	Date Received:	04.28.17 11.00
Lab Sample Id:	552076-007	Date Collected:	04.27.17 08.50	Sample Depth:	8 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	05.03.17 16.00	Basis:	Wet Weight
Seq Number:	3016591				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00197	0.00197	mg/kg	05.04.17 13.04	U	1
Toluene	108-88-3	<0.00197	0.00197	mg/kg	05.04.17 13.04	U	1
Ethylbenzene	100-41-4	<0.00197	0.00197	mg/kg	05.04.17 13.04	U	1
m,p-Xylenes	179601-23-1	<0.00394	0.00394	mg/kg	05.04.17 13.04	U	1
o-Xylene	95-47-6	<0.00197	0.00197	mg/kg	05.04.17 13.04	U	1
Total Xylenes	1330-20-7	<0.00197	0.00197	mg/kg	05.04.17 13.04	U	1
Total BTEX		<0.00197	0.00197	mg/kg	05.04.17 13.04	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	104	%	80-120	05.04.17 13.04	
4-Bromofluorobenzene	460-00-4	94	%	80-120	05.04.17 13.04	

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COG Operating LLC, Artesia, NM

Sneed Federal #002H

Sample Id:	**T1- 10'**	Matrix:	Soil	Date Received:	04.28.17 11.00
Lab Sample Id:	552076-008	Date Collected:	04.27.17 08.55	Sample Depth:	10 ft

Analytical Method:	Inorganic Anions by EPA 300/300.1			Prep Method:	E300P
Tech:	MGO			% Moisture:	
Analyst:	MGO	Date Prep:	05.02.17 14.30	Basis:	Wet Weight
Seq Number:	3016347				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**179**	4.98	mg/kg	05.02.17 16.31		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	05.02.17 11.00	Basis:	Wet Weight
Seq Number:	3016317				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	05.03.17 01.00	U	1
C10-C28 Diesel Range Hydrocarbons	C10C28DRO	<15.0	15.0	mg/kg	05.03.17 01.00	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<15.0	15.0	mg/kg	05.03.17 01.00	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	05.03.17 01.00	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	100	%	70-135	05.03.17 01.00	
o-Terphenyl	84-15-1	107	%	70-135	05.03.17 01.00	

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COG Operating LLC, Artesia, NM

Sneed Federal #002H

Sample Id:	**T1- 10'**	Matrix:	Soil	Date Received:	04.28.17 11.00
Lab Sample Id:	552076-008	Date Collected:	04.27.17 08.55	Sample Depth:	10 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	05.03.17 16.00	Basis:	Wet Weight
Seq Number:	3016591				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	05.04.17 13.20	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	05.04.17 13.20	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	05.04.17 13.20	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	05.04.17 13.20	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	05.04.17 13.20	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	05.04.17 13.20	U	1
Total BTEX		<0.00200	0.00200	mg/kg	05.04.17 13.20	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	89	%	80-120	05.04.17 13.20	
1,4-Difluorobenzene	540-36-3	100	%	80-120	05.04.17 13.20	

COG Operating LLC, Artesia, NM

Sneed Federal #002H

Sample Id:	**T2-Surface**	Matrix:	Soil	Date Received:	04.28.17 11.00
Lab Sample Id:	552076-009	Date Collected:	04.27.17 09.00		

Analytical Method:	Inorganic Anions by EPA 300/300.1			Prep Method:	E300P
Tech:	MGO			% Moisture:	
Analyst:	MGO	Date Prep:	05.02.17 14.30	Basis:	Wet Weight
Seq Number:	3016347				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**14.5**	4.93	mg/kg	05.02.17 16.39		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	05.02.17 11.00	Basis:	Wet Weight
Seq Number:	3016317				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	**2640**	74.9	mg/kg	05.03.17 01.21		5
C10-C28 Diesel Range Hydrocarbons	C10C28DRO	**4570**	74.9	mg/kg	05.03.17 01.21		5
C28-C35 Oil Range Hydrocarbons	PHCG2835	**635**	74.9	mg/kg	05.03.17 01.21		5
Total TPH	PHC635	**7850**	74.9	mg/kg	05.03.17 01.21		5

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	108	%	70-135	05.03.17 01.21	
o-Terphenyl	84-15-1	100	%	70-135	05.03.17 01.21	

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COG Operating LLC, Artesia, NM

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Sample Id:	**T2-Surface**	Matrix:	Soil	Date Received:	04.28.17 11.00
Lab Sample Id:	552076-009	Date Collected:	04.27.17 09.00		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	05.04.17 11.55	Basis:	Wet Weight
Seq Number:	3016595				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.0998	0.0998	mg/kg	05.05.17 13.06	U	50
Toluene	108-88-3	**2.98**	0.0998	mg/kg	05.05.17 13.06		50
Ethylbenzene	100-41-4	**19.9**	0.0998	mg/kg	05.05.17 13.06		50
m,p-Xylenes	179601-23-1	**27.1**	0.200	mg/kg	05.05.17 13.06		50
o-Xylene	95-47-6	**13.2**	0.0998	mg/kg	05.05.17 13.06		50
Total Xylenes	1330-20-7	**40.3**	0.0998	mg/kg	05.05.17 13.06		50
Total BTEX		**63.2**	0.0998	mg/kg	05.05.17 13.06		50

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	81	%	80-120	05.05.17 13.06	
1,4-Difluorobenzene	540-36-3	85	%	80-120	05.05.17 13.06	

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COG Operating LLC, Artesia, NM

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Sample Id:	**T2-1'**	Matrix:	Soil	Date Received:	04.28.17 11.00
Lab Sample Id:	552076-010	Date Collected:	04.27.17 09.02	Sample Depth:	1 ft

Analytical Method:	Inorganic Anions by EPA 300/300.1			Prep Method:	E300P
Tech:	MGO			% Moisture:	
Analyst:	MGO	Date Prep:	05.02.17 14.30	Basis:	Wet Weight
Seq Number:	3016347				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.93	4.93	mg/kg	05.02.17 16.46	U	1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	05.02.17 11.00	Basis:	Wet Weight
Seq Number:	3016317				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<14.9	14.9	mg/kg	05.03.17 01.41	U	1
C10-C28 Diesel Range Hydrocarbons	C10C28DRO	**20.5**	14.9	mg/kg	05.03.17 01.41		1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<14.9	14.9	mg/kg	05.03.17 01.41	U	1
Total TPH	PHC635	**20.5**	14.9	mg/kg	05.03.17 01.41		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	103	%	70-135	05.03.17 01.41	
o-Terphenyl	84-15-1	108	%	70-135	05.03.17 01.41	

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Sample Id:	**T2-1'**	Matrix:	Soil	Date Received:	04.28.17 11.00
Lab Sample Id:	552076-010	Date Collected:	04.27.17 09.02	Sample Depth:	1 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	05.04.17 11.55	Basis:	Wet Weight
Seq Number:	3016595				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	05.04.17 18.29	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	05.04.17 18.29	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	05.04.17 18.29	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	05.04.17 18.29	U	1
o-Xylene	95-47-6	**0.00818**	0.00199	mg/kg	05.04.17 18.29		1
Total Xylenes	1330-20-7	**0.00818**	0.00199	mg/kg	05.04.17 18.29		1
Total BTEX		**0.00818**	0.00199	mg/kg	05.04.17 18.29		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	112	%	80-120	05.04.17 18.29	
1,4-Difluorobenzene	540-36-3	112	%	80-120	05.04.17 18.29	

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COG Operating LLC, Artesia, NM

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Sample Id:	**T2-2'**	Matrix:	Soil	Date Received:	04.28.17 11.00
Lab Sample Id:	552076-011	Date Collected:	04.27.17 09.05	Sample Depth:	2 ft

Analytical Method:	Inorganic Anions by EPA 300/300.1			Prep Method:	E300P
Tech:	MGO			% Moisture:	
Analyst:	MGO	Date Prep:	05.02.17 14.30	Basis:	Wet Weight
Seq Number:	3016347				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**5.04**	4.94	mg/kg	05.02.17 16.54		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	05.02.17 11.00	Basis:	Wet Weight
Seq Number:	3016317				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	**55.0**	15.0	mg/kg	05.03.17 02.42		1
C10-C28 Diesel Range Hydrocarbons	C10C28DRO	**137**	15.0	mg/kg	05.03.17 02.42		1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<15.0	15.0	mg/kg	05.03.17 02.42	U	1
Total TPH	PHC635	**192**	15.0	mg/kg	05.03.17 02.42		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	99	%	70-135	05.03.17 02.42	
o-Terphenyl	84-15-1	106	%	70-135	05.03.17 02.42	

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Sample Id:	**T2-2'**	Matrix:	Soil	Date Received:	04.28.17 11.00
Lab Sample Id:	552076-011	Date Collected:	04.27.17 09.05	Sample Depth:	2 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	05.04.17 11.55	Basis:	Wet Weight
Seq Number:	3016595				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00377	0.00377	mg/kg	05.05.17 11.12	U	1
Toluene	108-88-3	**0.00692**	0.00377	mg/kg	05.05.17 11.12		1
Ethylbenzene	100-41-4	**0.0382**	0.00377	mg/kg	05.05.17 11.12		1
m,p-Xylenes	179601-23-1	**0.0789**	0.00755	mg/kg	05.05.17 11.12		1
o-Xylene	95-47-6	**0.0549**	0.00377	mg/kg	05.05.17 11.12		1
Total Xylenes	1330-20-7	**0.134**	0.00377	mg/kg	05.05.17 11.12		1
Total BTEX		**0.179**	0.00377	mg/kg	05.05.17 11.12		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	82	%	80-120	05.05.17 11.12	
1,4-Difluorobenzene	540-36-3	103	%	80-120	05.05.17 11.12	

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COG Operating LLC, Artesia, NM

Sneed Federal #002H

Sample Id:	**T2-3'**	Matrix:	Soil	Date Received:	04.28.17 11.00
Lab Sample Id:	552076-012	Date Collected:	04.27.17 09.10	Sample Depth:	3 ft

Analytical Method:	Inorganic Anions by EPA 300/300.1			Prep Method:	E300P
Tech:	MGO			% Moisture:	
Analyst:	MGO	Date Prep:	05.02.17 14.30	Basis:	Wet Weight
Seq Number:	3016347				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.95	4.95	mg/kg	05.02.17 17.17	U	1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	05.02.17 11.00	Basis:	Wet Weight
Seq Number:	3016317				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	05.03.17 03.03	U	1
C10-C28 Diesel Range Hydrocarbons	C10C28DRO	<15.0	15.0	mg/kg	05.03.17 03.03	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<15.0	15.0	mg/kg	05.03.17 03.03	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	05.03.17 03.03	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	101	%	70-135	05.03.17 03.03	
o-Terphenyl	84-15-1	108	%	70-135	05.03.17 03.03	

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Sample Id:	**T2-3'**	Matrix:	Soil	Date Received:	04.28.17 11.00
Lab Sample Id:	552076-012	Date Collected:	04.27.17 09.10	Sample Depth:	3 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	05.04.17 11.55	Basis:	Wet Weight
Seq Number:	3016595				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00344	0.00344	mg/kg	05.04.17 19.01	U	1
Toluene	108-88-3	<0.00344	0.00344	mg/kg	05.04.17 19.01	U	1
Ethylbenzene	100-41-4	<0.00344	0.00344	mg/kg	05.04.17 19.01	U	1
m,p-Xylenes	179601-23-1	<0.00687	0.00687	mg/kg	05.04.17 19.01	U	1
o-Xylene	95-47-6	<0.00344	0.00344	mg/kg	05.04.17 19.01	U	1
Total Xylenes	1330-20-7	<0.00344	0.00344	mg/kg	05.04.17 19.01	U	1
Total BTEX		<0.00344	0.00344	mg/kg	05.04.17 19.01	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	103	%	80-120	05.04.17 19.01	
1,4-Difluorobenzene	540-36-3	111	%	80-120	05.04.17 19.01	

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COG Operating LLC, Artesia, NM

Sneed Federal #002H

Sample Id:	**T2-4'**	Matrix:	Soil	Date Received:	04.28.17 11.00
Lab Sample Id:	552076-013	Date Collected:	04.27.17 09.12	Sample Depth:	4 ft

Analytical Method:	Inorganic Anions by EPA 300/300.1			Prep Method:	E300P
Tech:	MGO			% Moisture:	
Analyst:	MGO	Date Prep:	05.02.17 14.30	Basis:	Wet Weight
Seq Number:	3016347				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<5.00	5.00	mg/kg	05.02.17 17.24	U	1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	05.02.17 11.00	Basis:	Wet Weight
Seq Number:	3016317				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<14.9	14.9	mg/kg	05.03.17 03.23	U	1
C10-C28 Diesel Range Hydrocarbons	C10C28DRO	<14.9	14.9	mg/kg	05.03.17 03.23	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<14.9	14.9	mg/kg	05.03.17 03.23	U	1
Total TPH	PHC635	<14.9	14.9	mg/kg	05.03.17 03.23	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	101	%	70-135	05.03.17 03.23	
o-Terphenyl	84-15-1	108	%	70-135	05.03.17 03.23	

Certificate of Analytical Results 552076

COG Operating LLC, Artesia, NM

Sneed Federal #002H

Sample Id:	**T2-4'**	Matrix:	Soil	Date Received:	04.28.17 11.00
Lab Sample Id:	552076-013	Date Collected:	04.27.17 09.12	Sample Depth:	4 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	05.04.17 11.55	Basis:	Wet Weight
Seq Number:	3016595				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00369	0.00369	mg/kg	05.05.17 11.27	U	1
Toluene	108-88-3	<0.00369	0.00369	mg/kg	05.05.17 11.27	U	1
Ethylbenzene	100-41-4	<0.00369	0.00369	mg/kg	05.05.17 11.27	U	1
m,p-Xylenes	179601-23-1	<0.00738	0.00738	mg/kg	05.05.17 11.27	U	1
o-Xylene	95-47-6	<0.00369	0.00369	mg/kg	05.05.17 11.27	U	1
Total Xylenes	1330-20-7	<0.00369	0.00369	mg/kg	05.05.17 11.27	U	1
Total BTEX		<0.00369	0.00369	mg/kg	05.05.17 11.27	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	106	%	80-120	05.05.17 11.27	
4-Bromofluorobenzene	460-00-4	84	%	80-120	05.05.17 11.27	

Certificate of Analytical Results 552076

COG Operating LLC, Artesia, NM

Sneed Federal #002H

Sample Id:	**T2-6'**	Matrix:	Soil	Date Received:	04.28.17 11.00
Lab Sample Id:	552076-014	Date Collected:	04.27.17 09.15	Sample Depth:	6 ft

Analytical Method:	Inorganic Anions by EPA 300/300.1			Prep Method:	E300P
Tech:	MGO			% Moisture:	
Analyst:	MGO	Date Prep:	05.02.17 14.30	Basis:	Wet Weight
Seq Number:	3016347				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.86	4.86	mg/kg	05.02.17 17.47	U	1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	05.02.17 11.00	Basis:	Wet Weight
Seq Number:	3016317				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	05.03.17 03.43	U	1
C10-C28 Diesel Range Hydrocarbons	C10C28DRO	<15.0	15.0	mg/kg	05.03.17 03.43	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<15.0	15.0	mg/kg	05.03.17 03.43	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	05.03.17 03.43	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	103	%	70-135	05.03.17 03.43	
o-Terphenyl	84-15-1	109	%	70-135	05.03.17 03.43	

Certificate of Analytical Results 552076

COG Operating LLC, Artesia, NM

Sneed Federal #002H

Sample Id:	**T2-6'**	Matrix:	Soil	Date Received:	04.28.17 11.00
Lab Sample Id:	552076-014	Date Collected:	04.27.17 09.15	Sample Depth:	6 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	05.04.17 11.55	Basis:	Wet Weight
Seq Number:	3016595				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	05.04.17 18.13	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	05.04.17 18.13	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	05.04.17 18.13	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	05.04.17 18.13	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	05.04.17 18.13	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	05.04.17 18.13	U	1
Total BTEX		<0.00200	0.00200	mg/kg	05.04.17 18.13	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	117	%	80-120	05.04.17 18.13	
4-Bromofluorobenzene	460-00-4	102	%	80-120	05.04.17 18.13	

Certificate of Analytical Results 552076

COG Operating LLC, Artesia, NM

Sneed Federal #002H

Sample Id:	**T2-8'**	Matrix:	Soil	Date Received:	04.28.17 11.00
Lab Sample Id:	552076-015	Date Collected:	04.27.17 09.20	Sample Depth:	8 ft

Analytical Method:	Inorganic Anions by EPA 300/300.1			Prep Method:	E300P
Tech:	MGO			% Moisture:	
Analyst:	MGO	Date Prep:	05.02.17 14.30	Basis:	Wet Weight
Seq Number:	3016347				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.98	4.98	mg/kg	05.02.17 17.55	U	1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	05.02.17 11.00	Basis:	Wet Weight
Seq Number:	3016317				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	05.03.17 04.03	U	1
C10-C28 Diesel Range Hydrocarbons	C10C28DRO	<15.0	15.0	mg/kg	05.03.17 04.03	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<15.0	15.0	mg/kg	05.03.17 04.03	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	05.03.17 04.03	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	103	%	70-135	05.03.17 04.03	
o-Terphenyl	84-15-1	110	%	70-135	05.03.17 04.03	

Certificate of Analytical Results 552076

COG Operating LLC, Artesia, NM

Sneed Federal #002H

Sample Id:	**T2-8'**	Matrix:	Soil	Date Received:	04.28.17 11.00
Lab Sample Id:	552076-015	Date Collected:	04.27.17 09.20	Sample Depth:	8 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	05.04.17 11.55	Basis:	Wet Weight
Seq Number:	3016595				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00380	0.00380	mg/kg	05.05.17 11.43	U	1
Toluene	108-88-3	<0.00380	0.00380	mg/kg	05.05.17 11.43	U	1
Ethylbenzene	100-41-4	<0.00380	0.00380	mg/kg	05.05.17 11.43	U	1
m,p-Xylenes	179601-23-1	<0.00760	0.00760	mg/kg	05.05.17 11.43	U	1
o-Xylene	95-47-6	<0.00380	0.00380	mg/kg	05.05.17 11.43	U	1
Total Xylenes	1330-20-7	<0.00380	0.00380	mg/kg	05.05.17 11.43	U	1
Total BTEX		<0.00380	0.00380	mg/kg	05.05.17 11.43	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	111	%	80-120	05.05.17 11.43	
4-Bromofluorobenzene	460-00-4	84	%	80-120	05.05.17 11.43	

Certificate of Analytical Results 552076

COG Operating LLC, Artesia, NM

Sneed Federal #002H

Sample Id:	**T2-10'**	Matrix:	Soil	Date Received:	04.28.17 11.00
Lab Sample Id:	552076-016	Date Collected:	04.27.17 09.25	Sample Depth:	10 ft

Analytical Method:	Inorganic Anions by EPA 300/300.1			Prep Method:	E300P
Tech:	MGO			% Moisture:	
Analyst:	MGO	Date Prep:	05.02.17 14.30	Basis:	Wet Weight
Seq Number:	3016347				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.91	4.91	mg/kg	05.02.17 18.02	U	1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	05.02.17 11.00	Basis:	Wet Weight
Seq Number:	3016317				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
C6-C10 Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	05.03.17 04.23	U	1
C10-C28 Diesel Range Hydrocarbons	C10C28DRO	<15.0	15.0	mg/kg	05.03.17 04.23	U	1
C28-C35 Oil Range Hydrocarbons	PHCG2835	<15.0	15.0	mg/kg	05.03.17 04.23	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	05.03.17 04.23	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	100	%	70-135	05.03.17 04.23	
o-Terphenyl	84-15-1	106	%	70-135	05.03.17 04.23	

Certificate of Analytical Results 552076

COG Operating LLC, Artesia, NM

Sneed Federal #002H

Sample Id:	**T2-10'**	Matrix:	Soil	Date Received:	04.28.17 11.00
Lab Sample Id:	552076-016	Date Collected:	04.27.17 09.25	Sample Depth:	10 ft
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	05.04.17 11.55	Basis:	Wet Weight
Seq Number:	3016595				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	05.04.17 19.49	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	05.04.17 19.49	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	05.04.17 19.49	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	05.04.17 19.49	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	05.04.17 19.49	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	05.04.17 19.49	U	1
Total BTEX		<0.00202	0.00202	mg/kg	05.04.17 19.49	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	103	%	80-120	05.04.17 19.49	
4-Bromofluorobenzene	460-00-4	84	%	80-120	05.04.17 19.49	

Flagging Criteria

X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

J The target analyte was positively identified below the quantitation limit and above the detection limit.

U Analyte was not detected.

L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

K Sample analyzed outside of recommended hold time.

JN A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

+ NELAC certification not offered for this compound.

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

QC Summary 552076

COG Operating LLC

Sneed Federal #002H

Analytical Method: **Inorganic Anions by EPA 300/300.1** Prep Method: E300P

Seq Number: 3016347 Matrix: Solid Date Prep: 05.02.17

MB Sample Id: 723947-1-BLK LCS Sample Id: 723947-1-BKS LCSD Sample Id: 723947-1-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	242	97	251	100	90-110	4	20	mg/kg	05.02.17 14:45	

Analytical Method: **Inorganic Anions by EPA 300/300.1** Prep Method: E300P

Seq Number: 3016347 Matrix: Soil Date Prep: 05.02.17

Parent Sample Id: 552076-001 MS Sample Id: 552076-001 S MSD Sample Id: 552076-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	66.4	246	329	107	330	107	90-110	0	20	mg/kg	05.02.17 15:15	

Analytical Method: **Inorganic Anions by EPA 300/300.1** Prep Method: E300P

Seq Number: 3016347 Matrix: Soil Date Prep: 05.02.17

Parent Sample Id: 552076-011 MS Sample Id: 552076-011 S MSD Sample Id: 552076-011 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	247	253	100	256	102	90-110	1	20	mg/kg	05.02.17 17:02	

Analytical Method: **TPH By SW8015 Mod** Prep Method: TX1005P

Seq Number: 3016317 Matrix: Solid Date Prep: 05.02.17

MB Sample Id: 723953-1-BLK LCS Sample Id: 723953-1-BKS LCSD Sample Id: 723953-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
C6-C10 Gasoline Range Hydrocarbons	<15.0	1000	915	92	1080	108	70-135	17	35	mg/kg	05.02.17 21:54	
C10-C28 Diesel Range Hydrocarbons	<15.0	1000	955	96	1060	106	70-135	10	35	mg/kg	05.02.17 21:54	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	106		106		124		70-135	%	05.02.17 21:54
o-Terphenyl	114		109		126		70-135	%	05.02.17 21:54

QC Summary 552076

COG Operating LLC

Sneed Federal #002H

Analytical Method: **TPH By SW8015 Mod** Prep Method: TX1005P
Seq Number: 3016317 Matrix: Soil Date Prep: 05.02.17
Parent Sample Id: 552076-016 MS Sample Id: 552076-016 S MSD Sample Id: 552076-016 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
C6-C10 Gasoline Range Hydrocarbons	<15.0	999	896	90	860	86	70-135	4	35	mg/kg	05.03.17 04:43	
C10-C28 Diesel Range Hydrocarbons	<15.0	999	852	85	878	88	70-135	3	35	mg/kg	05.03.17 04:43	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	99		96		70-135	%	05.03.17 04:43
o-Terphenyl	102		101		70-135	%	05.03.17 04:43

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5030B
Seq Number: 3016335 Matrix: Solid Date Prep: 05.02.17
MB Sample Id: 723960-1-BLK LCS Sample Id: 723960-1-BKS LCSD Sample Id: 723960-1-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	0.0963	96	0.110	109	70-130	13	35	mg/kg	05.02.17 13:22	
Toluene	<0.00200	0.100	0.0909	91	0.104	103	70-130	13	35	mg/kg	05.02.17 13:22	
Ethylbenzene	<0.00200	0.100	0.104	104	0.122	121	71-129	16	35	mg/kg	05.02.17 13:22	
m,p-Xylenes	<0.00401	0.200	0.203	102	0.234	116	70-135	14	35	mg/kg	05.02.17 13:22	
o-Xylene	<0.00200	0.100	0.0988	99	0.117	116	71-133	17	35	mg/kg	05.02.17 13:22	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	109		92		114		80-120	%	05.02.17 13:22
4-Bromofluorobenzene	80		93		93		80-120	%	05.02.17 13:22

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5030B
Seq Number: 3016591 Matrix: Solid Date Prep: 05.03.17
MB Sample Id: 724088-1-BLK LCS Sample Id: 724088-1-BKS LCSD Sample Id: 724088-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00199	0.0996	0.0990	99	0.0954	96	70-130	4	35	mg/kg	05.04.17 06:45	
Toluene	<0.00199	0.0996	0.101	101	0.0945	95	70-130	7	35	mg/kg	05.04.17 06:45	
Ethylbenzene	<0.00199	0.0996	0.114	114	0.106	106	71-129	7	35	mg/kg	05.04.17 06:45	
m,p-Xylenes	<0.00398	0.199	0.220	111	0.205	103	70-135	7	35	mg/kg	05.04.17 06:45	
o-Xylene	<0.00199	0.0996	0.104	104	0.109	109	71-133	5	35	mg/kg	05.04.17 06:45	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	101		93		100		80-120	%	05.04.17 06:45
4-Bromofluorobenzene	94		98		112		80-120	%	05.04.17 06:45

QC Summary 552076

COG Operating LLC

Sneed Federal #002H

Analytical Method: BTEX by EPA 8021B — Prep Method: SW5030B
Seq Number: 3016595 — Matrix: Solid — Date Prep: 05.04.17
MB Sample Id: 724125-1-BLK — LCS Sample Id: 724125-1-BKS — LCSD Sample Id: 724125-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00201	0.100	0.101	101	0.0978	97	70-130	3	35	mg/kg	05.04.17 15:47	
Toluene	<0.00201	0.100	0.0980	98	0.103	102	70-130	5	35	mg/kg	05.04.17 15:47	
Ethylbenzene	<0.00201	0.100	0.111	111	0.120	119	71-129	8	35	mg/kg	05.04.17 15:47	
m,p-Xylenes	<0.00402	0.201	0.217	108	0.235	116	70-135	8	35	mg/kg	05.04.17 15:47	
o-Xylene	<0.00201	0.100	0.102	102	0.102	101	71-133	0	35	mg/kg	05.04.17 15:47	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	110		105		105		80-120	%	05.04.17 15:47
4-Bromofluorobenzene	96		102		96		80-120	%	05.04.17 15:47

Analytical Method: BTEX by EPA 8021B — Prep Method: SW5030B
Seq Number: 3016335 — Matrix: Soil — Date Prep: 05.02.17
Parent Sample Id: 552079-004 — MS Sample Id: 552079-004 S — MSD Sample Id: 552079-004 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00452	0.226	0.212	94	0.219	101	70-130	3	35	mg/kg	05.02.17 22:05	
Toluene	<0.00452	0.226	0.207	92	0.204	94	70-130	1	35	mg/kg	05.02.17 22:05	
Ethylbenzene	<0.00452	0.226	0.217	96	0.226	104	71-129	4	35	mg/kg	05.02.17 22:05	
m,p-Xylenes	<0.00905	0.452	0.414	92	0.437	100	70-135	5	35	mg/kg	05.02.17 22:05	
o-Xylene	0.00912	0.226	0.208	88	0.209	92	71-133	0	35	mg/kg	05.02.17 22:05	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	106		108		80-120	%	05.02.17 22:05
4-Bromofluorobenzene	102		97		80-120	%	05.02.17 22:05

Analytical Method: BTEX by EPA 8021B — Prep Method: SW5030B
Seq Number: 3016591 — Matrix: Soil — Date Prep: 05.03.17
Parent Sample Id: 552196-001 — MS Sample Id: 552196-001 S — MSD Sample Id: 552196-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00375	0.187	0.160	86	0.151	82	70-130	6	35	mg/kg	05.04.17 07:18	
Toluene	<0.00375	0.187	0.149	80	0.136	74	70-130	9	35	mg/kg	05.04.17 07:18	
Ethylbenzene	<0.00375	0.187	0.144	77	0.136	74	71-129	6	35	mg/kg	05.04.17 07:18	
m,p-Xylenes	<0.00749	0.375	0.280	75	0.252	68	70-135	11	35	mg/kg	05.04.17 07:18	X
o-Xylene	<0.00375	0.187	0.139	74	0.131	71	71-133	6	35	mg/kg	05.04.17 07:18	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	115		109		80-120	%	05.04.17 07:18
4-Bromofluorobenzene	113		112		80-120	%	05.04.17 07:18

QC Summary 552076

COG Operating LLC

Sneed Federal #002H

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5030B

Seq Number: 3016595 Matrix: Soil Date Prep: 05.04.17

Parent Sample Id: 552076-014 MS Sample Id: 552076-014 S MSD Sample Id: 552076-014 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00202	0.101	0.0819	81	0.0764	77	70-130	7	35	mg/kg	05.04.17 16:52	
Toluene	<0.00202	0.101	0.0843	83	0.0775	78	70-130	8	35	mg/kg	05.04.17 16:52	
Ethylbenzene	<0.00202	0.101	0.0923	91	0.0902	91	71-129	2	35	mg/kg	05.04.17 16:52	
m,p-Xylenes	<0.00403	0.202	0.178	88	0.172	86	70-135	3	35	mg/kg	05.04.17 16:52	
o-Xylene	<0.00202	0.101	0.0948	94	0.0887	89	71-133	7	35	mg/kg	05.04.17 16:52	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	90		104		80-120	%	05.04.17 16:52
4-Bromofluorobenzene	98		117		80-120	%	05.04.17 16:52

CHAIN OF CUSTODY

Page 1 Of 2

XENCO LABORATORIES

Setting the Standard since 1990

Stafford,Texas (281-240-4200)
Dallas Texas (214-902-0300)
San Antonio, Texas (210-509-3334)
Midland, Texas (432-704-5251)
Phoenix, Arizona (480-355-0900)
www.xenco.com

Xenco Quote #
Xenco Job # 552076

Client / Reporting Information

Company Name / Branch: COG Operating LLC
Company Address: 2407 PECOS Avenue Artesia NM 88210
Email: alieb@concho.com dneel2@concho.com rhaskell@concho.com
Phone No: 575-748-1553
Project Contact: Aaron Lieb
Samplers's Name- Aaron Lieb

Project Information

Project Name/Number: Sneed Federal #002H
Project Location: Sneed Federal #002
Invoice To: COG Operating LLC
Attn: Robert Mcneill
600 W. Illinois
Midland TX 79701
PO Number:

Analytical Information

TPH
BTEX
Chlorides

Matrix Codes

W = Water
S = Soil/Sed/Solid
GW =Ground Water
DW = Drinking Water
P = Product
SW = Surface water
SL = Sludge
OW =Ocean/Sea Water
WI = Wipe
O = Oil
WW= Waste Water
A = Air

No.	Field ID / Point of Collection	Collection: Sample Depth	Date	Time	Matrix	# of bottles	Number of preserved bottles: HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	NONE	TPH	BTEX	Chlorides	Field Comments
1	TI - SURF	SURF	4/27/17	8:30	S	1									X	X	X	
2	TI - 1'	1		8:35		1									X	X	X	
3	TI - 2'	2		8:40		1									X	X	X	
4	TI - 3'	3		8:42		1									X	X	X	
5	TI - 4'	4		8:44		1									X	X	X	
6	TI - 6'	6		8:48		1									X	X	X	
7	TI - 8'	8		8:50		1									X	X	X	
8	TI - 10'	10		8:55		1									X	X	X	
9																		
10																		

Turnaround Time (Business days)

- ☐ Same Day TAT
- ☐ 5 Day TAT
- ☐ Next Day EMERGENCY
- ☐ 7 Day TAT
- ☐ 2 Day EMERGENCY
- ☐ Contract TAT
- ☐ 3 Day EMERGENCY

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

Data Deliverable Information

- ☐ Level II Std QC
- ☐ Level IV (Full Data Pkg /raw data)
- ☐ Level III Std QC+ Forms
- ☐ TRRP Level IV
- ☐ Level 3 (CLP Forms)
- ☐ UST / RG -411
- ☐ TRRP Checklist

Notes:

FED-EX / UPS: Tracking #

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY

	Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1	DAF	4-28-17 11AM	Sid Butler 11:00A 4-28-17	2 FEDEX 10	13:00 4-29-17	2
3	Relinquished by:	Date Time:	Received By: 3	Relinquished By: 4	Date Time:	Received By: 4
5	Relinquished by:	Date Time:	Received By: 5	Custody Seal #	Preserved where applicable	On Ice ✓ Cooler Temp. 5°C Thermo. Corr. Factor

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

CHAIN OF CUSTODY

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Email: alieb@concho.com dneel2@concho.com rhaskell@concho.com
Phone No: 575-748-1553
Project Contact: Aaron Lieb
Samplers's Name- Aaron Lieb

Project Information

Project Name/Number: Sneed Federal #002H
Project Location: Sneed Federal #002
Invoice To: COG Operating LLC, Attn: Robert Mcneill, 600 W. Illinois, Midland TX 79701
PO Number:

Analytical Information

No.	Field ID / Point of Collection	Collection: Sample Depth	Collection: Date	Collection: Time	Matrix	# of bottles	Number of preserved bottles: HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	NONE	TPH	BTEX	Chlorides
1	T2 - SURF	SURF	4/27/17	9:00	S	1									X	X	X
2	T2 - 1'	1	"	9:02	"	1									X	X	X
3	T2 - 2'	2		9:05		1									X	X	X
4	T2 - 3'	3		9:10		1									X	X	X
5	T2 - 4'	4		9:12		1									X	X	X
6	T2 - 6'	6		9:15		1									X	X	X
7	T2 - 8'	8		9:20		1									X	X	X
8	T2 - 10'	10		9:25											X	X	X
9																	
10																	

Matrix Codes

W = Water
S = Soil/Sed/Solid
GW =Ground Water
DW = Drinking Water
P = Product
SW = Surface water
SL = Sludge
OW =Ocean/Sea Water
WI = Wipe
O = Oil
WW= Waste Water
A = Air

Field Comments

Turnaround Time (Business days)

- ☐ Same Day TAT
- ☐ 5 Day TAT
- ☐ Next Day EMERGENCY
- ☐ 7 Day TAT
- ☐ 2 Day EMERGENCY
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Notes:

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1		4-28-17 11:00AM	1 Sid Butler 11:00 A 4-28-17	2 FEDEX	13:00 4-29-17	2
3	Relinquished by:	Date Time:	Received By: 3	Relinquished By: 4	Date Time:	Received By: 4
5	Relinquished by:	Date Time:	Received By: 5	Custody Seal #	Preserved where applicable	On Ice ✓ Cooler Temp. 5°C Thermo. Corr. Factor

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Final 1.000

XENCO Laboratories
Prelogin/Nonconformance Report- Sample Log-In

Client: COG Operating LLC

Date/ Time Received: 04/28/2017 11:00:00 AM

Work Order #: 552076

Acceptable Temperature Range: 0 - 6 degC
Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R9

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	5
#2 *Shipping container in good condition?	**Yes**
#3 *Samples received on ice?	**Yes**
#4 *Custody Seal present on shipping container/ cooler?	**Yes**
#5 *Custody Seals intact on shipping container/ cooler?	**Yes**
#6 Custody Seals intact on sample bottles?	**N/A**
#7 *Custody Seals Signed and dated?	**N/A**
#8 *Chain of Custody present?	**Yes**
#9 Sample instructions complete on Chain of Custody?	**Yes**
#10 Any missing/extra samples?	**No**
#11 Chain of Custody signed when relinquished/ received?	**Yes**
#12 Chain of Custody agrees with sample label(s)?	**Yes**
#13 Container label(s) legible and intact?	**Yes**
#14 Sample matrix/ properties agree with Chain of Custody?	**Yes**
#15 Samples in proper container/ bottle?	**Yes**
#16 Samples properly preserved?	**Yes**
#17 Sample container(s) intact?	**Yes**
#18 Sufficient sample amount for indicated test(s)?	**Yes**
#19 All samples received within hold time?	**Yes**
#20 Subcontract of sample(s)?	**No**
#21 VOC samples have zero headspace?	**N/A**
#22 <2 for all samples preserved with HNO3,HCL, H2SO4? Except for samples for the analysis of HEM or HEM-SGT which are verified by the analysts.	**N/A**
#23 >10 for all samples preserved with NaAsO2+NaOH, ZnAc+NaOH?	**N/A**

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

Analyst:

PH Device/Lot#:

Checklist completed by: Jessica Kramer
Jessica Kramer
Date: 05/01/2017

Checklist reviewed by: Brandi Ritcherson
Brandi Ritcherson
Date: 05/01/2017

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

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised August 8, 2011

Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company:	COG Operating LLC	Contact:	Robert McNeill
Address:	600 West Illinois Avenue, Midland TX 79701	Telephone No.	432-683-7443
Facility Name:	Sneed 9 Federal Com #002H	Facility Type:	Tank Battery

Surface Owner: Federal	Mineral Owner:	API No. 30-025-41409

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
D	09	17S	32E	990	North	150	West	Lea

Latitude 32.8536568 **Longitude** -103.7796249

NATURE OF RELEASE

Type of Release: Oil and Produced Water	Volume of Release: 100 bbls Oil & 5 bbls PW	Volume Recovered: 38 bbls Oil & 4 bbls PW
Source of Release: Free Water Knock Out	Date and Hour of Occurrence: March 19, 2017 7:00 am	Date and Hour of Discovery: March 19, 2017 7:00 am
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Ms. Yu – NMOCD & Ms. Tucker - BLM	
By Whom? Rebecca Haskell	Date and Hour: March 20, 2017 Time of this Email	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

RECEIVED
By Olivia Yu at 7:43 am, Mar 22, 2017

Describe Cause of Problem and Remedial Action Taken.*

The release was due to a pressure increase in the FWKO which caused the pop off to engage.

Describe Area Affected and Cleanup Action Taken.*

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

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

Signature: Rebecca Haskell

Printed Name: Rebecca Haskell

Title: Senior HSE Coordinator

E-mail Address: rhaskell@concho.com

Date: March 20, 2017 Phone: 432-683-7443

OIL CONSERVATION DIVISION

Approved by Environmental Specialist:

Approval Date: 3/22/2017 Expiration Date:

Conditions of Approval: see attached directive

Attached ☑

* Attach Additional Sheets If Necessary

1RP-4648 nOY1708128133 pOY1708128544

Operator/Responsible Party,

The OCD has received the form C-141 you provided on _3/20/2017_ regarding an unauthorized release. The information contained on that form has been entered into our incident database and remediation case number __1R-_4648__ has been assigned. **Please refer to this case number in all future correspondence.**

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

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

Release characterization is the first phase of corrective action unless the release is ongoing or is of limited volume and all impacts can be immediately addressed. Proper and cost-effective remediation typically cannot occur without adequate characterization of the impacts of any release. Furthermore, the Division has the ability to impose reasonable conditions upon the efforts it oversees. **As such, the Division is requiring a workplan for the characterization of impacts associated with this release be submitted to the OCD District _1_ office in __Hobbs____ on or before _4/22/2017_. If and when the release characterization workplan is approved, there will be an associated deadline for submittal of the resultant investigation report. Modest extensions of time to these deadlines may be granted, but only with acceptable justification.**

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

● Horizontal delineation of soil impacts in each of the four cardinal compass directions. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C_6 thru C_{36}), and for chloride by Method 300. This is not an exclusive list of potential contaminants. Analyzed parameters should be modified based on the nature of the released substance(s). Soil sampling must be both within the impacted area and beyond.

● Vertical delineation of soil impacts. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C_6 thru C_{36}), and for chloride by Method 300. As above, this is not an exclusive list of potential contaminants and can be modified. Vertical characterization samples should be taken at depth intervals no greater than five feet apart. Lithologic description of encountered soils must also be provided. At least ten vertical feet of soils with contaminant concentrations at or below these values must be demonstrated as existing above the water table.

● Nominal detection limits for field and laboratory analyses must be provided.

● Composite sampling is not generally allowed.

● Field screening and assessment techniques are acceptable (headspace, titration, EC [include algorithm for validation purposes], EM, etc.), but the sampling and assay procedures must be clearly defined. Copies of field notes are highly desirable. A statistically significant set of split samples must be submitted for confirmatory laboratory analysis, including the laterally farthest and vertically deepest sets of soil samples. Make sure there are at least two soil samples submitted

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

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

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

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

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

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