EnTech
Houston, TX • (281) 362-2714

June 13, 2018

Ms. Olivia Yu
Oil Conservation Division, District 1
1625 N. French Drive
Hobbs, New Mexico 88240

APPROVED
By Olivia Yu at 9:25 am, Jun 15, 2018

Ms. Shelly Tucker
Bureau of Land Management, CFO
620 E. Green Street
Carlsbad, New Mexico 88220

NMOCD approves
1RP-4811 for closure.

RE: Closure Report
COG – BC Federal #032
API #: 30-025-38829
RP #: 1RP-4811
Unit Letter G, Section 20, Township 17S, Range 32E
Lea County, New Mexico
Release Date: September 10, 2017

Dear Ms. Yu/Ms. Tucker:

EnTech Consulting Corporation (EnTech), has prepared this closure report documenting remediation of the COG Operating, LLC (COG), BC Federal #032 release, located in Lea County, New Mexico (hereinafter referred to as the "Site").

Background
The BC Federal #032 release is located in Unit Letter G, Section 20, Township 17 South, and Range 32 East in Lea County, New Mexico. The Site consists of a caliche covered production pad measuring approximately 216-feet x 315-feet, a pumping unit, and a flow line. The production pad is located at latitude 32.8208771 North and -103.7854462 West, approximately 36.6 miles east of Artesia, New Mexico, and illustrated on **Figure 1**.

On September 10, 2017, a ¼-inch nipple on a gauge failed due to corrosion resulting in the release of approximately three (3) barrels (bbls) of oil and four (4) bbls of produced water. A vacuum truck was utilized to recover all freestanding fluids, with the balance soaking into the caliche pad covering the Site. Approximately two (2) bbls of oil and three (3) bbls of produced water were recovered. The release was reported to the New Mexico Oil Conservation Division (NMOCD), on September 18, 2017. A copy of the Initial and Final Form C-141 is included in **Attachment D.**

Groundwater, Site Ranking and Proposed Remedial Action Goals
According to the New Mexico Office of the State Engineer (NMOSE), groundwater in the Site vicinity is approximately eighty-one (81) feet below ground surface (bgs). NMOSE records were provided in the approved remediation work plan. No water well or surface water was observed within 1,000-feet of the release Site.

The Site is subject to regulatory oversite by the NMOCD and Bureau of Land Management (BLM). To address activities related to releases, the NMOCD utilizes the *Guidelines for Remediation of Leaks, Spill, and Releases* (August 13, 1993) as guidance, in addition to the NMOCD rules, specifically New Mexico Administrative Code (NMAC) 19.15.29, *Release Notification*. The referenced documents establish investigation and abatement action requirements for sites subject to reporting and/or corrective action.

In accordance with the NMOCD guidance documents and approved in the remediation work plan, COG utilized the general site characteristics to determine the appropriate "ranking" for the Site.

Per NMOCD remediation standards, the analytical goals for confirmation samples collected from the remediated areas at the Site are: total petroleum hydrocarbons (TPH) target concentration of 1,000 milligrams per kilogram (mg/Kg), benzene target concentration of 10 mg/Kg, total benzene, toluene, ethylbenzene, and xylene (BTEX) target concentration of 50 mg/Kg, and chloride target concentration of 600 mg/Kg or background, whichever is greater. A field soil vapor headspace measurement of 100 parts per million vapor (ppmv) may be substituted for a laboratory analysis of the benzene and total BTEX concentration limits as per NMOCD guidelines.

Assessment
On October 16, 2017, a Site assessment and soil sampling were conducted in order to vertically and horizontally define the impacted area. A Site Map is included in **Figure 2**. The analytical results from the soil sampling activities are summarized in **Table 1**.

A total of twenty-six (26) soil samples were collected from seven (7) sample locations. Three (3) sample locations [T-1, T-2, and T-3], occurred within the "foot print" of the release (i.e., the area exhibiting the greatest apparent impact based on visual and/or olfactory evidence from the release of September 10, 2017). Four (4) sample locations [N, S, E, and W], occurred on the north, south, east, and west sides of the release respectively, and were selected to demonstrate the horizontal extent of the release.

Soil samples were collected from the three (3) sample locations [T-1, T-2, and T-3], occurring in the release "foot print" at various depths. Sample location T-1 and T-2 were sampled at surface, 1-foot bgs, 2-foot bgs, 3-foot bgs, 4-foot bgs, and 9-foot bgs. Sample location T-3 was sampled at surface, 1-foot bgs, 2-foot bgs, 3-foot bgs, and 8-foot bgs. A total of eight (8) soil samples were collected from the four (4) sample locations (N, S, E, W) at the following two (2) depths: surface and 1-foot bgs.

Laboratory analysis of the soil samples collected from the area of impact indicated benzene concentrations ranging from nondetectable to 0.103 milligrams per kilogram (mg/Kg), BTEX concentrations ranging from nondetectable to 2.63 mg/Kg, TPH concentrations ranging from nondetectable to 2,920 mg/Kg, and chloride concentrations ranging from nondetectable to 1,060 mg/Kg. The only soil sample that indicated contaminant-of-concern (COC) concentrations above the NMOCD investigation and abatement action levels occurred in the surface soils sample collected from sample location T-2. All other soil samples were analyzed at concentrations below the NMOCD assessment and cleanup levels for all COCs.

Following all assessment activities, a formal Work Plan (dated December 21, 2017), was prepared and submitted to NMOCD and BLM for approval. The Work Plan proposed excavation of the impacted area represented by sample location T-2 to be excavated to a depth of 1-foot bgs and the areas in the vicinity of sample locations T-1 and T-3 scraped to a depth of ½-foot bgs to remove surface staining. The Work Plan further proposed that the excavated material be transported off-Site for disposal at an NMOCD approved solid waste disposal facility, backfilling all excavated areas with caliche, and contouring the backfilled area to match the surrounding location. The Work Plan was approved by NMOCD on January 2, 2018 with the addition of the laboratory method to be used for TPH analysis (Method 8105 Extended), evaluation of chloride concentrations, and the addition of confirmation edge and bottom samples for the area represented by T-2.

Remediation

Once all underground utilities were exposed, the areas in sample locations T-1, T-2, and T-3 were excavated, on April 17 through April 18, 2018. The area represented by sample location T-1 was excavated to a depth of approximately 0.3- to 0.5-feet bgs and measured approximately 56-feet wide by 62-feet long (3,472 square feet) . The area represented by sample location T-2 was excavated to a depth of approximately 1-foot bgs and measured approximately 33-feet wide by 62-feet long (2,046 square feet). The area represented by sample location T-3 was excavated to a depth of approximately 0.3- to 0.5-feet bgs and measured approximately 43-feet wide by 56-feet long (2,408 square feet). The excavated areas generated approximately 200-cubic yards of impacted soil that was transported to the R360 facility located in Hobbs, New Mexico. Photographic documentation of assessment and remediation activities are included as **Attachment A.** Copies of the disposal manifests are included in **Attachment C.**

Prior to backfilling, six (6) confirmation soil samples were collected from the excavation around sample location T-2. All confirmation soil samples were collected using a hand trowel, decontaminated prior to sampling. Two (2) confirmation soil samples (B-1 and B-2), were collected from the bottom of the excavation at a depth of approximately 1-foot bgs. Four (4) confirmation soil samples were collected from the edge of the excavation (SW-1, SW-2, SW-3, and SW-4), at a depth of approximately 8-inches bgs on the north, south, east, and west excavation edges. All confirmation soil samples were collected as discreet soil samples. The soil samples were collected in sealable, one-gallon polyethylene bags and kneaded from the outside to ensure a uniform sample. The soil sample was then transferred to clean, laboratory supplied glass jars, sealed, labeled with a unique identifier, and placed on ice for transport to the laboratory. The plastic bag, which still contained an portion of the confirmation sample, was

resealed and allowed to equilibrate for approximately 15-minutes. After equilibration, the confirmation soil sample was field screened with an organic vapor meter (OVM) calibrated with 100-ppmv isobutylene. Field screening results indicated OVM reading ranging from 1.0 ppmv to 2.8 ppmv. The highest field screened confirmation sample was collected from sample location SW-3, which is located on the extreme western edge of the excavation in the T-2 area.

At the conclusion of all field activities, the confirmation soil samples were transported to the Xenco Laboratory in Midland, Texas, following proper chain-of-custody protocol. The soil samples were analyzed on standard turnaround for TPH using Method 8015 Extended (gasoline range organics (GRO), diesel range organics (DRO), and mid-range organics (MRO)) and chlorides, using Method 300.0.

Laboratory analyses of the confirmation soil samples collected from the bottom of the excavation in area T-2, indicated TPH [C_6-C_{35}] concentrations ranging from 19.8 mg/Kg to 22.9 mg/Kg and chloride concentrations ranging from 33 mg/Kg to 343 mg/Kg. Laboratory analyses of the confirmation soil samples collected from the edge of the excavation, indicated TPH [C_6-C_{35}] concentrations ranging from nondetectable to 237 mg/Kg and chloride concentration ranging from nondetectable to 172 mg/Kg. All analytical reports are contained in **Attachment B**.

Conclusions/Recommendations

- The Site was impacted by a release of approximately three (3) bbls of oil and four (4) bbls of produced water on September 10, 2017. Approximately two (2) bbls of oil and three (3) bbls of produced water were recovered by vacuum truck, with the balance soaking into the caliche pad covering the Site.
- A Site assessment and soil sampling were conducted in order to vertically and horizontally define the impacted area. Laboratory analyses of the soil samples collected during the assessment indicated that all TPH and chloride concentrations above the NMOCD investigation and abatement action requirements occurred in area T-2, in the surface soils.
- Following all assessment activities, a formal Work Plan was prepared and submitted to NMOCD and BLM for approval. The Work Plan was approved by NMOCD on January 2, 2018 with the addition of the laboratory method to be used for TPH analysis (Method 8105 Extended), evaluation of chloride concentrations, and the addition of confirmation edge and bottom samples for the area represented by T-2.
- The approved Work Plan was implemented with the excavation of approximately 200-cubic yards of impacted soil. The impacted areas were excavated to a maximum depth of 1-foot bgs, with an average depth of approximately 0.3- to 0.5-feet bgs. Laboratory analyses of confirmation soil samples collected from the base of the excavation and edges, indicated TPH and chloride concentrations below the NMOCD investigation and abatement action requirements.
- All excavated soil was transported to R360 facility located in Hobbs, New Mexico.
- At the conclusion of all excavation activities, approximately 240 cubic yards of fresh caliche was imported to the Site, backfilled in the excavation, and compacted using the backhoe.

Since all affected soil that occurred within the impacted area of the Site has been excavated and transported off-Site for appropriate disposal and the Site restored to its original condition, no further action is deemed warranted.

Sincerely,

Peter Schram
Project Manager

Attachments:
Table 1 – Assessment/Remediation Analytical Results
Figure 1 – Site Location Map
Figure 2 – Site Map
Attachment A – Site Photographs
Attachment B – Laboratory Analytical Reports
Attachment C – Disposal Manifests
Attachment D – NMOCD Form C-141 (Initial)/NMOCD Form C-141 (Final)

TABLE 1 - ASSESSMENT/REMEDIATION ANALYTICAL RESULTS
COG BC Federal #032
Lea County, New Mexico
NMOCD Ref: 1RP-4811
Release Date: September 10, 2017

Field ID	Laboratory ID	Date	Time	Sample Depth (feet)	Benzene (mg/Kg)	Toluene (mg/Kg	Ethylbenzene (mg/Kg)	Total Xylenes (mg/Kg)	Total BTEX (mg/Kg)	TPH [C6-C12] (mg/Kg)	TPH [C12-C28] (mg/Kg)	TPH [C28-C35] (mg/Kg)	TPH [C6-C35] (mg/Kg)	Chlorides (mg/Kg)
Assessment Samples														
Target Cleanup Levels					**10**	**NE**	**NE**	**NE**	**50**	**NE**	**NE**	**NE**	**1000**	**600**
T-1 0'	566213-001	10/16/2017	900	surface	<0.00338	<0.00338	<0.00338	<0.00338	<0.00338	<25.0	545	54.5	600	301
T-1 1'	566213-002	10/16/2017	900	1	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<25.0	<25.0	<25.0	<25.0	230
T-1 2'	566213-003	10/16/2017	900	2	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<24.9	<24.9	<24.9	<24.9	480
T-1 3'	566213-004	10/16/2017	900	3	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<25.0	<25.0	<25.0	<25.0	82.9
T-1 4'	566213-005	10/16/2017	900	4	<0.00200	<0.00277	<0.00200	<0.00200	<0.00277	<25.0	<25.0	<25.0	<25.0	40.7
T-1 9'	566213-0016	10/16/2017	900	9	NA	NA	NA	NA	NA	NA	NA	NA	NA	82.2
T-2 0'	566213-007	10/16/2017	1000	surface	<0.0201	0.103	0.595	1.93	2.63	488	**2220**	212	**2920**	**1060**
T-2 1'	566213-008	10/16/2017	1000	1	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<24.9	26.1	<24.9	26.1	128
T-2 2'	566213-009	10/16/2017	1000	2	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<24.9	<24.9	<24.9	<24.9	15.3
T-2 3'	566213-010	10/16/2017	100	3	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<25.0	<25.0	<25.0	<25.0	15.9
T-2 4'	566213-011	10/16/2017	1000	4	<0.00202	0.00240	<0.00202	<0.00202	0.00240	<24.9	<24.9	<24.9	<24.9	<4.95
T-2 9'	566213-012	10/16/2017	1000	9	NA	NA	NA	NA	NA	NA	NA	NA	NA	<4.94
T-3 0'	566213-013	10/16/2017	1030	surface	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<24.9	<24.9	<24.9	<24.9	158
T-3 1'	566213-014	10/16/2017	1030	1	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<24.9	<24.9	<24.9	<24.9	252
T-3 2'	566213-015	10/16/2017	1030	2	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<25.0	<25.0	<25.0	<25.0	19.2
T-3 3'	566213-016	10/16/2017	1030	3	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<25.0	<25.0	<25.0	<25.0	<4.90
T-3 8'	566213-017	10/16/2017	1030	8	NA	NA	NA	NA	NA	NA	NA	NA	NA	65.1
North 0'	566215-001	10/16/2017	1100	surface	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<25.0	<25.0	<25.0	<25.0	<4.90
North 1'	566215-002	10/16/2017	1100	1	<0.002	<0.002	<0.002	<0.002	<0.002	<25.0	<25.0	<25.0	<25.0	5.8
South 0'	566215-003	10/16/2017	1100	surface	<0.002	<0.002	<0.002	<0.002	<0.002	<25.0	<25.0	<25.0	<25.0	19.9
South 1'	566215-004	10/16/2017	1100	1	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<25.0	<25.0	<25.0	<25.0	56.8
East 0'	566215-005	10/16/2017	1100	surface	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<24.9	103	37.3	140	<4.98
East 1'	566215-006	10/16/2017	1100	1	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<25.0	<25.0	<25.0	<25.0	35.5
West 0'	566215-007	10/16/2017	1100	surface	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<25.0	<25.0	<25.0	<25.0	<4.98
West 1'	566215-008	10/16/2018	1100	1	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<24.9	<24.9	<24.9	<24.9	<5.00
										GRO TPH [C6-C12] (mg/Kg)	**DRO TPH [C12-C28] (mg/Kg)**	**ORO TPH [C28-C35] (mg/Kg)**	**TPH [C6-C35] (mg/Kg)**	**Chlorides (mg/Kg)**
Remediation Samples														
B-1	582946-001	4/18/2018	1123	1	NA	NA	NA	NA	NA	<14.9	19.8	<14.9	19.8	343
B-2	582946-002	4/18/2018	1127	1	NA	NA	NA	NA	NA	<15.0	22.9	<15.0	22.9	33
SW-1	582946-003	4/18/2018	1230	8-inches	NA	NA	NA	NA	NA	<15.0	<15.0	<15.0	<15.0	<5.00
SW-2	582946-004	4/18/2018	1235	8-inches	NA	NA	NA	NA	NA	<14.9	<14.9	<14.9	<14.9	12.1
SW-3	582946-005	4/18/2018	1239	8-inches	NA	NA	NA	NA	NA	<15.0	213	24.1	237	172
SW-4	582946-006	4/18/2018	1450	8-inches	NA	NA	NA	NA	NA	<15.0	38.7	<15.0	38.7	28.3

Note: bolded "red" results indicate concentrations exceed target cleanup levels.

NA - not analyzed

NE - not established

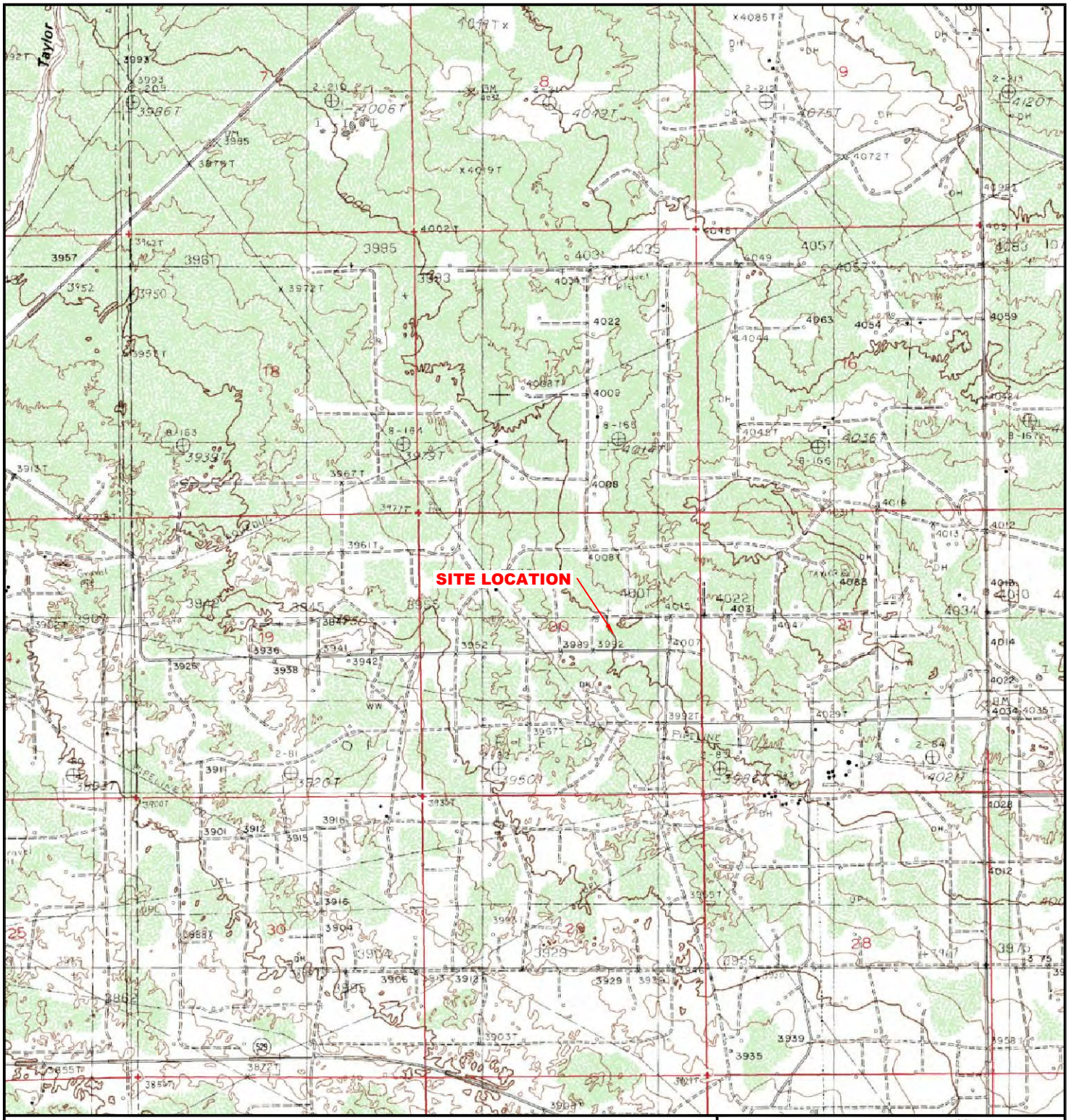

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Figure 1
Site Location Map
Concho - BC Federal #32
Lea County, New Mexico

Job No.: COG18006	DATE: 4/18

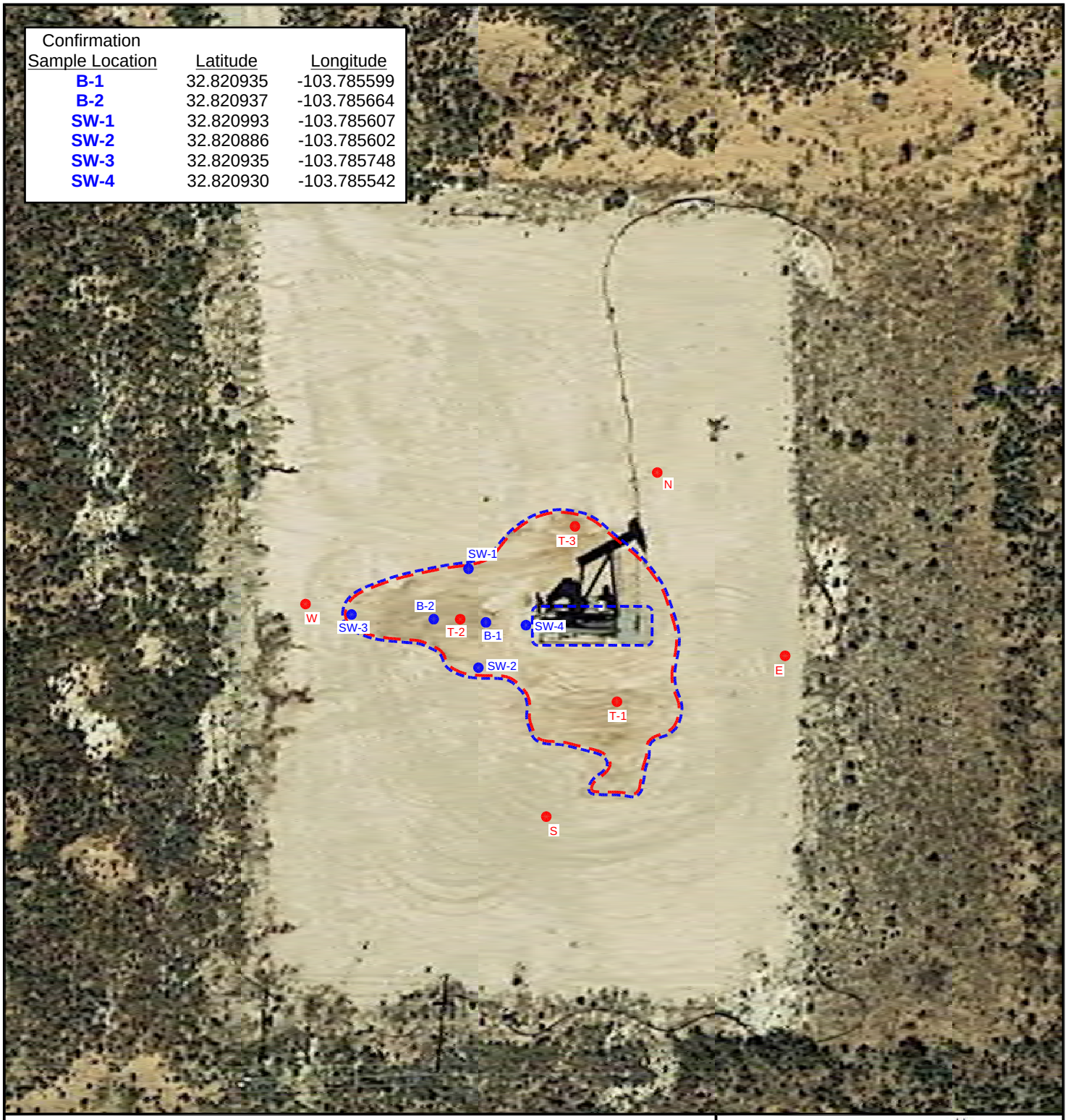

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Figure 2
Site Map
Concho - BC Federal #32
Lea County, New Mexico

Job No.: COG18006 | DATE: 4/18

ATTACHMENT A

Site Photographs

ATTACHMENT A – SITE PHOTOGRAPHS
COG BC Federal #032, Lea County, New Mexico
Release Date: September 10, 2017

Photo 1: Closeup view of lease signage (09/19/2017).

Photo 2: Northwestern view across well pad and impact area (09/19/2017).

ATTACHMENT A – SITE PHOTOGRAPHS
COG BC Federal #032, Lea County, New Mexico
Release Date: September 10, 2017

Photo 3: Northeastern closeup view of release area and impacted caliche on well pad (09/19/2017).

Photo 4: Southwestern closeup view of release area and impacted caliche on well pad (09/19/2017).

ATTACHMENT A – SITE PHOTOGRAPHS
COG BC Federal #032, Lea County, New Mexico
Release Date: September 10, 2017

Photo 5: Eastern closeup view of release area and impacted caliche on well pad (09/19/2017).

Photo 6: closeup view of exposed 440-volt power line from southwest corner of pad to panel at pumping unit [power line denoted by “red” arrow] (04/17/2018).

ATTACHMENT A – SITE PHOTOGRAPHS
COG BC Federal #032, Lea County, New Mexico
Release Date: September 10, 2017

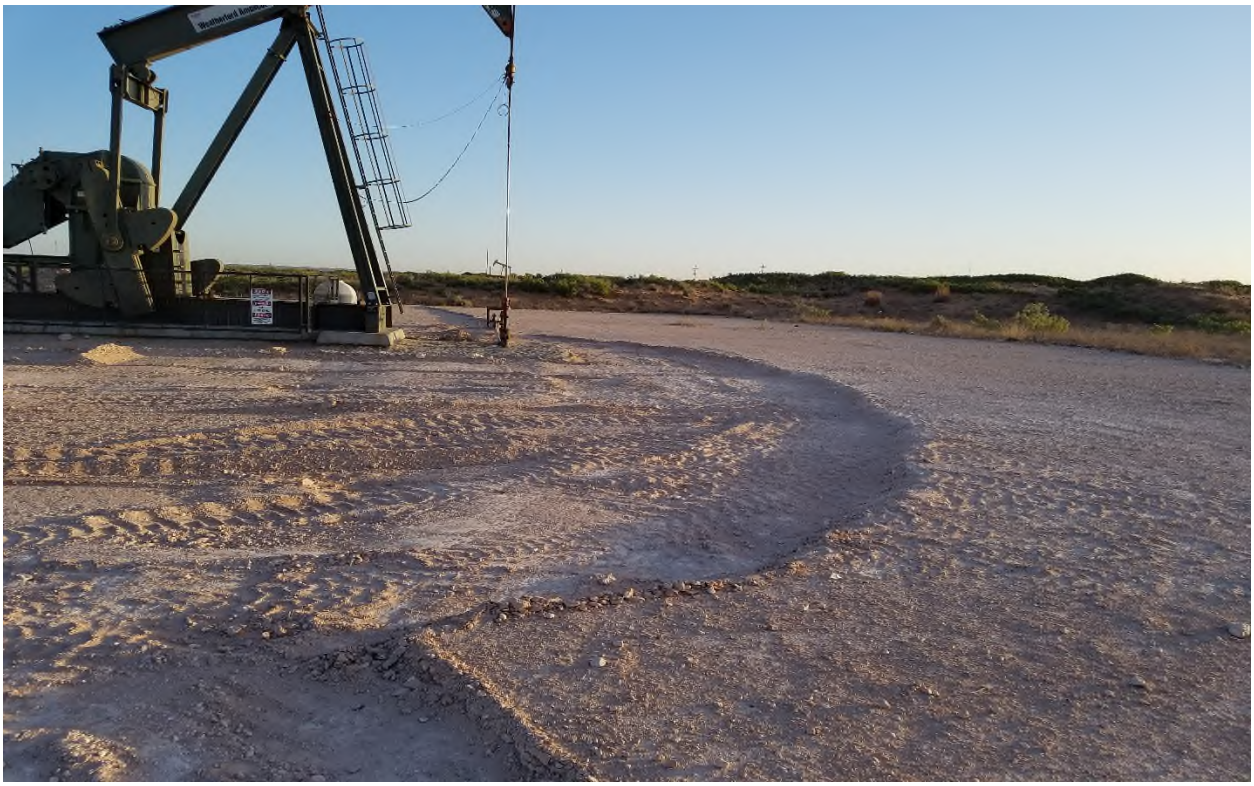

Photo 7: Northern view of excavation on eastern end of pumping unit (04/17/2018).

Photo 8: Western view of excavation on western end of pumping unit [representative to sample locations B-1, B-2, SW-1, SW-2, and SW-3] (04/18/2018).

ATTACHMENT A – SITE PHOTOGRAPHS
COG BC Federal #032, Lea County, New Mexico
Release Date: September 10, 2017

Photo 9: Eastern view on southern side of pumping unit after backfilling with imported caliche (04/18/2018).

Photo 10: Western view of northern side of pumping unit after backfilling with imported caliche (04/18/2018).

ATTACHMENT A – SITE PHOTOGRAPHS
COG BC Federal #032, Lea County, New Mexico
Release Date: September 10, 2017

Photo 11: Southern view across backfilled location from western side of pumping unit (04/18/2018).

Photo 12: Eastern view across backfilled location from western side of pumping unit (04/18/2018).

ATTACHMENT B

Laboratory Analytical Reports

Analytical Report 566213

for

COG Operating, LLC

Project Manager: Sheldon Hitchcock

BC Federal #32

30-OCT-17

Collected By: Client

1211 W. Florida Ave, Midland TX 79701

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

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

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

30-OCT-17

Project Manager: **Sheldon Hitchcock**
COG Operating, LLC
600 W Illinois
Midland, TX 79701

Reference: XENCO Report No(s): **566213**
BC Federal #32
Project Address:

Sheldon Hitchcock:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 566213. 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. 566213 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

Kelsey Brooks
Project Manager

Sample Cross Reference 566213

COG Operating, LLC, Midland, TX

BC Federal #32

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
T-1 Surface	S	10-16-17 09:00	0	566213-001
T-1 1'	S	10-16-17 09:00	1	566213-002
T-1 2'	S	10-16-17 09:00	2	566213-003
T-1 3'	S	10-16-17 09:00	3	566213-004
T-1 4'	S	10-16-17 09:00	4	566213-005
T-1 9'	S	10-16-17 09:00	9	566213-006
T-2 Surface	S	10-16-17 10:00	0	566213-007
T-2 1'	S	10-16-17 10:00	1	566213-008
T-2 2'	S	10-16-17 10:00	2	566213-009
T-2 3'	S	10-16-17 10:00	3	566213-010
T-2 4'	S	10-16-17 10:00	4	566213-011
T-2 9'	S	10-16-17 10:00	9	566213-012
T-3 Surface	S	10-16-17 10:30	0	566213-013
T-3 1'	S	10-16-17 10:30	1	566213-014
T-3 2'	S	10-16-17 10:30	2	566213-015
T-3 3'	S	10-16-17 10:30	3	566213-016
T-3 8'	S	10-16-17 10:30	8	566213-017

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3031638 BTEX by EPA 8021B
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Batch: LBA-3031655 BTEX by EPA 8021B
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Batch: LBA-3031729 BTEX by EPA 8021B
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Certificate of Analysis Summary 566213

COG Operating, LLC, Midland, TX

Project Name: BC Federal #32

Project Id:
Contact: Sheldon Hitchcock
Project Location:

Date Received in Lab: Thu Oct-19-17 11:45 am
Report Date: 30-OCT-17
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	566213-001		566213-002		566213-003		566213-004		566213-005		566213-006	
	Field Id:	T-1 Surface		T-1 1'		T-1 2'		T-1 3'		T-1 4'		T-1 9'	
	Depth:	0-		1-		2-		3-		4-		9-	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Oct-16-17 09:00		Oct-16-17 09:00		Oct-16-17 09:00		Oct-16-17 09:00		Oct-16-17 09:00		Oct-16-17 09:00	
BTEX by EPA 8021B	***Extracted:***	Oct-26-17 10:30		Oct-25-17 14:00		Oct-25-17 14:00		Oct-25-17 14:00		Oct-25-17 14:00			
	Analyzed:	Oct-26-17 14:35		Oct-25-17 23:46		Oct-26-17 00:48		Oct-26-17 01:08		Oct-26-17 01:26			
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL		
Benzene		<0.00338	0.00338	<0.00200	0.00200	<0.00202	0.00202	<0.00201	0.00201	<0.00200	0.00200		
Toluene		<0.00338	0.00338	<0.00200	0.00200	<0.00202	0.00202	<0.00201	0.00201	0.00277	0.00200		
Ethylbenzene		<0.00338	0.00338	<0.00200	0.00200	<0.00202	0.00202	<0.00201	0.00201	<0.00200	0.00200		
m,p-Xylenes		<0.00676	0.00676	<0.00399	0.00399	<0.00404	0.00404	<0.00402	0.00402	<0.00399	0.00399		
o-Xylene		<0.00338	0.00338	<0.00200	0.00200	<0.00202	0.00202	<0.00201	0.00201	<0.00200	0.00200		
Total Xylenes		<0.00338	0.00338	<0.00200	0.00200	<0.00202	0.00202	<0.00201	0.00201	<0.00200	0.00200		
Total BTEX		<0.00338	0.00338	<0.00200	0.00200	<0.00202	0.00202	<0.00201	0.00201	0.00277	0.00200		
Chloride by EPA 300	***Extracted:***	Oct-25-17 09:00		Oct-25-17 09:00		Oct-25-17 09:00		Oct-25-17 09:00		Oct-25-17 09:00		Oct-25-17 09:00	
	Analyzed:	Oct-25-17 19:47		Oct-25-17 19:53		Oct-25-17 20:00		Oct-25-17 20:07		Oct-25-17 20:14		Oct-25-17 20:20	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		301	4.99	230	4.95	480	4.91	82.9	4.90	40.7	4.90	82.2	4.94
TPH by Texas1005	***Extracted:***	Oct-26-17 08:00		Oct-26-17 08:00		Oct-26-17 08:00		Oct-26-17 08:00		Oct-26-17 08:00			
	Analyzed:	Oct-26-17 14:02		Oct-26-17 14:21		Oct-26-17 15:20		Oct-26-17 15:40		Oct-26-17 16:02			
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL		
C6-C12 Range Hydrocarbons		<25.0	25.0	<25.0	25.0	<24.9	24.9	<25.0	25.0	<25.0	25.0		
C12-C28 Range Hydrocarbons		545	25.0	<25.0	25.0	<24.9	24.9	<25.0	25.0	<25.0	25.0		
C28-C35 Range Hydrocarbons		54.5	25.0	<25.0	25.0	<24.9	24.9	<25.0	25.0	<25.0	25.0		
Total TPH		600	25.0	<25.0	25.0	<24.9	24.9	<25.0	25.0	<25.0	25.0		

Kelsey Brooks
Project Manager

Certificate of Analysis Summary 566213

COG Operating, LLC, Midland, TX

Project Name: BC Federal #32

Project Id:
Contact: Sheldon Hitchcock
Project Location:

Date Received in Lab: Thu Oct-19-17 11:45 am
Report Date: 30-OCT-17
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	566213-007		566213-008		566213-009		566213-010		566213-011		566213-012	
	Field Id:	T-2 Surface		T-2 1'		T-2 2'		T-2 3'		T-2 4'		T-2 9'	
	Depth:	0-		1-		2-		3-		4-		9-	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Oct-16-17 10:00		Oct-16-17 10:00		Oct-16-17 10:00		Oct-16-17 10:00		Oct-16-17 10:00		Oct-16-17 10:00	
BTEX by EPA 8021B	***Extracted:***	Oct-26-17 10:30		Oct-25-17 14:00		Oct-25-17 14:00		Oct-25-17 14:00		Oct-26-17 11:00			
	Analyzed:	Oct-26-17 18:25		Oct-26-17 01:45		Oct-26-17 02:04		Oct-26-17 02:22		Oct-26-17 21:55			
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL		
Benzene		<0.0201	0.0201	<0.00199	0.00199	<0.00200	0.00200	<0.00199	0.00199	<0.00202	0.00202		
Toluene		0.103	0.0201	<0.00199	0.00199	<0.00200	0.00200	<0.00199	0.00199	0.00240	0.00202		
Ethylbenzene		0.595	0.0201	<0.00199	0.00199	<0.00200	0.00200	<0.00199	0.00199	<0.00202	0.00202		
m,p-Xylenes		1.23	0.0402	<0.00398	0.00398	<0.00401	0.00401	<0.00398	0.00398	<0.00404	0.00404		
o-Xylene		0.703	0.0201	<0.00199	0.00199	<0.00200	0.00200	<0.00199	0.00199	<0.00202	0.00202		
Total Xylenes		1.93	0.0201	<0.00199	0.00199	<0.00200	0.00200	<0.00199	0.00199	<0.00202	0.00202		
Total BTEX		2.63	0.0201	<0.00199	0.00199	<0.00200	0.00200	<0.00199	0.00199	0.00240	0.00202		
Chloride by EPA 300	***Extracted:***	Oct-25-17 09:00		Oct-25-17 09:00		Oct-25-17 09:00		Oct-25-17 09:00		Oct-25-17 09:00		Oct-25-17 09:00	
	Analyzed:	Oct-25-17 20:27		Oct-25-17 20:34		Oct-25-17 20:41		Oct-25-17 21:15		Oct-25-17 21:22		Oct-25-17 21:28	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		1060	24.6	128	4.93	15.3	4.94	15.9	4.98	<4.95	4.95	<4.94	4.94
TPH by Texas1005	***Extracted:***	Oct-26-17 08:00		Oct-26-17 08:00		Oct-26-17 08:00		Oct-26-17 08:00		Oct-26-17 08:00			
	Analyzed:	Oct-26-17 16:22		Oct-26-17 16:42		Oct-26-17 17:02		Oct-26-17 17:22		Oct-26-17 17:42			
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL		
C6-C12 Range Hydrocarbons		488	125	<24.9	24.9	<24.9	24.9	<25.0	25.0	<24.9	24.9		
C12-C28 Range Hydrocarbons		2220	125	26.1	24.9	<24.9	24.9	<25.0	25.0	<24.9	24.9		
C28-C35 Range Hydrocarbons		212	125	<24.9	24.9	<24.9	24.9	<25.0	25.0	<24.9	24.9		
Total TPH		2920	125	26.1	24.9	<24.9	24.9	<25.0	25.0	<24.9	24.9		

Kelsey Brooks
Project Manager

Certificate of Analysis Summary 566213

COG Operating, LLC, Midland, TX

Project Name: BC Federal #32

Project Id:
Contact: Sheldon Hitchcock
Project Location:

Date Received in Lab: Thu Oct-19-17 11:45 am
Report Date: 30-OCT-17
Project Manager: Kelsey Brooks

Analysis Requested											
	Lab Id:	566213-013		566213-014		566213-015		566213-016		566213-017	
	Field Id:	T-3 Surface		T-3 1'		T-3 2'		T-3 3'		T-3 8'	
	Depth:	0-		1-		2-		3-		8-	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Oct-16-17 10:30		Oct-16-17 10:30		Oct-16-17 10:30		Oct-16-17 10:30		Oct-16-17 10:30	
BTEX by EPA 8021B	***Extracted:***	Oct-25-17 14:00		Oct-25-17 14:00		Oct-26-17 11:00		Oct-26-17 11:00			
	Analyzed:	Oct-26-17 03:02		Oct-26-17 03:22		Oct-26-17 21:37		Oct-26-17 22:14			
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL		
Benzene		<0.00202	0.00202	<0.00200	0.00200	<0.00201	0.00201	<0.00199	0.00199		
Toluene		<0.00202	0.00202	<0.00200	0.00200	<0.00201	0.00201	<0.00199	0.00199		
Ethylbenzene		<0.00202	0.00202	<0.00200	0.00200	<0.00201	0.00201	<0.00199	0.00199		
m,p-Xylenes		<0.00403	0.00403	<0.00401	0.00401	<0.00402	0.00402	<0.00398	0.00398		
o-Xylene		<0.00202	0.00202	<0.00200	0.00200	<0.00201	0.00201	<0.00199	0.00199		
Total Xylenes		<0.00202	0.00202	<0.00200	0.00200	<0.00201	0.00201	<0.00199	0.00199		
Total BTEX		<0.00202	0.00202	<0.00200	0.00200	<0.00201	0.00201	<0.00199	0.00199		
Chloride by EPA 300	***Extracted:***	Oct-25-17 09:00		Oct-25-17 09:00		Oct-25-17 09:00		Oct-25-17 09:00		Oct-25-17 09:00	
	Analyzed:	Oct-25-17 21:35		Oct-25-17 21:42		Oct-25-17 21:49		Oct-25-17 21:55		Oct-25-17 22:02	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		158	4.90	252	4.95	19.2	4.99	<4.90	4.90	65.1	4.94
TPH by Texas1005	***Extracted:***	Oct-26-17 08:00		Oct-26-17 08:00		Oct-26-17 08:00		Oct-26-17 08:00			
	Analyzed:	Oct-26-17 18:45		Oct-26-17 19:05		Oct-26-17 19:26		Oct-26-17 19:47			
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL		
C6-C12 Range Hydrocarbons		<24.9	24.9	<24.9	24.9	<25.0	25.0	<25.0	25.0		
C12-C28 Range Hydrocarbons		<24.9	24.9	<24.9	24.9	<25.0	25.0	<25.0	25.0		
C28-C35 Range Hydrocarbons		<24.9	24.9	<24.9	24.9	<25.0	25.0	<25.0	25.0		
Total TPH		<24.9	24.9	<24.9	24.9	<25.0	25.0	<25.0	25.0		

Kelsey Brooks
Project Manager

Flagging Criteria

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

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

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

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

F RPD exceeded lab control limits.

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

U Analyte was not detected.

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

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

K Sample analyzed outside of recommended hold time.

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

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

+ NELAC certification not offered for this compound.

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

Form 2 - Surrogate Recoveries

Project Name: BC Federal #32

Work Orders : 566213,

Project ID:

Lab Batch #: 3031729 **Sample:** 566213-002 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/25/17 23:46

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0288	0.0300	96	80-120	
4-Bromofluorobenzene	0.0338	0.0300	113	80-120	

Lab Batch #: 3031729 **Sample:** 566213-003 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/26/17 00:48

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0299	0.0300	100	80-120	
4-Bromofluorobenzene	0.0336	0.0300	112	80-120	

Lab Batch #: 3031729 **Sample:** 566213-004 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/26/17 01:08

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0295	0.0300	98	80-120	
4-Bromofluorobenzene	0.0341	0.0300	114	80-120	

Lab Batch #: 3031729 **Sample:** 566213-005 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/26/17 01:26

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0275	0.0300	92	80-120	
4-Bromofluorobenzene	0.0321	0.0300	107	80-120	

Lab Batch #: 3031729 **Sample:** 566213-008 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/26/17 01:45

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0355	0.0300	118	80-120	
4-Bromofluorobenzene	0.0355	0.0300	118	80-120	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: BC Federal #32

Work Orders : 566213,

Project ID:

Lab Batch #: 3031729 **Sample:** 566213-009 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/26/17 02:04

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0305	0.0300	102	80-120	
4-Bromofluorobenzene	0.0352	0.0300	117	80-120	

Lab Batch #: 3031729 **Sample:** 566213-010 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/26/17 02:22

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0298	0.0300	99	80-120	
4-Bromofluorobenzene	0.0345	0.0300	115	80-120	

Lab Batch #: 3031729 **Sample:** 566213-013 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/26/17 03:02

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0305	0.0300	102	80-120	
4-Bromofluorobenzene	0.0356	0.0300	119	80-120	

Lab Batch #: 3031729 **Sample:** 566213-014 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/26/17 03:22

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0299	0.0300	100	80-120	
4-Bromofluorobenzene	0.0347	0.0300	116	80-120	

Lab Batch #: 3031677 **Sample:** 566213-001 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/26/17 14:02

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	50.4	50.0	101	70-130	
1-Chlorooctane	110	100	110	70-130	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: BC Federal #32

Work Orders : 566213,

Project ID:

Lab Batch #: 3031677 **Sample:** 566213-002 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/26/17 14:21

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	51.4	49.9	103	70-130	
1-Chlorooctane	107	99.8	107	70-130	

Lab Batch #: 3031638 **Sample:** 566213-001 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/26/17 14:35

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0309	0.0300	103	80-120	
4-Bromofluorobenzene	0.0354	0.0300	118	80-120	

Lab Batch #: 3031677 **Sample:** 566213-003 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/26/17 15:20

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	50.0	49.8	100	70-130	
1-Chlorooctane	107	99.6	107	70-130	

Lab Batch #: 3031677 **Sample:** 566213-004 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/26/17 15:40

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	50.7	49.9	102	70-130	
1-Chlorooctane	105	99.8	105	70-130	

Lab Batch #: 3031677 **Sample:** 566213-005 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/26/17 16:02

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	49.5	49.9	99	70-130	
1-Chlorooctane	101	99.8	101	70-130	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: BC Federal #32

Work Orders : 566213,

Project ID:

Lab Batch #: 3031677 **Sample:** 566213-007 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/26/17 16:22

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	50.2	50.0	100	70-130	
1-Chlorooctane	103	99.9	103	70-130	

Lab Batch #: 3031677 **Sample:** 566213-008 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/26/17 16:42

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	51.7	49.9	104	70-130	
1-Chlorooctane	109	99.7	109	70-130	

Lab Batch #: 3031677 **Sample:** 566213-009 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/26/17 17:02

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	49.0	49.9	98	70-130	
1-Chlorooctane	105	99.7	105	70-130	

Lab Batch #: 3031677 **Sample:** 566213-010 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/26/17 17:22

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	49.4	50.0	99	70-130	
1-Chlorooctane	106	99.9	106	70-130	

Lab Batch #: 3031677 **Sample:** 566213-011 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/26/17 17:42

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	50.9	49.8	102	70-130	
1-Chlorooctane	106	99.6	106	70-130	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: BC Federal #32

Work Orders : 566213,

Project ID:

Lab Batch #: 3031638 **Sample:** 566213-007 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/26/17 18:25

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0306	0.0300	102	80-120	
4-Bromofluorobenzene	0.0337	0.0300	112	80-120	

Lab Batch #: 3031677 **Sample:** 566213-013 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/26/17 18:45

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	49.3	49.9	99	70-130	
1-Chlorooctane	106	99.7	106	70-130	

Lab Batch #: 3031677 **Sample:** 566213-014 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/26/17 19:05

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	48.7	49.8	98	70-130	
1-Chlorooctane	104	99.6	104	70-130	

Lab Batch #: 3031677 **Sample:** 566213-015 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/26/17 19:26

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	46.7	50.0	93	70-130	
1-Chlorooctane	94.2	99.9	94	70-130	

Lab Batch #: 3031677 **Sample:** 566213-016 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/26/17 19:47

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	50.1	50.0	100	70-130	
1-Chlorooctane	104	99.9	104	70-130	

* Surrogate outside of Laboratory QC limits
** Surrogates outside limits; data and surrogates confirmed by reanalysis
*** Poor recoveries due to dilution
Surrogate Recovery [D] = 100 * A / B
All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: BC Federal #32

Work Orders : 566213,

Project ID:

Lab Batch #: 3031655 **Sample:** 566213-015 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/26/17 21:37

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0266	0.0300	89	80-120	
4-Bromofluorobenzene	0.0275	0.0300	92	80-120	

Lab Batch #: 3031655 **Sample:** 566213-011 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/26/17 21:55

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0254	0.0300	85	80-120	
4-Bromofluorobenzene	0.0254	0.0300	85	80-120	

Lab Batch #: 3031655 **Sample:** 566213-016 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/26/17 22:14

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0285	0.0300	95	80-120	
4-Bromofluorobenzene	0.0265	0.0300	88	80-120	

Lab Batch #: 3031729 **Sample:** 7633243-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 10/25/17 20:47

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0292	0.0300	97	80-120	
4-Bromofluorobenzene	0.0348	0.0300	116	80-120	

Lab Batch #: 3031638 **Sample:** 7633352-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 10/26/17 11:18

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0311	0.0300	104	80-120	
4-Bromofluorobenzene	0.0346	0.0300	115	80-120	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: BC Federal #32

Work Orders : 566213,

Project ID:

Lab Batch #: 3031677 **Sample:** 7633286-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 10/26/17 13:01

SURROGATE RECOVERY STUDY

TPH by Texas1005

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	53.3	50.0	107	70-130	
1-Chlorooctane	107	100	107	70-130	

Lab Batch #: 3031655 **Sample:** 7633345-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 10/26/17 15:27

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0288	0.0300	96	80-120	
4-Bromofluorobenzene	0.0264	0.0300	88	80-120	

Lab Batch #: 3031729 **Sample:** 7633243-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 10/25/17 18:53

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0320	0.0300	107	80-120	
4-Bromofluorobenzene	0.0333	0.0300	111	80-120	

Lab Batch #: 3031638 **Sample:** 7633352-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 10/26/17 09:43

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0295	0.0300	98	80-120	
4-Bromofluorobenzene	0.0351	0.0300	117	80-120	

Lab Batch #: 3031655 **Sample:** 7633345-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 10/26/17 13:17

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0279	0.0300	93	80-120	
4-Bromofluorobenzene	0.0312	0.0300	104	80-120	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: BC Federal #32

Work Orders : 566213,

Project ID:

Lab Batch #: 3031677 **Sample:** 7633286-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 10/26/17 13:22

SURROGATE RECOVERY STUDY

TPH by Texas1005

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	51.9	50.0	104	70-130	
1-Chlorooctane	102	100	102	70-130	

Lab Batch #: 3031729 **Sample:** 7633243-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 10/25/17 19:15

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0293	0.0300	98	80-120	
4-Bromofluorobenzene	0.0348	0.0300	116	80-120	

Lab Batch #: 3031638 **Sample:** 7633352-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 10/26/17 10:01

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0302	0.0300	101	80-120	
4-Bromofluorobenzene	0.0354	0.0300	118	80-120	

Lab Batch #: 3031655 **Sample:** 7633345-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 10/26/17 13:36

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0288	0.0300	96	80-120	
4-Bromofluorobenzene	0.0294	0.0300	98	80-120	

Lab Batch #: 3031677 **Sample:** 7633286-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 10/26/17 13:42

SURROGATE RECOVERY STUDY

TPH by Texas1005

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	50.1	50.0	100	70-130	
1-Chlorooctane	108	100	108	70-130	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: BC Federal #32

Work Orders : 566213,

Project ID:

Lab Batch #: 3031729 **Sample:** 566215-001 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/25/17 19:33

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0319	0.0300	106	80-120	
4-Bromofluorobenzene	0.0350	0.0300	117	80-120	

Lab Batch #: 3031638 **Sample:** 566321-001 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/26/17 10:19

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0352	0.0300	117	80-120	
4-Bromofluorobenzene	0.0352	0.0300	117	80-120	

Lab Batch #: 3031655 **Sample:** 566321-002 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/26/17 13:55

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0283	0.0300	94	80-120	
4-Bromofluorobenzene	0.0318	0.0300	106	80-120	

Lab Batch #: 3031677 **Sample:** 566213-002 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/26/17 14:41

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	49.3	50.0	99	70-130	
1-Chlorooctane	95.1	99.9	95	70-130	

Lab Batch #: 3031729 **Sample:** 566215-001 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/25/17 19:52

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0284	0.0300	95	80-120	
4-Bromofluorobenzene	0.0351	0.0300	117	80-120	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: BC Federal #32

Work Orders : 566213,

Project ID:

Lab Batch #: 3031638 **Sample:** 566321-001 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/26/17 10:37

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
	SURROGATE RECOVERY STUDY				
1,4-Difluorobenzene	0.0336	0.0300	112	80-120	
4-Bromofluorobenzene	0.0356	0.0300	119	80-120	

Lab Batch #: 3031655 **Sample:** 566321-002 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/26/17 14:13

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
	SURROGATE RECOVERY STUDY				
1,4-Difluorobenzene	0.0337	0.0300	112	80-120	
4-Bromofluorobenzene	0.0355	0.0300	118	80-120	

Lab Batch #: 3031677 **Sample:** 566213-002 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/26/17 15:01

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
	SURROGATE RECOVERY STUDY				
o-Terphenyl	49.0	50.0	98	70-130	
1-Chlorooctane	107	99.9	107	70-130	

* Surrogate outside of Laboratory QC limits
** Surrogates outside limits; data and surrogates confirmed by reanalysis
*** Poor recoveries due to dilution
Surrogate Recovery [D] = 100 * A / B
All results are based on MDL and validated for QC purposes.

BS / BSD Recoveries

Project Name: BC Federal #32

Work Order #: 566213 **Project ID:**

Analyst: ALJ **Date Prepared:** 10/25/2017 **Date Analyzed:** 10/25/2017

Lab Batch ID: 3031729 **Sample:** 7633243-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.00201	0.101	0.0851	84	0.100	0.0900	90	6	70-130	35	
Toluene	<0.00201	0.101	0.0939	93	0.100	0.0954	95	2	70-130	35	
Ethylbenzene	<0.00201	0.101	0.0952	94	0.100	0.0971	97	2	71-129	35	
m,p-Xylenes	<0.00402	0.201	0.187	93	0.200	0.190	95	2	70-135	35	
o-Xylene	<0.00201	0.101	0.0926	92	0.100	0.0946	95	2	71-133	35	

Analyst: ALJ **Date Prepared:** 10/26/2017 **Date Analyzed:** 10/26/2017

Lab Batch ID: 3031655 **Sample:** 7633345-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.00200	0.100	0.0958	96	0.0998	0.0867	87	10	70-130	35	
Toluene	<0.00200	0.100	0.101	101	0.0998	0.0908	91	11	70-130	35	
Ethylbenzene	<0.00200	0.100	0.110	110	0.0998	0.0997	100	10	71-129	35	
m,p-Xylenes	<0.00401	0.200	0.216	108	0.200	0.196	98	10	70-135	35	
o-Xylene	<0.00200	0.100	0.108	108	0.0998	0.0977	98	10	71-133	35	

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|
Blank Spike Recovery [D] = 100*(C)/[B]
Blank Spike Duplicate Recovery [G] = 100*(F)/[E]
All results are based on MDL and Validated for QC Purposes

BS / BSD Recoveries

Project Name: BC Federal #32

Work Order #: 566213 **Project ID:**

Analyst: ALJ **Date Prepared:** 10/26/2017 **Date Analyzed:** 10/26/2017

Lab Batch ID: 3031638 **Sample:** 7633352-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.00202	0.101	0.0831	82	0.100	0.0804	80	3	70-130	35	
Toluene	<0.00202	0.101	0.0941	93	0.100	0.0894	89	5	70-130	35	
Ethylbenzene	<0.00202	0.101	0.0997	99	0.100	0.0943	94	6	71-129	35	
m,p-Xylenes	<0.00404	0.202	0.196	97	0.200	0.185	93	6	70-135	35	
o-Xylene	<0.00202	0.101	0.0958	95	0.100	0.0907	91	5	71-133	35	

Analyst: MNV **Date Prepared:** 10/25/2017 **Date Analyzed:** 10/25/2017

Lab Batch ID: 3031397 **Sample:** 7633169-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	<5.00	250	244	98	250	243	97	0	90-110	20	

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|
Blank Spike Recovery [D] = 100*(C)/[B]
Blank Spike Duplicate Recovery [G] = 100*(F)/[E]
All results are based on MDL and Validated for QC Purposes

BS / BSD Recoveries

Project Name: BC Federal #32

Work Order #: 566213 **Project ID:**

Analyst: ARM **Date Prepared:** 10/26/2017 **Date Analyzed:** 10/26/2017

Lab Batch ID: 3031677 **Sample:** 7633286-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH by Texas1005 Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
C6-C12 Range Hydrocarbons	<25.0	1000	956	96	1000	974	97	2	75-125	25	
C12-C28 Range Hydrocarbons	<25.0	1000	1010	101	1000	1020	102	1	75-125	25	

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|
Blank Spike Recovery [D] = 100*(C)/[B]
Blank Spike Duplicate Recovery [G] = 100*(F)/[E]
All results are based on MDL and Validated for QC Purposes

Form 3 - MS / MSD Recoveries

Project Name: BC Federal #32

Work Order # : 566213 **Project ID:**

Lab Batch ID: 3031638 **QC- Sample ID:** 566321-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 10/26/2017 **Date Prepared:** 10/26/2017 **Analyst:** ALJ

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.00199	0.0996	0.118	118	0.0992	0.117	118	1	70-130	35	
Toluene	0.00315	0.0996	0.112	109	0.0992	0.103	101	8	70-130	35	
Ethylbenzene	<0.00199	0.0996	0.0959	96	0.0992	0.0847	85	12	71-129	35	
m,p-Xylenes	<0.00398	0.199	0.190	95	0.198	0.167	84	13	70-135	35	
o-Xylene	<0.00199	0.0996	0.0904	91	0.0992	0.0786	79	14	71-133	35	

Lab Batch ID: 3031655 **QC- Sample ID:** 566321-002 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 10/26/2017 **Date Prepared:** 10/26/2017 **Analyst:** ALJ

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	0.00211	0.100	0.111	109	0.101	0.113	110	2	70-130	35	
Toluene	0.00542	0.100	0.0991	94	0.101	0.0928	87	7	70-130	35	
Ethylbenzene	<0.00201	0.100	0.0881	88	0.101	0.0768	76	14	71-129	35	
m,p-Xylenes	<0.00402	0.201	0.176	88	0.202	0.152	75	15	70-135	35	
o-Xylene	<0.00201	0.100	0.0847	85	0.101	0.0753	75	12	71-133	35	

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

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

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

Form 3 - MS / MSD Recoveries

Project Name: BC Federal #32

Work Order # : 566213 **Project ID:**

Lab Batch ID: 3031729 **QC- Sample ID:** 566215-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 10/25/2017 **Date Prepared:** 10/25/2017 **Analyst:** ALJ

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.00202	0.101	0.112	111	0.100	0.113	113	1	70-130	35	
Toluene	<0.00202	0.101	0.109	108	0.100	0.111	111	2	70-130	35	
Ethylbenzene	<0.00202	0.101	0.102	101	0.100	0.102	102	0	71-129	35	
m,p-Xylenes	<0.00404	0.202	0.202	100	0.201	0.203	101	0	70-135	35	
o-Xylene	<0.00202	0.101	0.0950	94	0.100	0.0959	96	1	71-133	35	

Lab Batch ID: 3031397 **QC- Sample ID:** 565635-008 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 10/25/2017 **Date Prepared:** 10/25/2017 **Analyst:** MNV

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	5650	245	5680	12	245	5660	4	0	90-110	20	X

Lab Batch ID: 3031397 **QC- Sample ID:** 566213-009 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 10/25/2017 **Date Prepared:** 10/25/2017 **Analyst:** MNV

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	15.3	247	267	102	247	268	102	0	90-110	20	

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

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

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

Form 3 - MS / MSD Recoveries

Project Name: BC Federal #32

Work Order # : 566213 **Project ID:**

Lab Batch ID: 3031677 **QC- Sample ID:** 566213-002 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 10/26/2017 **Date Prepared:** 10/26/2017 **Analyst:** ARM

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

TPH by Texas1005 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
C6-C12 Range Hydrocarbons	<25.0	999	917	92	999	970	97	6	75-125	25	
C12-C28 Range Hydrocarbons	<25.0	999	998	100	999	1040	104	4	75-125	25	

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

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

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

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 # 566213

Client / Reporting Information

Company Name / Branch: COG Operating, LLC
Company Address: 2407 Pecos Ave. Artesia NM 88210
Email: slhitchcock@concho.com Phone No: 575-703-6475
dneel2@concho.com; alieb@concho.com; rhaskell@concho.com
Project Contact: Sheldon Hitchcock
Samplers's Name: Sheldon Hitchcock

Project Information

Project Name/Number: BC Federal #32
Project Location:
Invoice To: COG Operating, LLC
Attn: Robert McNeill
600 W. Illnois Ave.
Midland Tx, 79701
PO Number:

Analytical Information

Matrix Codes

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

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 EXTENDED	BTEX	CHLORIDES	Field Comments
1	T-1 Surface	0	10/16/17	9:00	S	1								/	X	X	X	
2	T-1 1'	1			S	1								/	X	X	X	
3	T-1 2'	2			S	1								/	X	X	X	
4	T-1 3'	3			S	1								/	X	X	X	
5	T-1 4'	4			S	1								/	X	X	X	
6	T-1 9'	4			S	1								/			X	
7	T-2 Surface	0		10:00	S	1								/	X	X	X	
8	T-2 1'	1			S	1								/	X	X	X	
9	T-2 2'	2			S	1								/	X	X	X	
10	T-2 3'	3			S	1								/	X	X	X	

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:

Temp: 3.2 IR ID:R-8
CF:(0-6: -0.2°C)
(6-23: +0.2°C)
Corrected Temp: 3

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	Sheldon Hitchcock	10/20/17 10:00	Sid Butler 10-19-17 10A	Sid Butler	10-19-17 1145	Corrie Harris
3	Relinquished by:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
5	Relinquished by:	Date Time:	Received By:	Custody Seal #	Preserved where applicable	On Ice / Cooler Temp. 13C / 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

Page 2 Of 2

XENCO LABORATORIES

Setting the Standard since 1990

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

Xenco Quote #

Xenco Job # 566219 3

Client / Reporting Information

Company Name / Branch: COG Operating, LLC
Company Address: 2407 Pecos Ave. Artesia NM 88210
Email: slhitchcock@concho.com Phone No: 575-703-6475
dneel2@concho.com; alieb@concho.com; rhaskell@concho.com
Project Contact: Sheldon Hitchcock
Samplers's Name: Sheldon Hitchcock

Project Information

Project Name/Number: BC Federal #32
Project Location:
Invoice To: COG Operating, LLC
Attn: Robert McNeill
600 W. Illnois Ave.
Midland Tx, 79701
PO Number:

Analytical Information

Matrix Codes

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

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 EXTENDED	BTEX	CHLORIDES	Field Comments
1	T-2 4'	4	10/6/17	10:00	S	1								/	X	X	X	
2	T-2 9'	9			S	1								/			X	
3	T-3 Surface	0		10:30	S	1								/	X	X	X	
4	T-3 1'	1			S	1								/	X	X	X	
5	T-3 2'	2			S	1								/	X	X	X	
6	T-3 3'	3			S	1								/	X	X	X	
7	T-3 8'	8			S	1								/			/	
8					S	1												
9					S	1												
10					S	1												

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

FED-

Notes:

Temp: 3.2 IR ID:R-8
CF:(0-6: -0.2°C)
(6-23: +0.2°C)
Corrected Temp: 3

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	Sheldon Hitchcock	10/20/17 10:00	Sid Butler 10-19-17 10A	Sid Butler	10-19-17 1145 A	
2						
3	Relinquished by:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
4						
5	Relinquished by:	Date Time:	Received By:	Custody Seal #	Preserved where applicable	On Ice / Cooler Temp. / Thermo. Corr. Factor
						13 C

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.

XENCO Laboratories
Prelogin/Nonconformance Report- Sample Log-In

Client: COG Operating, LLC

Date/ Time Received: 10/19/2017 11:45:00 AM

Work Order #: 566213

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

Temperature Measuring device used : R8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	13.2
#2 *Shipping container in good condition?	**Yes**
#3 *Samples received on ice?	**Yes**
#4 *Custody Seals intact on shipping container/ cooler?	**N/A**
#5 Custody Seals intact on sample bottles?	**N/A**
#6*Custody Seals Signed and dated?	**N/A**
#7 *Chain of Custody present?	**Yes**
#8 Any missing/extra samples?	**No**
#9 Chain of Custody signed when relinquished/ received?	**Yes**
#10 Chain of Custody agrees with sample labels/matrix?	**Yes**
#11 Container label(s) legible and intact?	**Yes**
#12 Samples in proper container/ bottle?	**Yes**
#13 Samples properly preserved?	**Yes**
#14 Sample container(s) intact?	**Yes**
#15 Sufficient sample amount for indicated test(s)?	**Yes**
#16 All samples received within hold time?	**Yes**
#17 Subcontract of sample(s)?	**No**
#18 Water VOC samples have zero headspace?	**N/A**

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

Analyst: PH Device/Lot#:

Checklist completed by: Connie Hernandez Date: 10/23/2017

Checklist reviewed by: Kelsey Brooks Date: 10/23/2017

Analytical Report 566215

for

COG Operating, LLC

Project Manager: Sheldon Hitchcock

BC Federal #32

30-OCT-17

Collected By: Client

1211 W. Florida Ave, Midland TX 79701

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

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

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

30-OCT-17

Project Manager: **Sheldon Hitchcock**
COG Operating, LLC
600 W Illinois
Midland, TX 79701

Reference: XENCO Report No(s): **566215**
BC Federal #32
Project Address:

Sheldon Hitchcock:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 566215. 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. 566215 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

Kelsey Brooks
Project Manager

Sample Cross Reference 566215

COG Operating, LLC, Midland, TX

BC Federal #32

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
N. Surface	S	10-16-17 11:00	0	566215-001
N. 1'	S	10-16-17 11:00	1	566215-002
S. Surface	S	10-16-17 11:00	0	566215-003
S. 1'	S	10-16-17 11:00	1	566215-004
E. Surface	S	10-16-17 11:00	0	566215-005
E. 1'	S	10-16-17 11:00	1	566215-006
W. Surface	S	10-16-17 11:00	0	566215-007
W. 1'	S	10-16-17 11:00	1	566215-008

CASE NARRATIVE

Client Name: COG Operating, LLC

Project Name: BC Federal #32

Project ID:
Work Order Number(s): *566215*

Report Date: *30-OCT-17*
Date Received: *10/19/2017*

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3031729 BTEX by EPA 8021B

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

Certificate of Analysis Summary 566215

COG Operating, LLC, Midland, TX

Project Name: BC Federal #32

Project Id:

Contact: Sheldon Hitchcock

Project Location:

Date Received in Lab: Thu Oct-19-17 11:45 am

Report Date: 30-OCT-17

Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	566215-001		566215-002		566215-003		566215-004		566215-005		566215-006	
	Field Id:	N. Surface		N. 1'		S. Surface		S. 1'		E. Surface		E. 1'	
	Depth:	0-		1-		0-		1-		0-		1-	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Oct-16-17 11:00		Oct-16-17 11:00		Oct-16-17 11:00		Oct-16-17 11:00		Oct-16-17 11:00		Oct-16-17 11:00	
BTEX by EPA 8021B	***Extracted:***	Oct-25-17 14:00		Oct-25-17 14:00		Oct-25-17 14:00		Oct-25-17 14:00		Oct-25-17 14:00		Oct-25-17 14:00	
	Analyzed:	Oct-25-17 21:07		Oct-25-17 21:25		Oct-25-17 21:44		Oct-25-17 22:09		Oct-25-17 22:29		Oct-25-17 22:50	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		<0.00199	0.00199	<0.00200	0.00200	<0.00200	0.00200	<0.00198	0.00198	<0.00201	0.00201	<0.00202	0.00202
Toluene		<0.00199	0.00199	<0.00200	0.00200	<0.00200	0.00200	<0.00198	0.00198	<0.00201	0.00201	<0.00202	0.00202
Ethylbenzene		<0.00199	0.00199	<0.00200	0.00200	<0.00200	0.00200	<0.00198	0.00198	<0.00201	0.00201	<0.00202	0.00202
m,p-Xylenes		<0.00398	0.00398	<0.00401	0.00401	<0.00399	0.00399	<0.00397	0.00397	<0.00402	0.00402	<0.00404	0.00404
o-Xylene		<0.00199	0.00199	<0.00200	0.00200	<0.00200	0.00200	<0.00198	0.00198	<0.00201	0.00201	<0.00202	0.00202
Total Xylenes		<0.00199	0.00199	<0.00200	0.00200	<0.00200	0.00200	<0.00198	0.00198	<0.00201	0.00201	<0.00202	0.00202
Total BTEX		<0.00199	0.00199	<0.00200	0.00200	<0.00200	0.00200	<0.00198	0.00198	<0.00201	0.00201	<0.00202	0.00202
Chloride by EPA 300	***Extracted:***	Oct-25-17 09:00		Oct-25-17 11:00		Oct-25-17 11:00		Oct-25-17 11:00		Oct-25-17 11:00		Oct-25-17 11:00	
	Analyzed:	Oct-25-17 22:09		Oct-25-17 22:50		Oct-25-17 23:10		Oct-26-17 00:45		Oct-26-17 00:52		Oct-26-17 01:12	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		<4.90	4.90	5.80	4.96	19.9	4.96	56.8	4.97	<4.98	4.98	35.5	4.92
TPH by Texas1005	***Extracted:***	Oct-24-17 16:00		Oct-24-17 16:00		Oct-24-17 16:00		Oct-24-17 16:00		Oct-24-17 16:00		Oct-24-17 16:00	
	Analyzed:	Oct-25-17 02:17		Oct-25-17 02:39		Oct-25-17 03:39		Oct-25-17 03:59		Oct-25-17 04:19		Oct-25-17 04:39	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
C6-C12 Range Hydrocarbons		<25.0	25.0	<25.0	25.0	<25.0	25.0	<25.0	25.0	<24.9	24.9	<25.0	25.0
C12-C28 Range Hydrocarbons		<25.0	25.0	<25.0	25.0	<25.0	25.0	<25.0	25.0	103	24.9	<25.0	25.0
C28-C35 Range Hydrocarbons		<25.0	25.0	<25.0	25.0	<25.0	25.0	<25.0	25.0	37.3	24.9	<25.0	25.0
Total TPH		<25.0	25.0	<25.0	25.0	<25.0	25.0	<25.0	25.0	140	24.9	<25.0	25.0

Kelsey Brooks
Project Manager

Certificate of Analysis Summary 566215

COG Operating, LLC, Midland, TX

Project Name: BC Federal #32

Project Id:
Contact: Sheldon Hitchcock
Project Location:

Date Received in Lab: Thu Oct-19-17 11:45 am
Report Date: 30-OCT-17
Project Manager: Kelsey Brooks

Analysis Requested									
	Lab Id:	566215-007		566215-008					
	Field Id:	W. Surface		W. 1'					
	Depth:	0-		1-					
	Matrix:	SOIL		SOIL					
	Sampled:	Oct-16-17 11:00		Oct-16-17 11:00					
BTEX by EPA 8021B	***Extracted:***	Oct-25-17 14:00		Oct-25-17 14:00					
	Analyzed:	Oct-25-17 23:09		Oct-25-17 23:28					
	Units/RL:	mg/kg	RL	mg/kg	RL				
Benzene		<0.00202	0.00202	<0.00199	0.00199				
Toluene		<0.00202	0.00202	<0.00199	0.00199				
Ethylbenzene		<0.00202	0.00202	<0.00199	0.00199				
m,p-Xylenes		<0.00403	0.00403	<0.00398	0.00398				
o-Xylene		<0.00202	0.00202	<0.00199	0.00199				
Total Xylenes		<0.00202	0.00202	<0.00199	0.00199				
Total BTEX		<0.00202	0.00202	<0.00199	0.00199				
Chloride by EPA 300	***Extracted:***	Oct-25-17 11:00		Oct-25-17 11:00					
	Analyzed:	Oct-26-17 01:19		Oct-26-17 01:26					
	Units/RL:	mg/kg	RL	mg/kg	RL				
Chloride		<4.98	4.98	<5.00	5.00				
TPH by Texas1005	***Extracted:***	Oct-26-17 08:00		Oct-26-17 08:00					
	Analyzed:	Oct-26-17 20:08		Oct-26-17 20:28					
	Units/RL:	mg/kg	RL	mg/kg	RL				
C6-C12 Range Hydrocarbons		<25.0	25.0	<24.9	24.9				
C12-C28 Range Hydrocarbons		<25.0	25.0	<24.9	24.9				
C28-C35 Range Hydrocarbons		<25.0	25.0	<24.9	24.9				
Total TPH		<25.0	25.0	<24.9	24.9				

Kelsey Brooks
Project Manager

Flagging Criteria

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

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

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

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

F RPD exceeded lab control limits.

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

U Analyte was not detected.

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

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

K Sample analyzed outside of recommended hold time.

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

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

+ NELAC certification not offered for this compound.

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

Form 2 - Surrogate Recoveries

Project Name: BC Federal #32

Work Orders : 566215,

Project ID:

Lab Batch #: 3031320 **Sample:** 566215-001 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/25/17 02:17

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	50.5	49.9	101	70-130	
1-Chlorooctane	109	99.8	109	70-130	

Lab Batch #: 3031320 **Sample:** 566215-002 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/25/17 02:39

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	45.0	49.9	90	70-130	
1-Chlorooctane	101	99.8	101	70-130	

Lab Batch #: 3031320 **Sample:** 566215-003 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/25/17 03:39

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	47.4	50.0	95	70-130	
1-Chlorooctane	97.8	100	98	70-130	

Lab Batch #: 3031320 **Sample:** 566215-004 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/25/17 03:59

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	50.8	50.0	102	70-130	
1-Chlorooctane	109	99.9	109	70-130	

Lab Batch #: 3031320 **Sample:** 566215-005 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/25/17 04:19

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	48.0	49.9	96	70-130	
1-Chlorooctane	103	99.7	103	70-130	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: BC Federal #32

Work Orders : 566215,

Project ID:

Lab Batch #: 3031320 **Sample:** 566215-006 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/25/17 04:39

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	44.7	49.9	90	70-130	
1-Chlorooctane	95.1	99.8	95	70-130	

Lab Batch #: 3031729 **Sample:** 566215-001 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/25/17 21:07

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0321	0.0300	107	80-120	
4-Bromofluorobenzene	0.0359	0.0300	120	80-120	

Lab Batch #: 3031729 **Sample:** 566215-002 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/25/17 21:25

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0329	0.0300	110	80-120	
4-Bromofluorobenzene	0.0359	0.0300	120	80-120	

Lab Batch #: 3031729 **Sample:** 566215-003 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/25/17 21:44

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0296	0.0300	99	80-120	
4-Bromofluorobenzene	0.0356	0.0300	119	80-120	

Lab Batch #: 3031729 **Sample:** 566215-004 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/25/17 22:09

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0290	0.0300	97	80-120	
4-Bromofluorobenzene	0.0354	0.0300	118	80-120	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: BC Federal #32

Work Orders : 566215,

Project ID:

Lab Batch #: 3031729 **Sample:** 566215-005 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/25/17 22:29

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0284	0.0300	95	80-120	
4-Bromofluorobenzene	0.0355	0.0300	118	80-120	

Lab Batch #: 3031729 **Sample:** 566215-006 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/25/17 22:50

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0291	0.0300	97	80-120	
4-Bromofluorobenzene	0.0337	0.0300	112	80-120	

Lab Batch #: 3031729 **Sample:** 566215-007 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/25/17 23:09

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0316	0.0300	105	80-120	
4-Bromofluorobenzene	0.0348	0.0300	116	80-120	

Lab Batch #: 3031729 **Sample:** 566215-008 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/25/17 23:28

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0274	0.0300	91	80-120	
4-Bromofluorobenzene	0.0334	0.0300	111	80-120	

Lab Batch #: 3031677 **Sample:** 566215-007 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/26/17 20:08

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	50.1	50.0	100	70-130	
1-Chlorooctane	102	100	102	70-130	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: BC Federal #32

Work Orders : 566215,

Project ID:

Lab Batch #: 3031677 **Sample:** 566215-008 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/26/17 20:28

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	45.6	49.9	91	70-130	
1-Chlorooctane	93.6	99.7	94	70-130	

Lab Batch #: 3031320 **Sample:** 7633149-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 10/24/17 21:50

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	55.6	50.0	111	70-130	
1-Chlorooctane	119	100	119	70-130	

Lab Batch #: 3031729 **Sample:** 7633243-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 10/25/17 20:47

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0292	0.0300	97	80-120	
4-Bromofluorobenzene	0.0348	0.0300	116	80-120	

Lab Batch #: 3031677 **Sample:** 7633286-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 10/26/17 13:01

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	53.3	50.0	107	70-130	
1-Chlorooctane	107	100	107	70-130	

Lab Batch #: 3031320 **Sample:** 7633149-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 10/24/17 22:11

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	48.9	50.0	98	70-130	
1-Chlorooctane	103	100	103	70-130	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: BC Federal #32

Work Orders : 566215,

Project ID:

Lab Batch #: 3031729 **Sample:** 7633243-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 10/25/17 18:53

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0320	0.0300	107	80-120	
4-Bromofluorobenzene	0.0333	0.0300	111	80-120	

Lab Batch #: 3031677 **Sample:** 7633286-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 10/26/17 13:22

SURROGATE RECOVERY STUDY

TPH by Texas1005

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	51.9	50.0	104	70-130	
1-Chlorooctane	102	100	102	70-130	

Lab Batch #: 3031320 **Sample:** 7633149-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 10/24/17 22:31

SURROGATE RECOVERY STUDY

TPH by Texas1005

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	46.2	50.0	92	70-130	
1-Chlorooctane	101	100	101	70-130	

Lab Batch #: 3031729 **Sample:** 7633243-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 10/25/17 19:15

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0293	0.0300	98	80-120	
4-Bromofluorobenzene	0.0348	0.0300	116	80-120	

Lab Batch #: 3031677 **Sample:** 7633286-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 10/26/17 13:42

SURROGATE RECOVERY STUDY

TPH by Texas1005

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	50.1	50.0	100	70-130	
1-Chlorooctane	108	100	108	70-130	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: BC Federal #32

Work Orders : 566215,

Project ID:

Lab Batch #: 3031320 **Sample:** 566212-001 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/24/17 23:15

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	48.0	50.0	96	70-130	
1-Chlorooctane	102	99.9	102	70-130	

Lab Batch #: 3031729 **Sample:** 566215-001 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/25/17 19:33

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0319	0.0300	106	80-120	
4-Bromofluorobenzene	0.0350	0.0300	117	80-120	

Lab Batch #: 3031677 **Sample:** 566213-002 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/26/17 14:41

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	49.3	50.0	99	70-130	
1-Chlorooctane	95.1	99.9	95	70-130	

Lab Batch #: 3031320 **Sample:** 566212-001 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/24/17 23:35

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	47.4	49.9	95	70-130	
1-Chlorooctane	99.5	99.8	100	70-130	

Lab Batch #: 3031729 **Sample:** 566215-001 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/25/17 19:52

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0284	0.0300	95	80-120	
4-Bromofluorobenzene	0.0351	0.0300	117	80-120	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: BC Federal #32

Work Orders : 566215,

Project ID:

Lab Batch #: 3031677 **Sample:** 566213-002 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 10/26/17 15:01

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	49.0	50.0	98	70-130	
1-Chlorooctane	107	99.9	107	70-130	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

BS / BSD Recoveries

Project Name: BC Federal #32

Work Order #: 566215 **Project ID:**

Analyst: ALJ **Date Prepared:** 10/25/2017 **Date Analyzed:** 10/25/2017

Lab Batch ID: 3031729 **Sample:** 7633243-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.00201	0.101	0.0851	84	0.100	0.0900	90	6	70-130	35	
Toluene	<0.00201	0.101	0.0939	93	0.100	0.0954	95	2	70-130	35	
Ethylbenzene	<0.00201	0.101	0.0952	94	0.100	0.0971	97	2	71-129	35	
m,p-Xylenes	<0.00402	0.201	0.187	93	0.200	0.190	95	2	70-135	35	
o-Xylene	<0.00201	0.101	0.0926	92	0.100	0.0946	95	2	71-133	35	

Analyst: MNV **Date Prepared:** 10/25/2017 **Date Analyzed:** 10/25/2017

Lab Batch ID: 3031397 **Sample:** 7633169-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	<5.00	250	244	98	250	243	97	0	90-110	20	

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|
Blank Spike Recovery [D] = 100*(C)/[B]
Blank Spike Duplicate Recovery [G] = 100*(F)/[E]
All results are based on MDL and Validated for QC Purposes

BS / BSD Recoveries

Project Name: BC Federal #32

Work Order #: 566215 **Project ID:**

Analyst: MNV **Date Prepared:** 10/25/2017 **Date Analyzed:** 10/25/2017

Lab Batch ID: 3031539 **Sample:** 7633172-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	<5.00	250	248	99	250	246	98	1	90-110	20	

Analyst: ARM **Date Prepared:** 10/24/2017 **Date Analyzed:** 10/24/2017

Lab Batch ID: 3031320 **Sample:** 7633149-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH by Texas1005 Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
C6-C12 Range Hydrocarbons	<25.0	1000	939	94	1000	925	93	2	75-125	25	
C12-C28 Range Hydrocarbons	<25.0	1000	1010	101	1000	1060	106	5	75-125	25	

Analyst: ARM **Date Prepared:** 10/26/2017 **Date Analyzed:** 10/26/2017

Lab Batch ID: 3031677 **Sample:** 7633286-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH by Texas1005 Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
C6-C12 Range Hydrocarbons	<25.0	1000	956	96	1000	974	97	2	75-125	25	
C12-C28 Range Hydrocarbons	<25.0	1000	1010	101	1000	1020	102	1	75-125	25	

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|
Blank Spike Recovery [D] = 100*(C)/[B]
Blank Spike Duplicate Recovery [G] = 100*(F)/[E]
All results are based on MDL and Validated for QC Purposes

Form 3 - MS / MSD Recoveries

Project Name: BC Federal #32

Work Order # : 566215 **Project ID:**

Lab Batch ID: 3031729 **QC- Sample ID:** 566215-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 10/25/2017 **Date Prepared:** 10/25/2017 **Analyst:** ALJ

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.00202	0.101	0.112	111	0.100	0.113	113	1	70-130	35	
Toluene	<0.00202	0.101	0.109	108	0.100	0.111	111	2	70-130	35	
Ethylbenzene	<0.00202	0.101	0.102	101	0.100	0.102	102	0	71-129	35	
m,p-Xylenes	<0.00404	0.202	0.202	100	0.201	0.203	101	0	70-135	35	
o-Xylene	<0.00202	0.101	0.0950	94	0.100	0.0959	96	1	71-133	35	

Lab Batch ID: 3031397 **QC- Sample ID:** 565635-008 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 10/25/2017 **Date Prepared:** 10/25/2017 **Analyst:** MNV

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	5650	245	5680	12	245	5660	4	0	90-110	20	X

Lab Batch ID: 3031397 **QC- Sample ID:** 566213-009 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 10/25/2017 **Date Prepared:** 10/25/2017 **Analyst:** MNV

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	15.3	247	267	102	247	268	102	0	90-110	20	

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

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

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

Form 3 - MS / MSD Recoveries

Project Name: BC Federal #32

Work Order # : 566215 **Project ID:**

Lab Batch ID: 3031539 **QC- Sample ID:** 566212-008 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 10/26/2017 **Date Prepared:** 10/25/2017 **Analyst:** MNV

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	47.3	249	310	106	249	310	106	0	90-110	20	

Lab Batch ID: 3031539 **QC- Sample ID:** 566215-002 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 10/25/2017 **Date Prepared:** 10/25/2017 **Analyst:** MNV

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	5.80	248	266	105	248	269	106	1	90-110	20	

Lab Batch ID: 3031320 **QC- Sample ID:** 566212-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 10/24/2017 **Date Prepared:** 10/24/2017 **Analyst:** ARM

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

TPH by Texas1005 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
C6-C12 Range Hydrocarbons	<25.0	999	1040	104	998	1020	102	2	75-125	25	
C12-C28 Range Hydrocarbons	<25.0	999	1050	105	998	1020	102	3	75-125	25	

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

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

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

Form 3 - MS / MSD Recoveries

Project Name: BC Federal #32

Work Order # : 566215 **Project ID:**

Lab Batch ID: 3031677 **QC- Sample ID:** 566213-002 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 10/26/2017 **Date Prepared:** 10/26/2017 **Analyst:** ARM

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

TPH by Texas1005 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
C6-C12 Range Hydrocarbons	<25.0	999	917	92	999	970	97	6	75-125	25	
C12-C28 Range Hydrocarbons	<25.0	999	998	100	999	1040	104	4	75-125	25	

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

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

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

CHAIN OF CUSTODY

Page 1 Of 1

XENCO LABORATORIES

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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 # 566215

Client / Reporting Information

Company Name / Branch: COG Operating, LLC

Company Address: 2407 Pecos Ave. Artesia NM 88210

Email: slhitchcock@concho.com Phone No: 575-703-6475

dneel2@concho.com; alieb@concho.com; rhaskell@concho.com

Project Contact: Sheldon Hitchcock

Samplers's Name: Sheldon Hitchcock

Project Information

Project Name/Number: BC Federal #32

Project Location:

Invoice To: COG Operating, LLC
Attn: Robert McNeill
600 W. Illnois Ave.
Midland Tx, 79701

PO Number:

Analytical Information

Matrix Codes

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

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 EXTENDED	BTEX	CHLORIDES	Field Comments
1	N. Surface	0	10/16/17	11:00	S	1									X	X	X	
2	N. 1'	1			S	1									X	X	X	
3	S. Surface	0			S	1									X	X	X	
4	S. 1'	1			S	1									X	X	X	
5	E. Surface	0			S	1									X	X	X	
6	E 1'	1			S	1									X	X	X	
7	W. Surface	0			S	1									X	X	X	
8	W. 1'	1			S	1									X	X	X	
9					S	1												
10					S	1												

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:

Temp: 3.2 IR ID:R-8
CF.(0-6: -0.2°C)
(6-23: +0.2°C)
Corrected Temp: 3

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	Sheldon Hitchcock	10/20/17 10:00am	Sid Butler 10-19-17 10A	Sid Butler	10-19-17 1145 A	
2						Corina Flores
3	Relinquished by:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
4						
5	Relinquished by:	Date Time:	Received By:	Custody Seal #	Preserved where applicable	On Ice / Cooler Temp. / Thermo. Corr. Factor
						13C

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.

XENCO Laboratories
Prelogin/Nonconformance Report- Sample Log-In

Client: COG Operating, LLC

Date/ Time Received: 10/19/2017 11:45:00 AM

Work Order #: 566215

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

Temperature Measuring device used : R8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	13.2
#2 *Shipping container in good condition?	**Yes**
#3 *Samples received on ice?	**Yes**
#4 *Custody Seals intact on shipping container/ cooler?	**N/A**
#5 Custody Seals intact on sample bottles?	**N/A**
#6*Custody Seals Signed and dated?	**N/A**
#7 *Chain of Custody present?	**Yes**
#8 Any missing/extra samples?	**No**
#9 Chain of Custody signed when relinquished/ received?	**Yes**
#10 Chain of Custody agrees with sample labels/matrix?	**Yes**
#11 Container label(s) legible and intact?	**Yes**
#12 Samples in proper container/ bottle?	**Yes**
#13 Samples properly preserved?	**Yes**
#14 Sample container(s) intact?	**Yes**
#15 Sufficient sample amount for indicated test(s)?	**Yes**
#16 All samples received within hold time?	**Yes**
#17 Subcontract of sample(s)?	**No**
#18 Water VOC samples have zero headspace?	**N/A**

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

Analyst: PH Device/Lot#:

Checklist completed by: Connie Hernandez Date: 10/23/2017

Checklist reviewed by: Kelsey Brooks Date: 10/23/2017

Analytical Report 582946

for

Entech Consulting

Project Manager: Pete Schram

COG BC Federal #032

26-APR-18

Collected By: Client

1211 W. Florida Ave, Midland TX 79701

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

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

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

26-APR-18

Project Manager: **Pete Schram**
Entech Consulting
21 Waterway Ave, Suite 300
The Woodlands, TX 77380

Reference: XENCO Report No(s): **582946**
COG BC Federal #032
Project Address: Lea County, New Mexico

Pete Schram:

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) 582946. 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. 582946 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

Kelsey Brooks
Project Manager

Sample Cross Reference 582946

Entech Consulting, The Woodlands, TX

COG BC Federal #032

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
B-1 (bottom discreet at T2)	S	04-18-18 11:23	12 In	582946-001
B-2 (bottom discreet at T2)	S	04-18-18 11:27	12 In	582946-002
SW-1 (Sidewall at T2)	S	04-18-18 12:30	8 In	582946-003
SW-2 (Sidewall at T2)	S	04-18-18 12:35	8 In	582946-004
SW-3 (Sidewall at T2)	S	04-18-18 12:39	8 In	582946-005
SW-4 (Sidewall at T2)	S	04-18-18 14:50	8 In	582946-006

CASE NARRATIVE

Client Name: Entech Consulting

Project Name: COG BC Federal #032

Project ID:
Work Order Number(s): *582946*

Report Date: *26-APR-18*
Date Received: *04/19/2018*

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Certificate of Analysis Summary 582946

Entech Consulting, The Woodlands, TX

Project Name: COG BC Federal #032

Project Id:

Contact: Pete Schram

Project Location: Lea County, New Mexico

Date Received in Lab: Thu Apr-19-18 12:05 pm

Report Date: 26-APR-18

Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	582946-001		582946-002		582946-003		582946-004		582946-005		582946-006	
	Field Id:	B-1 (bottom discreet at T2)		B-2 (bottom discreet at T2)		SW-1 (Sidewall at T2)		SW-2 (Sidewall at T2)		SW-3 (Sidewall at T2)		SW-4 (Sidewall at T2)	
	Depth:	12- In		12- In		8- In		8- In		8- In		8- In	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Apr-18-18 11:23		Apr-18-18 11:27		Apr-18-18 12:30		Apr-18-18 12:35		Apr-18-18 12:39		Apr-18-18 14:50	
Chloride by EPA 300	***Extracted:***	Apr-25-18 10:30		Apr-25-18 10:30		Apr-25-18 10:30		Apr-25-18 10:30		Apr-25-18 10:30		Apr-25-18 10:30	
	Analyzed:	Apr-25-18 18:27		Apr-25-18 18:33		Apr-25-18 16:36		Apr-25-18 18:39		Apr-25-18 18:45		Apr-25-18 18:51	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		343	4.97	33.0	4.97	<5.00	5.00	12.1	4.95	172	5.00	28.3	4.97
TPH by SW8015 Mod	***Extracted:***	Apr-19-18 16:00		Apr-19-18 16:00		Apr-19-18 16:00		Apr-19-18 16:00		Apr-19-18 16:00		Apr-19-18 16:00	
	Analyzed:	Apr-20-18 11:17		Apr-20-18 12:37		Apr-20-18 13:49		Apr-20-18 14:15		Apr-20-18 14:41		Apr-20-18 15:09	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Gasoline Range Hydrocarbons (GRO)		<14.9	14.9	<15.0	15.0	<15.0	15.0	<14.9	14.9	<15.0	15.0	<15.0	15.0
Diesel Range Organics (DRO)		19.8	14.9	22.9	15.0	<15.0	15.0	<14.9	14.9	213	15.0	38.7	15.0
Oil Range Hydrocarbons (ORO)		<14.9	14.9	<15.0	15.0	<15.0	15.0	<14.9	14.9	24.1	15.0	<15.0	15.0
Total TPH		19.8	14.9	22.9	15.0	<15.0	15.0	<14.9	14.9	237	15.0	38.7	15.0

Kelsey Brooks
Project Manager

Flagging Criteria

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

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

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

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

F RPD exceeded lab control limits.

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

U Analyte was not detected.

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

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

K Sample analyzed outside of recommended hold time.

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

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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

Form 2 - Surrogate Recoveries

Project Name: COG BC Federal #032

Work Orders : 582946,

Project ID:

Lab Batch #: 3047364 **Sample:** 582946-001 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 04/20/18 11:17

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	103	99.6	103	70-135	
o-Terphenyl	52.7	49.8	106	70-135	

Lab Batch #: 3047364 **Sample:** 582946-002 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 04/20/18 12:37

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	95.7	99.8	96	70-135	
o-Terphenyl	48.7	49.9	98	70-135	

Lab Batch #: 3047364 **Sample:** 582946-003 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 04/20/18 13:49

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	99.0	100	99	70-135	
o-Terphenyl	50.1	50.0	100	70-135	

Lab Batch #: 3047364 **Sample:** 582946-004 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 04/20/18 14:15

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	104	99.6	104	70-135	
o-Terphenyl	52.6	49.8	106	70-135	

Lab Batch #: 3047364 **Sample:** 582946-005 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 04/20/18 14:41

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	97.5	99.9	98	70-135	
o-Terphenyl	51.5	50.0	103	70-135	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: COG BC Federal #032

Work Orders : 582946,

Project ID:

Lab Batch #: 3047364 **Sample:** 582946-006 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 04/20/18 15:09

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	97.7	99.9	98	70-135	
o-Terphenyl	50.2	50.0	100	70-135	

Lab Batch #: 3047364 **Sample:** 7643028-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 04/20/18 05:15

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	98.3	100	98	70-135	
o-Terphenyl	50.1	50.0	100	70-135	

Lab Batch #: 3047364 **Sample:** 7643028-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 04/20/18 05:41

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	116	100	116	70-135	
o-Terphenyl	57.8	50.0	116	70-135	

Lab Batch #: 3047364 **Sample:** 7643028-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 04/20/18 06:08

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	113	100	113	70-135	
o-Terphenyl	58.0	50.0	116	70-135	

Lab Batch #: 3047364 **Sample:** 582908-001 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 04/20/18 06:59

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	110	100	110	70-135	
o-Terphenyl	52.9	50.0	106	70-135	

* Surrogate outside of Laboratory QC limits
** Surrogates outside limits; data and surrogates confirmed by reanalysis
*** Poor recoveries due to dilution
Surrogate Recovery [D] = 100 * A / B
All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: COG BC Federal #032

Work Orders : 582946,

Project ID:

Lab Batch #: 3047364 **Sample:** 582908-001 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 04/20/18 07:24

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	107	99.8	107	70-135	
o-Terphenyl	53.3	49.9	107	70-135	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

BS / BSD Recoveries

Project Name: COG BC Federal #032

Work Order #: 582946 **Project ID:**

Analyst: SCM **Date Prepared:** 04/25/2018 **Date Analyzed:** 04/25/2018

Lab Batch ID: 3047921 **Sample:** 7643359-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	<5.00	250	226	90	250	226	90	0	90-110	20	

Analyst: ARM **Date Prepared:** 04/19/2018 **Date Analyzed:** 04/20/2018

Lab Batch ID: 3047364 **Sample:** 7643028-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Gasoline Range Hydrocarbons (GRO)	<15.0	1000	1030	103	1000	1030	103	0	70-135	20	
Diesel Range Organics (DRO)	<15.0	1000	1070	107	1000	1090	109	2	70-135	20	

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|
Blank Spike Recovery [D] = 100*(C)/[B]
Blank Spike Duplicate Recovery [G] = 100*(F)/[E]
All results are based on MDL and Validated for QC Purposes

Form 3 - MS / MSD Recoveries

Project Name: COG BC Federal #032

Work Order # : 582946 **Project ID:**

Lab Batch ID: 3047921 **QC- Sample ID:** 582946-003 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 04/25/2018 **Date Prepared:** 04/25/2018 **Analyst:** SCM

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	<5.00	250	240	96	250	240	96	0	90-110	20	

Lab Batch ID: 3047921 **QC- Sample ID:** 582946-006 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 04/25/2018 **Date Prepared:** 04/25/2018 **Analyst:** SCM

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	28.3	249	291	106	249	281	101	3	90-110	20	

Lab Batch ID: 3047364 **QC- Sample ID:** 582908-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 04/20/2018 **Date Prepared:** 04/19/2018 **Analyst:** ARM

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Gasoline Range Hydrocarbons (GRO)	<15.0	1000	943	94	998	945	95	0	70-135	20	
Diesel Range Organics (DRO)	<15.0	1000	972	97	998	974	98	0	70-135	20	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B

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

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

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

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

CHAIN OF CUSTODY

582946

Client/Reporting Information		Project Information	Analtyical Information	Matrix Codes
Company Name: EnTech Consulting Corporation		**Project Name/Number:** COG BC Federal #032		W = Water S = Soil/Sed/Solid GW = Groundwater DW = Drinking Water P = Product SW = Surface Water SL = Sludge OW = Ocean/Sea Water WI = Wipe O = Oil
Company Address 21 Waterway Ave., Suite 300 The Woodlands, Texas 77380		**Project Location:** Lea County, New Mexico		
Email: pete.schram@entechservice.com	**Phone No.** 210-326-7831	**Invoice To:** Concho (COG) 600 W. Illinois Midland, Texas 79701		
Project Contact: Peter Schram				
Samplers Name: Peter Schram		**PO Number:**		WW= Waste Water

No.	Field ID/Point of Collection	Collection				Number of preserved bottles									TPH 8015 Extended (GRO/DRO/MRO)	Chlorides (300.0)	Field Comments
		Sample Depth	Date	Time	Matrix	# of bottles	HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	None			
1	B-1 (bottom discreet at T2)	12" bgs	4/18/2018	1123	S	1								X	X	X	
2	B-2 (bottom discreet at T2)	12" bgs	4/18/2018	1127	S	1								X	X	X	
3	SW-1 (sidewall at T2)	8" bgs	4/18/2018	1230	S	1								X	X	X	
4	SW-2 (sidewall at T2)	8" bgs	4/18/2018	1235	S	1								X	X	X	
5	SW-3 (sidewall at T2)	8" bgs	4/18/2018	1239	S	1								X	X	X	
6	SW-4 (sidewall at T2)	8" bgs	4/18/2018	1450	S	1								X	X	X	
7																	
8																	
9																	
10																	

Turnaround Time (Business Days)

Same Day TAT
Next Day EMERGENCY
2-Day EMERGENCY
3-Day EMERGENCY
5-Day TAT
7-Day TAT
(Contract TAT)

Data Deliverable Information

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

Notes: Please b.u Cog Direct

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	
1		4/19/18 1205	1	2		Project Manager: Peter Schram
3	Relinquished by Sampler	Date/Time	Received By: 3	Relinquished By: 4	Date/Time	Manager Email: pete.schram@entechservice.com
5	Relinquished by Sampler	Date/Time	Received By: 5	Relinquished By:	Date/Time	Manager Phone Number: (210) 326-7831

Temp: 4.6 IR ID:R-8
CF:(0-6: -0.2°C)
(6-23: +0.2°C)
Corrected Temp: 4.4

XENCO Laboratories
Prelogin/Nonconformance Report- Sample Log-In

Client: Entech Consulting

Date/ Time Received: 04/19/2018 12:05:00 PM

Work Order #: 582946

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

Temperature Measuring device used : R8

Sample Receipt Checklist		Comments
#1 *Temperature of cooler(s)?	4.4	
#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**	TPH received in bulk container
#13 Samples properly preserved?	**Yes**	
#14 Sample container(s) intact?	**Yes**	
#15 Sufficient sample amount for indicated test(s)?	**Yes**	
#16 All samples received within hold time?	**Yes**	
#17 Subcontract of sample(s)?	**No**	
#18 Water VOC samples have zero headspace?	**N/A**	

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

Analyst: PH Device/Lot#:

Checklist completed by: Katie Lowe Date: 04/19/2018

Checklist reviewed by: Holly Taylor Date: 04/20/2018

ATTACHMENT C

Disposal Manifests

R360 ENVIRONMENTAL SOLUTIONS

NEW MEXICO NON-HAZARDOUS OILFIELD WASTE MANIFEST

(PLEASE PRINT)

Company Man Contact Information
Name PETER V. SCHRAM
Phone No. 210-326-7531

GENERATOR

NO. 303957

Operator No.	229137	Permit/RRC No.	
Operators Name	Concho (COG)	Lease/Well Name & No.	BC Federal #032
Address	600 W. Illinois AVE	County	Lea Co, NM
		API No.	30-025-39829
City, State, Zip	MIDLAND, TX 79701	Rig Name & No.	
Phone No.	432-683-7443	AFE/PO No.	

EXEMPT E&P Waste/Service Identification and Amount (place volume next to waste type in barrels or cubic yards)

		NON-INJECTABLE WATERS		INJECTABLE WATERS	
Oil Based Muds		Washout Water (Non-Injectable)		Washout Water (Injectable)	
Oil Based Cuttings		Completion Fluid/Flow back (Non-Injectable)		Completion Fluid/Flow back (Injectable)	
Water Based Muds		Produced Water (Non-Injectable)		Produced Water (Injectable)	
Water Based Cuttings		Gathering Line Water/Waste (Non-Injectable)		Gathering Line Water/Waste (Injectable)	
Produced Formation Solids		INTERNAL USE ONLY		OTHER EXEMPT WASTES (type and generation process of the waste)	
Tank Bottoms		Truck Washout (exempt waste)			
E&P Contaminated Soil					
Gas Plant Waste					

WASTE GENERATION PROCESS: ☐ DRILLING ☐ COMPLETION ☐ PRODUCTION ☑ GATHERING LINES

NON-EXEMPT E&P Waste/Service Identification and Amount
All non-exempt E&P waste must be analysed and be below the threshold limits for toxicity (TCLP), Ignitability, Corrosivity and Reactivity.

Non-Exempt Other _____ *please select from **Non-Exempt Waste List** on back*

QUANTITY B - BARRELS L - LIQUID Y - YARDS E - EACH

I hereby certify that according to the Resource Conservation and Recovery Act (RCRA) and the US Environmental Protection Agency's July 1988 regulatory determination, the above described waste load is (Check the appropriate classification)

☑ RCRA EXEMPT: Oil field wastes generated from oil and gas exploration and production operations and are not mixed with non-exempt waste (R360 Accepts certifications on a per load basis only)

☐ RCRA NON-EXEMPT: Oil field waste which is non-hazardous that does not exceed the minimum standards for waste hazardous by characteristics established in RCRA regulations, 40 CFR 261.21-261.24, or listed hazardous waste as defined by 40 CFR, part 261, subpart D, as amended. The following documentation demonstrating the waste as non-hazardous is attached. (Check the appropriate items as provided)

☐ MSDS Information ☐ RCRA Hazardous Waste Analysis ☐ Other (Provide Description Below)

☐ EMERGENCY NON-OILFEILD: Emergency non-hazradous, non-oilfeild waste that has been ordered by the Department of Public Safety (the order, documentation of non-hazardous waste determination and a desciption of the waste must accompany this form)

PETER V. SCHRAM (PRINT) AUTHORIZED AGENTS NAME | 4/18/19 DATE | SIGNATURE

TRANSPORTER

Transporter's Name	Triple T Trucking / Sergio Alcantar	Driver's Name	
Address		Print Name	
		Phone No.	
Phone No.		Truck No.	

I hereby certify that the above named material(s) was/were picked up at the Generator's site listed above and delivered without incident to the disposal facility listed below.

Sergio Alcantar — SHIPMENT DATE | DRIVER'S SIGNATURE | DELIVERY DATE | DRIVER'S SIGNATURE

TRUCK TIME STAMP

IN: _____ OUT: _____

DISPOSAL FACILITY

Site Name/ Permit No.	Halfway Facility / NM1-006	Phone No.	575-393-1079
Address	6601 Hobbs Hwy US 62/180 Mile Marker 66 Carlsbad, NM 88220		

NORM READINGS TAKEN? (Circle One) YES NO If YES, was reading > 50 micro roentgens? (circle one) YES NO

PASS THE PAINT FILTER TEST? (Circle One) YES NO

RECEIVING AREA

Name/No.

TANK BOTTOMS

	Feet	Inches
1st Gauge		
2nd Gauge		
Received		

BS&W/BBLS Received		BS&W (%)	
Free Water			
Total Received			

I hereby certify that the above load material has been (circle one): ACCEPTED DENIED If denied, why? _____

NAME (PRINT) | DATE | TITLE | SIGNATURE

C-138 White - R360 ORIGINAL Yellow - TRANSPORTER COPY Pink - GENERATOR SITE COPY Gold - RETURN TO GENERATOR Version 1

R360 ENVIRONMENTAL SOLUTIONS

NEW MEXICO NON-HAZARDOUS OILFIELD WASTE MANIFEST

(PLEASE PRINT)

Company Man Contact Information
Name PETER SCHRAM
Phone No. 210-726-7831

GENERATOR

NO. 303951

Operator No. 229137
Operators Name CONCHO (COG)
Address 600 West Illinois Ave
City, State, Zip MIDLAND, TEXAS 79701
Phone No. 432-683-7443

Permit/RRC No.
Lease/Well Name & No. BC Federal #037
County LEA CO, NM
API No. 30-025-38829
Rig Name & No.
AFE/PO No.

EXEMPT E&P Waste/Service Identification and Amount (place volume next to waste type in barrels or cubic yards)

Oil Based Muds		NON-INJECTABLE WATERS		INJECTABLE WATERS	
Oil Based Cuttings		Washout Water (Non-Injectable)		Washout Water (Injectable)	
Water Based Muds		Completion Fluid/Flow back (Non-Injectable)		Completion Fluid/Flow back (Injectable)	
Water Based Cuttings		Produced Water (Non-Injectable)		Produced Water (Injectable)	
Produced Formation Solids		Gathering Line Water/Waste (Non-Injectable)		Gathering Line Water/Waste (Injectable)	
Tank Bottoms		INTERNAL USE ONLY		OTHER EXEMPT WASTES (type and generation process of the waste)	
E&P Contaminated Soil	20yds	Truck Washout (exempt waste)			
Gas Plant Waste					

WASTE GENERATION PROCESS: ☐ DRILLING ☐ COMPLETION ☐ PRODUCTION ☑ GATHERING LINES

NON-EXEMPT E&P Waste/Service Identification and Amount
All non-exempt E&P waste must be analysed and be below the threshold limits for toxicity (TCLP), Ignitability, Corrosivity and Reactivity.

Non-Exempt Other _____ *please select from **Non-Exempt Waste List** on back*

QUANTITY B - BARRELS L - LIQUID Y - YARDS E - EACH

I hereby certify that according to the Resource Conservation and Recovery Act (RCRA) and the US Environmental Protection Agency's July 1988 regulatory determination, the above described waste load is (Check the appropriate classification)

☑ RCRA EXEMPT: Oil field wastes generated from oil and gas exploration and production operations and are not mixed with non-exempt waste (R360 Accepts certifications on a per load basis only)

☐ RCRA NON-EXEMPT: Oil field waste which is non-hazardous that does not exceed the minimum standards for waste hazardous by characteristics established in RCRA regulations, 40 CFR 261.21-261.24, or listed hazardous waste as defined by 40 CFR, part 261, subpart D, as amended. The following documentation demonstrating the waste as non-hazardous is attached. (Check the appropriate items as provided)

☐ MSDS Information ☐ RCRA Hazardous Waste Analysis ☐ Other (Provide Description Below)

☐ EMERGENCY NON-OILFEILD: Emergency non-hazradous, non-oilfeild waste that has been ordered by the Department of Public Safety (the order, documentation of non-hazardous waste determination and a desciption of the waste must accompany this form)

PETER V SCHRAM (PRINT) AUTHORIZED AGENTS NAME | 4/18/18 DATE | SIGNATURE

TRANSPORTER

Transporter's Name
Address
Phone No.
Driver's Name
Print Name
Phone No.
Truck No.

I hereby certify that the above named material(s) was/were picked up at the Generator's site listed above and delivered without incident to the disposal facility listed below.

4/18/18 SHIPMENT DATE | MANUEL MONTOYA DRIVER'S SIGNATURE | DELIVERY DATE | DRIVER'S SIGNATURE

TRUCK TIME STAMP
IN: _____ OUT: _____

DISPOSAL FACILITY

RECEIVING AREA
Name/No.

Site Name/ Permit No. Halfway Facility / NM1-006
Phone No. 575-393-1079
Address 6601 Hobbs Hwy US 62/180 Mile Marker 66 Carlsbad, NM 88220

NORM READINGS TAKEN? (Circle One) YES NO If YES, was reading > 50 micro roentgens? (circle one) YES NO
PASS THE PAINT FILTER TEST? (Circle One) YES NO

TANK BOTTOMS

	Feet	Inches
1st Gauge		
2nd Gauge		
Received		

BS&W/BBLS Received		BS&W (%)	
Free Water			
Total Received			

I hereby certify that the above load material has been (circle one): ACCEPTED DENIED If denied, why? _____

NAME (PRINT) | DATE | TITLE | SIGNATURE

C-138 White - R360 ORIGINAL Yellow - TRANSPORTER COPY Pink - GENERATOR SITE COPY Gold - RETURN TO GENERATOR Version 1

R360 ENVIRONMENTAL SOLUTIONS

NEW MEXICO NON-HAZARDOUS OILFIELD WASTE MANIFEST

(PLEASE PRINT)

Company Man Contact Information
Name PV Schram.
Phone No. 210-326-7831

GENERATOR

NO. 303952

Operator No. 229137
Operators Name Concho (COG)
Address 600 W. Illinois Ave
City, State, Zip Midland, TX 79701
Phone No. 432-683-7443

Permit/RRC No.
Lease/Well Name & No. BX Federal #032
County Lea Co, NM
API No. 30-025-38829
Rig Name & No.
AFE/PO No.

EXEMPT E&P Waste/Service Identification and Amount (place volume next to waste type in barrels or cubic yards)

Oil Based Muds		NON-INJECTABLE WATERS		INJECTABLE WATERS	
Oil Based Cuttings		Washout Water (Non-Injectable)		Washout Water (Injectable)	
Water Based Muds		Completion Fluid/Flow back (Non-Injectable)		Completion Fluid/Flow back (Injectable)	
Water Based Cuttings		Produced Water (Non-Injectable)		Produced Water (Injectable)	
Produced Formation Solids		Gathering Line Water/Waste (Non-Injectable)		Gathering Line Water/Waste (Injectable)	
Tank Bottoms		INTERNAL USE ONLY		OTHER EXEMPT WASTES (type and generation process of the waste)	
E&P Contaminated Soil	10 yds	Truck Washout (exempt waste)			
Gas Plant Waste					

WASTE GENERATION PROCESS: ☐ DRILLING ☐ COMPLETION ☐ PRODUCTION ☑ GATHERING LINES

NON-EXEMPT E&P Waste/Service Identification and Amount
All non-exempt E&P waste must be analysed and be below the threshold limits for toxicity (TCLP), Ignitability, Corrosivity and Reactivity.

Non-Exempt Other *please select from **Non-Exempt Waste List** on back

QUANTITY B - BARRELS L - LIQUID Y - YARDS E - EACH

I hereby certify that according to the Resource Conservation and Recovery Act (RCRA) and the US Environmental Protection Agency's July 1988 regulatory determination, the above described waste load is (Check the appropriate classification)

☑ RCRA EXEMPT: Oil field wastes generated from oil and gas exploration and production operations and are not mixed with non-exempt waste (R360 Accepts certifications on a per load basis only)

☐ RCRA NON-EXEMPT: Oil field waste which is non-hazardous that does not exceed the minimum standards for waste hazardous by characteristics established in RCRA regulations, 40 CFR 261.21-261.24, or listed hazardous waste as defined by 40 CFR, part 261, subpart D, as amended. The following documentation demonstrating the waste as non-hazardous is attached. (Check the appropriate items as provided)

☐ MSDS Information ☐ RCRA Hazardous Waste Analysis ☐ Other (Provide Description Below)

☐ EMERGENCY NON-OILFEILD: Emergency non-hazradous, non-oilfeild waste that has been ordered by the Department of Public Safety (the order, documentation of non-hazardous waste determination and a desciption of the waste must accompany this form)

PETER V. SCHRAM (PRINT) AUTHORIZED AGENTS NAME — 4/18/15 DATE — SIGNATURE

TRANSPORTER

Transporter's Name: Montoya Services LLC
Address: 2010 Cooper Rd. Roswell, NM 88203
Phone No.:

Driver's Name: Juan Montoya Jr
Print Name:
Phone No.: (575) 910-5981
Truck No.: 7

I hereby certify that the above named material(s) was/were picked up at the Generator's site listed above and delivered without incident to the disposal facility listed below.

4/18/15 SHIPMENT DATE — DRIVER'S SIGNATURE — DELIVERY DATE — DRIVER'S SIGNATURE

TRUCK TIME STAMP
IN: OUT:

DISPOSAL FACILITY

RECEIVING AREA
Name/No.

Site Name/Permit No.: Halfway Facility / NM1-006
Phone No.: 575-393-1079
Address: 6601 Hobbs Hwy US 62/180 Mile Marker 66 Carlsbad, NM 88220

NORM READINGS TAKEN? (Circle One) YES NO If YES, was reading > 50 micro roentgens? (circle one) YES NO

PASS THE PAINT FILTER TEST? (Circle One) YES NO

TANK BOTTOMS

	Feet	Inches
1st Gauge		
2nd Gauge		
Received		

BS&W/BBLS Received		BS&W (%)	
Free Water			
Total Received			

I hereby certify that the above load material has been (circle one): ACCEPTED DENIED If denied, why?

NAME (PRINT) — DATE — TITLE — SIGNATURE

C-138 White - R360 ORIGINAL Yellow - TRANSPORTER COPY Pink - GENERATOR SITE COPY Gold - RETURN TO GENERATOR Version 1

R360 ENVIRONMENTAL SOLUTIONS

NEW MEXICO NON-HAZARDOUS OILFIELD WASTE MANIFEST

(PLEASE PRINT)

Company Man Contact Information
Name PUSCHMAN
Phone No. 210-326-27331

GENERATOR

NO. 303953

Operator No. 221137
Operators Name Conoco (106)
Address 600 W. Illinois Ave
City, State, Zip Midland, Texas 79701
Phone No. 432-683-7443

Permit/RRC No.
Lease/Well Name & No. BC Federal #032
County Lea Co. NM
API No. 30-025-36879
Rig Name & No.
AFE/PO No.

EXEMPT E&P Waste/Service Identification and Amount (place volume next to waste type in barrels or cubic yards)

		NON-INJECTABLE WATERS		INJECTABLE WATERS	
Oil Based Muds		Washout Water (Non-Injectable)		Washout Water (Injectable)	
Oil Based Cuttings		Completion Fluid/Flow back (Non-Injectable)		Completion Fluid/Flow back (Injectable)	
Water Based Muds		Produced Water (Non-Injectable)		Produced Water (Injectable)	
Water Based Cuttings		Gathering Line Water/Waste (Non-Injectable)		Gathering Line Water/Waste (Injectable)	
Produced Formation Solids		INTERNAL USE ONLY		OTHER EXEMPT WASTES (type and generation process of the waste)	
Tank Bottoms		Truck Washout (exempt waste)			
E&P Contaminated Soil	20 yds				
Gas Plant Waste					

WASTE GENERATION PROCESS: ☐ DRILLING ☐ COMPLETION ☐ PRODUCTION ☑ GATHERING LINES

NON-EXEMPT E&P Waste/Service Identification and Amount
All non-exempt E&P waste must be analysed and be below the threshold limits for toxicity (TCLP), Ignitability, Corrosivity and Reactivity.

Non-Exempt Other _____ *please select from **Non-Exempt Waste List** on back

QUANTITY B - BARRELS L - LIQUID Y - YARDS E - EACH

I hereby certify that according to the Resource Conservation and Recovery Act (RCRA) and the US Environmental Protection Agency's July 1988 regulatory determination, the above described waste load is (Check the appropriate classification)

☑ RCRA EXEMPT: Oil field wastes generated from oil and gas exploration and production operations and are not mixed with non-exempt waste (R360 Accepts certifications on a per load basis only)

☐ RCRA NON-EXEMPT: Oil field waste which is non-hazardous that does not exceed the minimum standards for waste hazardous by characteristics established in RCRA regulations, 40 CFR 261.21-261.24, or listed hazardous waste as defined by 40 CFR, part 261, subpart D, as amended. The following documentation demonstrating the waste as non-hazardous is attached. (Check the appropriate items as provided)

☐ MSDS Information ☐ RCRA Hazardous Waste Analysis ☐ Other (Provide Description Below)

☐ EMERGENCY NON-OILFEILD: Emergency non-hazradous, non-oilfeild waste that has been ordered by the Department of Public Safety (the order, documentation of non-hazardous waste determination and a desciption of the waste must accompany this form)

PETER J. SCHUMAN (PRINT) AUTHORIZED AGENTS NAME — 4/15/13 DATE — SIGNATURE

TRANSPORTER

Transporter's Name
Address
Phone No.
Driver's Name
Print Name
Phone No.
Truck No. #5

I hereby certify that the above named material(s) was/were picked up at the Generator's site listed above and delivered without incident to the disposal facility listed below.

4/15/13 SHIPMENT DATE — DRIVER'S SIGNATURE — DELIVERY DATE — DRIVER'S SIGNATURE

DISPOSAL FACILITY

TRUCK TIME STAMP
IN: _____ OUT: _____

RECEIVING AREA
Name/No.

Site Name/Permit No. Halfway Facility / NM1-006
Phone No. 575-393-1079
Address 6601 Hobbs Hwy US 62/180 Mile Marker 66 Carlsbad, NM 88220

NORM READINGS TAKEN? (Circle One) YES NO
If YES, was reading > 50 micro roentgens? (circle one) YES NO
PASS THE PAINT FILTER TEST? (Circle One) YES NO

TANK BOTTOMS

	Feet	Inches
1st Gauge		
2nd Gauge		
Received		

BS&W/BBLS Received		BS&W (%)	
Free Water			
Total Received			

I hereby certify that the above load material has been (circle one): ACCEPTED DENIED If denied, why? _____

NAME (PRINT) — DATE — TITLE — SIGNATURE

C-138 White - R360 ORIGINAL Yellow - TRANSPORTER COPY Pink - GENERATOR SITE COPY Gold - RETURN TO GENERATOR Version 1

R360 ENVIRONMENTAL SOLUTIONS

NEW MEXICO NON-HAZARDOUS OILFIELD WASTE MANIFEST

(PLEASE PRINT)

Company Man Contact Information
Name PETER V SCHRAM
Phone No. 210-326-7931

GENERATOR

NO. 303954

Operator No. 229137
Operators Name CONOCO (EOG)
Address 600 W. ILLINOIS AVE
City, State, Zip MIDLAND, TX 79701
Phone No. 432-683-7443

Permit/RRC No.
Lease/Well Name & No. RC Federal #032
County Lea Co, NM
API No. 30-025-39929
Rig Name & No.
AFE/PO No.

EXEMPT E&P Waste/Service Identification and Amount (place volume next to waste type in barrels or cubic yards)

		NON-INJECTABLE WATERS		INJECTABLE WATERS	
Oil Based Muds		Washout Water (Non-Injectable)		Washout Water (Injectable)	
Oil Based Cuttings		Completion Fluid/Flow back (Non-Injectable)		Completion Fluid/Flow back (Injectable)	
Water Based Muds		Produced Water (Non-Injectable)		Produced Water (Injectable)	
Water Based Cuttings		Gathering Line Water/Waste (Non-Injectable)		Gathering Line Water/Waste (Injectable)	
Produced Formation Solids		INTERNAL USE ONLY		OTHER EXEMPT WASTES (type and generation process of the waste)	
Tank Bottoms		Truck Washout (exempt waste)			
E&P Contaminated Soil	2 yards				
Gas Plant Waste					

WASTE GENERATION PROCESS: ☐ DRILLING ☐ COMPLETION ☐ PRODUCTION ☑ GATHERING LINES

NON-EXEMPT E&P Waste/Service Identification and Amount
All non-exempt E&P waste must be analysed and be below the threshold limits for toxicity (TCLP), Ignitability, Corrosivity and Reactivity.

Non-Exempt Other _____ *please select from **Non-Exempt Waste List** on back*

QUANTITY B - BARRELS L - LIQUID Y - YARDS E - EACH

I hereby certify that according to the Resource Conservation and Recovery Act (RCRA) and the US Environmental Protection Agency's July 1988 regulatory determination, the above described waste load is (Check the appropriate classification)

☑ RCRA EXEMPT: Oil field wastes generated from oil and gas exploration and production operations and are not mixed with non-exempt waste (R360 Accepts certifications on a per load basis only)

☐ RCRA NON-EXEMPT: Oil field waste which is non-hazardous that does not exceed the minimum standards for waste hazardous by characteristics established in RCRA regulations, 40 CFR 261.21-261.24, or listed hazardous waste as defined by 40 CFR, part 261, subpart D, as amended. The following documentation demonstrating the waste as non-hazardous is attached. (Check the appropriate items as provided)

☐ MSDS Information ☐ RCRA Hazardous Waste Analysis ☐ Other (Provide Description Below)

☐ EMERGENCY NON-OILFEILD: Emergency non-hazradous, non-oilfeild waste that has been ordered by the Department of Public Safety (the order, documentation of non-hazardous waste determination and a desciption of the waste must accompany this form)

PETER V. SCHRAM (PRINT) AUTHORIZED AGENTS NAME — 1/14/14 DATE — SIGNATURE

TRANSPORTER

Transporter's Name
Address
Phone No.
Driver's Name Ben Sais
Print Name
Phone No.
Truck No.

I hereby certify that the above named material(s) was/were picked up at the Generator's site listed above and delivered without incident to the disposal facility listed below.

SHIPMENT DATE — DRIVER'S SIGNATURE — DELIVERY DATE — DRIVER'S SIGNATURE

DISPOSAL FACILITY

TRUCK TIME STAMP IN: _____ OUT: _____

RECEIVING AREA Name/No.

Site Name/ Permit No. Halfway Facility / NM1-006
Phone No. 575-393-1079
Address 6601 Hobbs Hwy US 62/180 Mile Marker 66 Carlsbad, NM 88220

NORM READINGS TAKEN? (Circle One) YES NO If YES, was reading > 50 micro roentgens? (circle one) YES NO

PASS THE PAINT FILTER TEST? (Circle One) YES NO

TANK BOTTOMS

	Feet	Inches
1st Gauge		
2nd Gauge		
Received		

BS&W/BBLS Received		BS&W (%)	
Free Water			
Total Received			

I hereby certify that the above load material has been (circle one): ACCEPTED DENIED If denied, why? _____

NAME (PRINT) — DATE — TITLE — SIGNATURE

C-138 White - R360 ORIGINAL Yellow - TRANSPORTER COPY Pink - GENERATOR SITE COPY Gold - RETURN TO GENERATOR Version 1

R360 ENVIRONMENTAL SOLUTIONS

NEW MEXICO NON-HAZARDOUS OILFIELD WASTE MANIFEST

(PLEASE PRINT)

Company Man Contact Information
Name PUSCHMANN
Phone No. 210-326-7831

GENERATOR

NO. 303955

Operator No. 229137
Operators Name COG (COG)
Address 600 W. Illinois Ave
City, State, Zip Midland TX 79701
Phone No. 432-683-7443

Permit/RRC No.
Lease/Well Name & No. BC Federal #032
County Lea Co. NM.
API No. 30-025-39529
Rig Name & No.
AFE/PO No.

EXEMPT E&P Waste/Service Identification and Amount (place volume next to waste type in barrels or cubic yards)

Oil Based Muds		NON-INJECTABLE WATERS		INJECTABLE WATERS	
Oil Based Cuttings		Washout Water (Non-Injectable)		Washout Water (Injectable)	
Water Based Muds		Completion Fluid/Flow back (Non-Injectable)		Completion Fluid/Flow back (Injectable)	
Water Based Cuttings		Produced Water (Non-Injectable)		Produced Water (Injectable)	
Produced Formation Solids		Gathering Line Water/Waste (Non-Injectable)		Gathering Line Water/Waste (Injectable)	
Tank Bottoms		INTERNAL USE ONLY		OTHER EXEMPT WASTES (type and generation process of the waste)	
E&P Contaminated Soil	20yd	Truck Washout (exempt waste)			
Gas Plant Waste					

WASTE GENERATION PROCESS: ☐ DRILLING ☐ COMPLETION ☐ PRODUCTION ☑ GATHERING LINES

NON-EXEMPT E&P Waste/Service Identification and Amount
All non-exempt E&P waste must be analysed and be below the threshold limits for toxicity (TCLP), Ignitability, Corrosivity and Reactivity.

Non-Exempt Other _____ *please select from **Non-Exempt Waste List** on back*

QUANTITY B - BARRELS L - LIQUID Y - YARDS E - EACH

I hereby certify that according to the Resource Conservation and Recovery Act (RCRA) and the US Environmental Protection Agency's July 1988 regulatory determination, the above described waste load is (Check the appropriate classification)

☑ RCRA EXEMPT: Oil field wastes generated from oil and gas exploration and production operations and are not mixed with non-exempt waste (R360 Accepts certifications on a per load basis only)

☐ RCRA NON-EXEMPT: Oil field waste which is non-hazardous that does not exceed the minimum standards for waste hazardous by characteristics established in RCRA regulations, 40 CFR 261.21-261.24, or listed hazardous waste as defined by 40 CFR, part 261, subpart D, as amended. The following documentation demonstrating the waste as non-hazardous is attached. (Check the appropriate items as provided)

☐ MSDS Information ☐ RCRA Hazardous Waste Analysis ☐ Other (Provide Description Below)

☐ EMERGENCY NON-OILFEILD: Emergency non-hazradous, non-oilfeild waste that has been ordered by the Department of Public Safety (the order, documentation of non-hazardous waste determination and a desciption of the waste must accompany this form)

PETER V. SCHMANN (PRINT) AUTHORIZED AGENTS NAME | 4/18/18 DATE | SIGNATURE

TRANSPORTER

Transporter's Name
Address
Phone No.
Driver's Name
Print Name
Phone No.
Truck No.

I hereby certify that the above named material(s) was/were picked up at the Generator's site listed above and delivered without incident to the disposal facility listed below.

4/18/18 SHIPMENT DATE | DRIVER'S SIGNATURE | DELIVERY DATE | DRIVER'S SIGNATURE

TRUCK TIME STAMP
IN: _____ OUT: _____

DISPOSAL FACILITY

RECEIVING AREA
Name/No.

Site Name/ Permit No. Halfway Facility / NM1-006
Address 6601 Hobbs Hwy US 62/180 Mile Marker 66 Carlsbad, NM 88220
Phone No. 575-393-1079

NORM READINGS TAKEN? (Circle One) YES NO If YES, was reading > 50 micro roentgens? (circle one) YES NO
PASS THE PAINT FILTER TEST? (Circle One) YES NO

TANK BOTTOMS

	Feet	Inches
1st Gauge		
2nd Gauge		
Received		

BS&W/BBLS Received		BS&W (%)	
Free Water			
Total Received			

I hereby certify that the above load material has been (circle one): ACCEPTED DENIED If denied, why? _____

NAME (PRINT) | DATE | TITLE | SIGNATURE

C-138 White - R360 ORIGINAL Yellow - TRANSPORTER COPY Pink - GENERATOR SITE COPY Gold - RETURN TO GENERATOR Version 1

R360 ENVIRONMENTAL SOLUTIONS

NEW MEXICO NON-HAZARDOUS OILFIELD WASTE MANIFEST

(PLEASE PRINT)

Company Man Contact Information
Name PETER V CHAVEZ
Phone No. 210-326-7531

GENERATOR

NO. 303956

Operator No. 229137
Operators Name CONOCO (COG)
Address 600 W. ILLINOIS AVE
City, State, Zip MIDLAND TX 79701
Phone No. 432-683-7443

Permit/RRC No.
Lease/Well Name & No. R-C FEDERAL #032
County LEA CO., NM
API No. 30-025-38824
Rig Name & No.
AFE/PO No.

EXEMPT E&P Waste/Service Identification and Amount (place volume next to waste type in barrels or cubic yards)			
Oil Based Muds	NON-INJECTABLE WATERS		INJECTABLE WATERS
Oil Based Cuttings	Washout Water (Non-Injectable)		Washout Water (Injectable)
Water Based Muds	Completion Fluid/Flow back (Non-Injectable)		Completion Fluid/Flow back (Injectable)
Water Based Cuttings	Produced Water (Non-Injectable)		Produced Water (Injectable)
Produced Formation Solids	Gathering Line Water/Waste (Non-Injectable)		Gathering Line Water/Waste (Injectable)
Tank Bottoms	INTERNAL USE ONLY		OTHER EXEMPT WASTES (type and generation process of the waste)
E&P Contaminated Soil 30 yds	Truck Washout (exempt waste)		
Gas Plant Waste			

WASTE GENERATION PROCESS: ☐ DRILLING ☐ COMPLETION ☐ PRODUCTION ☑ GATHERING LINES

NON-EXEMPT E&P Waste/Service Identification and Amount
All non-exempt E&P waste must be analysed and be below the threshold limits for toxicity (TCLP), Ignitability, Corrosivity and Reactivity.

Non-Exempt Other _____ *please select from **Non-Exempt Waste List** on back

QUANTITY B - BARRELS L - LIQUID Y - YARDS E - EACH

I hereby certify that according to the Resource Conservation and Recovery Act (RCRA) and the US Environmental Protection Agency's July 1988 regulatory determination, the above described waste load is (Check the appropriate classification)

☑ RCRA EXEMPT: Oil field wastes generated from oil and gas exploration and production operations and are not mixed with non-exempt waste (R360 Accepts certifications on a per load basis only)

☐ RCRA NON-EXEMPT: Oil field waste which is non-hazardous that does not exceed the minimum standards for waste hazardous by characteristics established in RCRA regulations, 40 CFR 261.21-261.24, or listed hazardous waste as defined by 40 CFR, part 261, subpart D, as amended. The following documentation demonstrating the waste as non-hazardous is attached. (Check the appropriate items as provided)

☐ MSDS Information ☐ RCRA Hazardous Waste Analysis ☐ Other (Provide Description Below)

☐ EMERGENCY NON-OILFEILD: Emergency non-hazradous, non-oilfeild waste that has been ordered by the Department of Public Safety (the order, documentation of non-hazardous waste determination and a desciption of the waste must accompany this form)

PETER V CHAVEZ (PRINT) AUTHORIZED AGENTS NAME — 4/18/18 DATE — SIGNATURE

TRANSPORTER

Transporter's Name
Address
Phone No.

Driver's Name
Print Name
Phone No.
Truck No.

I hereby certify that the above named material(s) was/were picked up at the Generator's site listed above and delivered without incident to the disposal facility listed below.

SHIPMENT DATE — DRIVER'S SIGNATURE — 4/18/18 DELIVERY DATE — DRIVER'S SIGNATURE

DISPOSAL FACILITY

TRUCK TIME STAMP
IN: _____ OUT: _____

RECEIVING AREA
Name/No.

Site Name/ Permit No. Halfway Facility / NM1-006
Phone No. 575-393-1079
Address 6601 Hobbs Hwy US 62/180 Mile Marker 66 Carlsbad, NM 88220

NORM READINGS TAKEN? (Circle One) YES NO If YES, was reading > 50 micro roentgens? (circle one) YES NO

PASS THE PAINT FILTER TEST? (Circle One) YES NO

TANK BOTTOMS

	Feet	Inches
1st Gauge		
2nd Gauge		
Received		

BS&W/BBLS Received		BS&W (%)	
Free Water			
Total Received			

I hereby certify that the above load material has been (circle one): ACCEPTED DENIED If denied, why? _____

NAME (PRINT) — DATE — TITLE — SIGNATURE

C-138 White - R360 ORIGINAL Yellow - TRANSPORTER COPY Pink - GENERATOR SITE COPY Gold - RETURN TO GENERATOR Version 1

R360 ENVIRONMENTAL SOLUTIONS

NEW MEXICO NON-HAZARDOUS OILFIELD WASTE MANIFEST
(PLEASE PRINT)

Company Man Contact Information
Name: Peter Schram
Phone No. 210-526-7831

GENERATOR

NO. 303958

Operator No. 229137
Operators Name: Concho (COG)
Address: 600 W. Illinois Ave
City, State, Zip: Midland TX 79701
Phone No. 432-683-7443

Permit/RRC No.
Lease/Well Name & No. Bc Federal #032
County: Lea Co, NM
API No. 30-025-38829
Rig Name & No.
AFE/PO No.

EXEMPT E&P Waste/Service Identification and Amount (place volume next to waste type in barrels or cubic yards)

		NON-INJECTABLE WATERS		INJECTABLE WATERS	
Oil Based Muds		Washout Water (Non-Injectable)		Washout Water (Injectable)	
Oil Based Cuttings		Completion Fluid/Flow back (Non-Injectable)		Completion Fluid/Flow back (Injectable)	
Water Based Muds		Produced Water (Non-Injectable)		Produced Water (Injectable)	
Water Based Cuttings		Gathering Line Water/Waste (Non-Injectable)		Gathering Line Water/Waste (Injectable)	
Produced Formation Solids		INTERNAL USE ONLY		OTHER EXEMPT WASTES (type and generation process of the waste)	
Tank Bottoms		Truck Washout (exempt waste)			
E&P Contaminated Soil	20 yds				
Gas Plant Waste					

WASTE GENERATION PROCESS: ☐ DRILLING ☐ COMPLETION ☐ PRODUCTION ☑ GATHERING LINES

NON-EXEMPT E&P Waste/Service Identification and Amount
All non-exempt E&P waste must be analysed and be below the threshold limits for toxicity (TCLP), Ignitability, Corrosivity and Reactivity.

Non-Exempt Other ______ *please select from *Non-Exempt Waste List* on back*

QUANTITY B - BARRELS L - LIQUID Y - YARDS E - EACH

I hereby certify that according to the Resource Conservation and Recovery Act (RCRA) and the US Environmental Protection Agency's July 1988 regulatory determination, the above described waste load is (Check the appropriate classification)

☑ RCRA EXEMPT: Oil field wastes generated from oil and gas exploration and production operations and are not mixed with non-exempt waste (R360 Accepts certifications on a per load basis only)

☐ RCRA NON-EXEMPT: Oil field waste which is non-hazardous that does not exceed the minimum standards for waste hazardous by characteristics established in RCRA regulations, 40 CFR 261.21-261.24, or listed hazardous waste as defined by 40 CFR, part 261, subpart D, as amended. The following documentation demonstrating the waste as non-hazardous is attached. (Check the appropriate items as provided)

☐ MSDS Information ☐ RCRA Hazardous Waste Analysis ☐ Other (Provide Description Below)

☐ EMERGENCY NON-OILFEILD: Emergency non-hazradous, non-oilfeild waste that has been ordered by the Department of Public Safety (the order, documentation of non-hazardous waste determination and a desciption of the waste must accompany this form)

Peter V. Schram — (PRINT) AUTHORIZED AGENTS NAME
4/18/18 — DATE
[signature] — SIGNATURE

TRANSPORTER

Transporter's Name: [illegible]
Address: [illegible]
Phone No. [illegible]

Driver's Name: [illegible]
Print Name
Phone No. (575) 910-5981
Truck No. [illegible]

I hereby certify that the above named material(s) was/were picked up at the Generator's site listed above and delivered without incident to the disposal facility listed below.

4/18/18 — SHIPMENT DATE
[signature] — DRIVER'S SIGNATURE
DELIVERY DATE
DRIVER'S SIGNATURE

TRUCK TIME STAMP
IN: ______ OUT: ______

DISPOSAL FACILITY

RECEIVING AREA
Name/No.

Site Name/Permit No. Halfway Facility / NM1-006
Address: 6601 Hobbs Hwy US 62/180 Mile Marker 66 Carlsbad, NM 88220
Phone No. 575-393-1079

NORM READINGS TAKEN? (Circle One) YES NO — If YES, was reading > 50 micro roentgens? (circle one) YES NO
PASS THE PAINT FILTER TEST? (Circle One) YES NO

TANK BOTTOMS

	Feet	Inches
1st Gauge		
2nd Gauge		
Received		

BS&W/BBLS Received		BS&W (%)
Free Water		
Total Received		

I hereby certify that the above load material has been (circle one): ACCEPTED DENIED If denied, why?

NAME (PRINT) DATE TITLE SIGNATURE

R360 ENVIRONMENTAL SOLUTIONS

NEW MEXICO NON-HAZARDOUS OILFIELD WASTE MANIFEST
(PLEASE PRINT)

Company Man Contact Information
Name PJ Schwartz
Phone No. 210-326-7831

GENERATOR

NO. 303960

Operator No.	229137	Permit/RRC No.	
Operators Name	Concho (COG)	Lease/Well Name & No.	BC Federal #032
Address	600 W. Illinois Ave	County	Lea Co, NM
		API No.	30-025-38829
City, State, Zip	Midland TX 79701	Rig Name & No.	
Phone No.	432-683-7443	AFE/PO No.	

EXEMPT E&P Waste/Service Identification and Amount (place volume next to waste type in barrels or cubic yards)

		NON-INJECTABLE WATERS		INJECTABLE WATERS	
Oil Based Muds		Washout Water (Non-Injectable)		Washout Water (Injectable)	
Oil Based Cuttings		Completion Fluid/Flow back (Non-Injectable)		Completion Fluid/Flow back (Injectable)	
Water Based Muds		Produced Water (Non-Injectable)		Produced Water (Injectable)	
Water Based Cuttings		Gathering Line Water/Waste (Non-Injectable)		Gathering Line Water/Waste (Injectable)	
Produced Formation Solids		INTERNAL USE ONLY		OTHER EXEMPT WASTES (type and generation process of the waste)	
Tank Bottoms		Truck Washout (exempt waste)			
E&P Contaminated Soil	20 yds				
Gas Plant Waste					

WASTE GENERATION PROCESS: ☐ DRILLING ☐ COMPLETION ☐ PRODUCTION ☑ GATHERING LINES

NON-EXEMPT E&P Waste/Service Identification and Amount
All non-exempt E&P waste must be analysed and be below the threshold limits for toxicity (TCLP), Ignitability, Corrosivity and Reactivity.

Non-Exempt Other ______ *please select from *Non-Exempt Waste List* on back

QUANTITY B - BARRELS L - LIQUID Y - YARDS E - EACH

I hereby certify that according to the Resource Conservation and Recovery Act (RCRA) and the US Environmental Protection Agency's July 1988 regulatory determination, the above described waste load is (Check the appropriate classification)

☑ RCRA EXEMPT: Oil field wastes generated from oil and gas exploration and production operations and are not mixed with non-exempt waste (R360 Accepts certifications on a per load basis only)

☐ RCRA NON-EXEMPT: Oil field waste which is non-hazardous that does not exceed the minimum standards for waste hazardous by characteristics established in RCRA regulations, 40 CFR 261.21-261.24, or listed hazardous waste as defined by 40 CFR, part 261, subpart D, as amended. The following documentation demonstrating the waste as non-hazardous is attached. (Check the appropriate items as provided)

☐ MSDS Information ☐ RCRA Hazardous Waste Analysis ☐ Other (Provide Description Below)

☐ EMERGENCY NON-OILFEILD: Emergency non-hazradous, non-oilfeild waste that has been ordered by the Department of Public Safety (the order, documentation of non-hazardous waste determination and a desciption of the waste must accompany this form)

Peter V. Schwartz — 4/18/18 — [signature]
(PRINT) AUTHORIZED AGENTS NAME — DATE — SIGNATURE

TRANSPORTER

Transporter's Name	A 3 S Trucking	Driver's Name	Arnoldo Armenta
Address	P.O. Box 110 Hagerman NM. 88232	Print Name	
		Phone No.	
Phone No.	# 575-626-8891	Truck No.	# 5

I hereby certify that the above named material(s) was/were picked up at the Generator's site listed above and delivered without incident to the disposal facility listed below.

SHIPMENT DATE — DRIVER'S SIGNATURE — DELIVERY DATE — DRIVER'S SIGNATURE

TRUCK TIME STAMP
IN: ______ OUT: ______

DISPOSAL FACILITY

RECEIVING AREA
Name/No.

Site Name/Permit No. Halfway Facility / NM1-006
Phone No. 575-393-1079
Address 6601 Hobbs Hwy US 62/180 Mile Marker 66 Carlsbad, NM 88220

NORM READINGS TAKEN? (Circle One) YES NO — If YES, was reading > 50 micro roentgens? (circle one) YES NO

PASS THE PAINT FILTER TEST? (Circle One) YES NO

TANK BOTTOMS

	Feet	Inches
1st Gauge		
2nd Gauge		
Received		

BS&W/BBLS Received		BS&W (%)
Free Water		
Total Received		

I hereby certify that the above load material has been (circle one): ACCEPTED DENIED If denied, why? ______

NAME (PRINT) — DATE — TITLE — SIGNATURE

C-138 White - R360 ORIGINAL Yellow - TRANSPORTER COPY Pink - GENERATOR SITE COPY Gold - RETURN TO GENERATOR Version 1

R360 ENVIRONMENTAL SOLUTIONS

NEW MEXICO NON-HAZARDOUS OILFIELD WASTE MANIFEST

(PLEASE PRINT)

Company Man Contact Information
Name RJ Salvan
Phone No. 210-326-7931

GENERATOR

NO. 303959

Operator No. 229137
Operators Name Concho (COG)
Address 600 W. Illinois Ave
City, State, Zip Midland, TX 79701
Phone No. 432-683-7443

Permit/RRC No.
Lease/Well Name & No. BC Federal #032
County Lea Co, NM
API No. 30-025-38879
Rig Name & No.
AFE/PO No.

EXEMPT E&P Waste/Service Identification and Amount (place volume next to waste type in barrels or cubic yards)

Oil Based Muds		NON-INJECTABLE WATERS		INJECTABLE WATERS	
Oil Based Cuttings		Washout Water (Non-Injectable)		Washout Water (Injectable)	
Water Based Muds		Completion Fluid/Flow back (Non-Injectable)		Completion Fluid/Flow back (Injectable)	
Water Based Cuttings		Produced Water (Non-Injectable)		Produced Water (Injectable)	
Produced Formation Solids		Gathering Line Water/Waste (Non-Injectable)		Gathering Line Water/Waste (Injectable)	
Tank Bottoms		INTERNAL USE ONLY		OTHER EXEMPT WASTES (type and generation process of the waste)	
E&P Contaminated Soil		Truck Washout (exempt waste)			
Gas Plant Waste					

WASTE GENERATION PROCESS: ☐ DRILLING ☐ COMPLETION ☐ PRODUCTION ☑ GATHERING LINES

NON-EXEMPT E&P Waste/Service Identification and Amount
All non-exempt E&P waste must be analysed and be below the threshold limits for toxicity (TCLP), Ignitability, Corrosivity and Reactivity.

Non-Exempt Other _____ *please select from **Non-Exempt Waste List** on back*

QUANTITY B - BARRELS L - LIQUID Y - YARDS E - EACH

I hereby certify that according to the Resource Conservation and Recovery Act (RCRA) and the US Environmental Protection Agency's July 1988 regulatory determination, the above described waste load is (Check the appropriate classification)

☐ RCRA EXEMPT: Oil field wastes generated from oil and gas exploration and production operations and are not mixed with non-exempt waste (R360 Accepts certifications on a per load basis only)

☐ RCRA NON-EXEMPT: Oil field waste which is non-hazardous that does not exceed the minimum standards for waste hazardous by characteristics established in RCRA regulations, 40 CFR 261.21-261.24, or listed hazardous waste as defined by 40 CFR, part 261, subpart D, as amended. The following documentation demonstrating the waste as non-hazardous is attached. (Check the appropriate items as provided)

☐ MSDS Information ☐ RCRA Hazardous Waste Analysis ☑ Other (Provide Description Below)

☐ EMERGENCY NON-OILFEILD: Emergency non-hazradous, non-oilfeild waste that has been ordered by the Department of Public Safety (the order, documentation of non-hazardous waste determination and a desciption of the waste must accompany this form)

PETER V. SALVAN — (PRINT) AUTHORIZED AGENTS NAME
4/18/18 — DATE
SIGNATURE

TRANSPORTER

Transporter's Name Triple T Trucking
Address
Phone No.
Driver's Name Ben Salas
Print Name
Phone No.
Truck No. 6

I hereby certify that the above named material(s) was/were picked up at the Generator's site listed above and delivered without incident to the disposal facility listed below.

SHIPMENT DATE — DRIVER'S SIGNATURE — DELIVERY DATE — DRIVER'S SIGNATURE

TRUCK TIME STAMP
IN: _____ OUT: _____

DISPOSAL FACILITY

RECEIVING AREA
Name/No.

Site Name/ Permit No. Halfway Facility / NM1-006
Address 6601 Hobbs Hwy US 62/180 Mile Marker 66 Carlsbad, NM 88220
Phone No. 575-393-1079

NORM READINGS TAKEN? (Circle One) YES NO If YES, was reading > 50 micro roentgens? (circle one) YES NO
PASS THE PAINT FILTER TEST? (Circle One) YES NO

TANK BOTTOMS

	Feet	Inches
1st Gauge		
2nd Gauge		
Received		

BS&W/BBLS Received		BS&W (%)	
Free Water			
Total Received			

I hereby certify that the above load material has been (circle one): ACCEPTED DENIED If denied, why?

NAME (PRINT) — DATE — TITLE — SIGNATURE

C-138 White - R360 ORIGINAL Yellow - TRANSPORTER COPY Pink - GENERATOR SITE COPY Gold - RETURN TO GENERATOR Version 1

ATTACHMENT D

NMOCD Form C-141 (Initial)
NMOCD Form C-141 (Final)

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 OGRID # 229137	Contact: Robert McNeill
Address: 600 West Illinois Avenue, Midland TX 79701	Telephone No. 432-683-7443
Facility Name: BC Federal #032	Facility Type: Wellhead

Surface Owner: Federal	Mineral Owner: Federal	API No. 30-025-38829

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
G	20	17S	32E	2,360	North	1,650	East	Lea

Latitude 32.8208771 **Longitude** -103.7854462

NATURE OF RELEASE

Type of Release: Oil and Produced Water	Volume of Release: 3 bbl. Oil & 4 bbl. PW	Volume Recovered: 2 bbl. Oil & 3 bbl. PW
Source of Release: Wellhead	Date and Hour of Occurrence: September 10, 2017 3:00 pm	Date and Hour of Discovery: September 10, 2017 3:00 pm
Was Immediate Notice Given? ☐ Yes ☒ No ☒ Not Required	If YES, To Whom?	
By Whom?	Date and Hour:	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

RECEIVED
By Olivia Yu at 10:20 am, Sep 18, 2017

Describe Cause of Problem and Remedial Action Taken.*

The release was due to corrosion on a one-fourth inch nipple on the gauge. The nipple was removed and the gauge was installed directly into the valve.

Describe Area Affected and Cleanup Action Taken.*

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

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

Signature: Rebecca Haskell	OIL CONSERVATION DIVISION
Printed Name: Rebecca Haskell	Approved by Environmental Specialist:
Title: Senior HSE Coordinator	Approval Date: 9/18/2017 Expiration Date:
E-mail Address: rhaskell@concho.com	Conditions of Approval: see attached directive Attached ☑
Date: September 15, 2017 Phone: 432-683-7443	

* Attach Additional Sheets If Necessary

1RP-4811 nOY1726137462 pOY1726137714

Operator/Responsible Party,

The OCD has received the form C-141 you provided on _9/15/2017_ regarding an unauthorized release. The information contained on that form has been entered into our incident database and remediation case number _1RP-4811__ 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 _10/18/2017_. 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

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 OGRID # 229137	Contact: Robert McNeill
Address: 600 West Illinois Avenue, Midland TX 79701	Telephone No. 432-683-7443
Facility Name: BC Federal #032	Facility Type: Wellhead

Surface Owner: Federal	Mineral Owner: Federal	API No. 30-025-38829

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
G	20	17S	32E	2,360	North	1,650	East	Lea

Latitude 32.8208771 **Longitude** -103.7854462

NATURE OF RELEASE

Type of Release: Oil and Produced Water	Volume of Release: 3 bbl. Oil & 4 bbl. PW	Volume Recovered: 2 bbl. Oil & 3 bbl. PW
Source of Release: Wellhead	Date and Hour of Occurrence: September 10, 2017 3:00 pm	Date and Hour of Discovery: September 10, 2017 3:00 pm
Was Immediate Notice Given? ☐ Yes ☒ No ☒ Not Required	If YES, To Whom?	
By Whom?	Date and Hour:	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

APPROVED
By Olivia Yu at 9:24 am, Jun 15, 2018

Describe Cause of Problem and Remedial Action Taken.*

The release was due to corrosion on a one-fourth inch nipple on the gauge. The nipple was removed and the gauge was installed directly into the valve.

Describe Area Affected and Cleanup Action Taken.*

The release occurred remained on location. The site was delineated and a remediation plan was developed. Remediation was completed in accordance with the remediation plan approved by the NMOCD on January 2, 2018 and BLM on March 6, 2018.

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	OIL CONSERVATION DIVISION
Printed Name: Rebecca Haskell	Approved by Environmental Specialist:
Title: Senior HSE Coordinator	Approval Date: 6/15/2018 Expiration Date: xx/xx/xxxx
E-mail Address: rhaskell@concho.com	Conditions of Approval: Attached ☐
Date: June 12, 2018 Phone: 432-683-7443	

* Attach Additional Sheets If Necessary

1RP-4811