

[Sheldon L. Hitchcock]
[HSE Coordinator]

August 22, 2018

Mike Bratcher Oil Conservation Division, District 2 811 S First St. Artesia, NM 88210

Shelly Tucker Bureau of Land Management, CFO 620 E. Green Street Carlsbad, NM 88220

**Re:** Closure Letter

Illustrated Man Fee Com #001H

API #: 30-015-41025 RP#: 2RP-4462

Unit Letter M Section 1, Township 25S, Range 28E

**Eddy County, NM** 

Mr. Bratcher/Ms. Tucker,

COG Operating, LLC (COG) is pleased to submit for your consideration the following closure report for the Illustrated Man Fee Com #001H. This release occurred on October 27, 2017. Following the release an assessment of impacted soils was conducted. A remediation work plan was submitted to and subsequently approved by the New Mexico Oil Conservation Division (NMOCD) and Bureau of Land Management (BLM). A copy of the approved work plan is attached in Appendix V.

#### **BACKGROUND**

The Illustrated Man Fee Com #001H release is located in Unit Letter M, Section 1, Township 25 South and Range 28 East in Eddy County, New Mexico. More specifically the latitude and longitude for this release are 32.155226 North and -104.048531 West.

On October 27, 2017, a poly flowline approximately 0.3 miles north of the Illustrated Man Fee Com #1 location failed resulting in the release of approximately fifteen (15) barrels (bbls) of produced water into the pasture adjacent to the lease road. A vacuum truck was able to recover approximately one (1) bbl of produced water.

On November 31, 2017, a site assessment and soil sampling were conducted in order to define the impacted area. A site diagram is included in Appendix I. The analytical results from the soil sampling activities are summarized in the table below.

#### GROUNDWATER AND SITE RANKING

According to the New Mexico Office of the State Engineer (NMOSE) groundwater in the project vicinity is approximately forty (40) feet below ground surface (BGS) (Appendix II). No water well or surface water was observed within one-thousand (1,000) feet of the release site. Therefore the site ranking for this release is twenty (20) based on the following:

Depth to groundwater <50-feet
Distance to surface water body >1000-feet
Wellhead Protection Area >1000-feet

### **Confirmation Soil Sampling Results**

### 6/19/2018

| Sample ID   | Depth  | Chloride |
|-------------|--------|----------|
|             | (feet) | (mg/kg)  |
| T-2 Bttm    | 3'     | <4.85    |
| N. Sidewall | N/A    | 1010     |
| S. Sidewall | N/A    | 6.29     |
| E. Sidewall | N/A    | <4.96    |
| W. Sidewall | N/A    | 338      |

### 6/26/2018

| Sample ID   | Depth<br>(feet) | Chloride<br>(mg/kg) |
|-------------|-----------------|---------------------|
| N. Sidewall | N/A             | 76.9                |

#### REMEDIAL ACTIONS

- The impacted area in the vicinity of sample location T-1 was excavated to a depth of four (4) feet BGS.
- The impacted area in the vicinity of sample location T-2 was excavated to a depth of three (3) feet BGS.
- Confirmation soil samples were taken from the bottom of the excavation at sample location
  T-2 and from the sidewalls of the excavation in all four cardinal directions on June 19, 2018.
  Laboratory results from the northern portion of the excavation returned above NMOCD
  RRAL's. The excavation was extended to the north and resampled on June 26, 2018.
  Analytical results from this soil sampling event confirmed that all impacted soil above
  NMOCD RRAL's was successfully removed.
- All of the excavated material was hauled to an NMOCD approved solid waste disposal facility.
- A 20-mil liner was installed at the bottom of the excavation in the vicinity of sample location T-1 in order to encapsulate the remaining chloride impacts.
- The excavation was backfilled with clean "like" material, contoured to match the surrounding terrain and seeded with BLM #1 seed mixture.

### **CLOSURE REQUEST**

COG Production, LLC respectfully requests that the New Mexico Oil Conservation Division and the Bureau of Land Management grant closure approval for the Illustrated Man Fee Com #001H incident that occurred on October 27, 2018.

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

Sincerely,

Sheldon L. Hitchcock HSE Coordinator

slhitchcock@concho.com

Sheldon quitam

### Enclosed:

Appendix I: Site Diagram

Appendix II: Groundwater Data Appendix III: Initial C-141 (Copy)

Appendix IV: Final C-141

Appendix V: Work Plan (Copy)

Appendix VI: Analytical Reports and Chain-of-Custody Forms

# APPENDIX I

### October 27, 2017

## Illustrated Man Fee Com #001H



# APPENDIX II



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

(A CLW##### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.) (R=POD has been replaced, O=orphaned, C=the file is

closed)

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

(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

 POD

 Sub Q Q Q
 Depth Depth Water

 POD Number
 Code basin County 64 16 4 Sec Tws Rng
 X
 Y
 Distance Well Water Column

 C 01880
 C ED 3 3 2 06 25S 29E 592161 3558605\* 
 2429 85 40 45

Average Depth to Water: 40 feet

Minimum Depth: 40 feet

Maximum Depth: 40 feet

**Record Count: 1** 

**Basin/County Search:** 

County: Eddy

UTMNAD83 Radius Search (in meters):

Easting (X): 589838 Northing (Y): 3557895 Radius: 2500

\*UTM location was derived from PLSS - see Help

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

# APPENDIX III

### **NM OIL CONSERVATION**

ARTESIA DISTRICT

District.1
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 OCT 3 0 2017

Form C-141 Revised April 3, 2017

RECEIPTO appropriate District Office in accordance with 19.15.29 NMAC.

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

|                         |                          |                                 |                         | Sa                                       | nia r              | e, NIVI 8/3                         | U3                                    |                        |  |                               |                    |               |
|-------------------------|--------------------------|---------------------------------|-------------------------|--|--------------------|-------------------------------------|---------------------------------------|------------------------|--|-------------------------------|--------------------|---------------|
|                         |                          |                                 | Rele                    | ease Notific                             | atio               | n and Co                            | rrective A                            | ction                  |  |                               |                    |               |
| naB17                   | 3054                     | 12511                           |                         |  |                    | OPERA'                              | ГOR                                   |                        | ☑ Initi:   | al Report                     | П                  | Final Report  |
| Name of Co              | mpany: C                 | OG Operat                       |                         | C(OGRID# 2291                            |                    |                                     | bert McNeill                          |                        |  |                               |                    |               |
|                         | ***                      |                                 |                         | nd TX 79701                              |                    |                                     | No.: <b>432-683-7</b> 4               |                        |  |                               |                    |               |
| Facility Nar            | ne: Illusti              | rated Man F                     | ee Com                  | #001 H                                   |                    | Facility Typ                        | e: Tank Batter                        | ту                     | ·····  |                               |                    |               |
| Surface Ow              | ner: <del>Fee</del>      | BLM                             |                         | Mineral O                                | wner:              | Fee                                 |                                       |                        | API No   | .: 30-015-4                   | 1025               |               |
|                         |                          |                                 |                         | LOCA                                     | TIO                | N OF REI                            | LEASE                                 |                        |  |                               |                    |               |
| Unit Letter             | Section                  | Township                        | Range                   | Feet from the                            |                    | South Line                          | Feet from the                         | East/V                 | Vest Line  | County                        |                    |               |
| M                       | 1 1                      | 258                             | 28E                     |  |                    |                                     |                                       |                        | <del>,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,</del> | <u> </u>                      | Eddy               | <u>/</u>      |
|                         |                          |                                 | Lati                    | itude: 32.155226                         | Long               | gitude: -104.                       | 048531 N                              | AD83                   |  |                               |                    |               |
|                         |                          |                                 |                         | NAT                                      | HRE                | OF REL                              | EASE                                  |                        |  |                               |                    |               |
| Type of Rele            | ase: Produc              | ed Water                        |                         | INFE E                                   | UILL               |                                     | Release: 15bbls                       |                        | Volume I   | Recovered: 1                  | bbl                |               |
|                         |                          |                                 |                         |  |                    |                                     |                                       | .,                     | ·····  |                               |                    |               |
| Source of Re            | lease: Flow              | line                            |                         |  |                    | Date and F                          | lour of Occurrent                     | e:                     |  | Hour of Dis<br>17 9:00am      | covery:            | ,             |
|                         |                          |                                 |                         |  |                    | 10:27:201                           |                                       |                        | 10/4//40   | 7.00mi                        |                    |               |
| Was Immedi              | ate Notice (             |                                 | 1/ KZ                   | 1 N 57 N . 6                             | ٠.                 | If YES, To                          | Whom?                                 |                        |  |                               |                    |               |
|                         |                          |                                 | Yes 🗵                   | No 🛛 Not Re                              | quired             |                                     |                                       |                        |  |                               |                    |               |
| By Whom?<br>Was a Water | course Des               | ahad?                           |                         |  |                    | Date and F                          | lour:<br>Nume Impacting (             | ·L. 13/                |  |                               |                    |               |
| was a water             | course Rea               |                                 | Yes 🛭                   | No                                       |                    | 11 163, 40                          | nume impacing                         | uic wau                | rcourse.   |                               |                    |               |
| If a Watercou           | irse was Im              | pacted, Descr                   | ihe Fully 5             | -<br>k                                   |                    |                                     |                                       |                        |  |                               |                    |               |
| 17 4 77 4161601         | noc was in               | puotes, Deser                   | ioc i dily.             |  |                    |                                     |                                       |                        |  |                               |                    |               |
| Danasika Cau            | an at Braki              | em and Reme                     | dial Astina             | Takan *                                  |                    |                                     |                                       |                        |  |                               |                    |               |
| Describe Cau            | ise of Probi             | em and Keme                     | nai Actioi              | n Taken.*                                |                    |                                     |                                       |                        |  |                               |                    |               |
| A poly flowl            | ine ruptured             | d resulting in t                | he release              | of approximately                         | l 5bbls            | of produced v                       | vater. The damag                      | ed porti               | on of the po                                     | oly flowline                  | was rei            | moved and     |
| the line was t          | iused back t             | logether.                       |                         |  |                    |                                     |                                       |                        |  |                               |                    |               |
| Describe Are            | a Affected               | and Cleanup A                   | Action Tak              | en.*                                     |                    |                                     |                                       |                        |  |                               |                    |               |
| The selection           |                          | 45 lou Ol                       | •                       |  |                    | 111 1                               |                                       | 1                      | 7976 5   |                               |                    |               |
| pasture for ar          | ccurrea on<br>proximatel | une poly Howl<br>v 90-feet. A v | ine appro:<br>acuum tru | kimately 0.3mi nor<br>ck was utilized to | in oi u<br>recovei | ie illustrated i<br>r the freestand | vian ree Com #1<br>ling fluids. Conct | location<br>ho will h  | i. The prod<br>ave the sni                       | uced water i<br>Il area evain | iowed (<br>ated fo | cast into the |
| possible impa           | act from the             | release and w                   | ill presen              | t a remediation wo                       | rk plan            | to the NMO                          | CD prior to any si                    | ignificar              | t remediati                                      | on activities                 | ,                  |               |
| I hereby corti          | fir that the             | information ai                  | van obnija              | is true and comple                       | *** ** *           | ha haet af mu                       | Impulados and v                       |                        | -d sh.as   | name on NIA (c                | 3CD                | .los and      |
| regulations a           | ll operators             | are required to                 | report an               | id/or file certain re                    | lease n            | otifications a                      | id perform correc                     | muersiar<br>ctive acti | ons for rel                                      | eases which                   | may en             | idanger       |
| public health           | or the envi              | ronment. The                    | acceptanc               | e of a C-141 repor                       | t by the           | e NMOCD m                           | arked as "Final R                     | cport" d               | oes not reli                                     | eve the oper                  | ator of            | liability     |
| should their o          | perations h              | lave failed to a                | idequately              | investigate and re<br>tance of a C-141 r | mediat             | e contaminati                       | on that pose a thr                    | eat to gr              | ound water                                       | , surface wa                  | ter, hu            | man health    |
|                         |                          | ws and/or regu                  |                         | tance of a C-141 to                      | cport a            | oes not renev                       | e the operator of                     | responsi               | only for c                                       | ompnance w                    | iui any            | omei          |
|                         |                          |                                 | -                       |  |                    |                                     | OIL CON                               | SERV                   | ATION  | DIVISIO                       | N                  |               |
| Signature: 2            | Vald a                   | Ad =                            |                         |  |                    |                                     |                                       |                        | // /   |                               |                    |               |
| V                       |                          |                                 |                         | ······································   |                    | Annroved by                         | Envisionmental's                      | peciales               | 14 Bx  | MENCENCE STA                  | <b></b> -          |               |
| Printed Name            | : Sheldon I              | L. Hitchcock                    |                         |  |                    |                                     |                                       | L                      |  |                               |                    |               |
| Title: HSE C            | oordinator               |                                 |                         |  |                    | Approval Dat                        | e: 10  31/1                           | 7                      | Expiration                                       | Date: N                       | A                  |               |
|                         |                          | - 6                             |                         |  |                    |                                     |                                       |                        | pri 2010/1/                                      |                               |                    |               |
| E-mail Addre            | ss: slhitche             | ock@concho.                     | com                     |  |                    | Conditions of                       | Approval:                             | 7 11 V                 | dead   | Attached                      |                    | 4462          |
| Date: 10/30/2           | 2017                     |                                 | p                       | Phone: 575-746-20                        | 10                 |                                     | Seel                                  | UTU                    | CYPECL   | 1 21                          | )P-1               | 4462          |

# APPENDIX IV

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
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1000 Rio Brazos Road, Aztec, NM 87410
District IV
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### State of New Mexico Energy Minerals and Natural Resources

Form C-141
Revised April 3, 2017
hmit 1 Copy to appropriate District Office in

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

|  | Release Notification and Corrective Action                 |   |   |  |                                     |   |   |                                    |   |   |                              |                                     |
|--|--|---|---|--|-------------------------------------|---|---|------------------------------------|---|---|------------------------------|-------------------------------------|
|  |  |   |   |  |                                     | <b>OPERA</b>                              | ΓOR   |                                    | ☐ Initia                                      | al Report                                     | $\boxtimes$                  | Final Report                        |
|  |  |   |   | C (OGRID# 2291   |                                     |   | bert McNeill  | 40                                 |   |   |                              |                                     |
|  |  | inois Avenu<br>ated Man F                     |   | nd TX 79701<br>#001H   |                                     |   | lo.: <b>432-683-74</b><br>e: Tank Batter                    |                                    |   |   |                              |                                     |
| •  |  | atea Man 1                                    | ee com  |  |                                     | , ,,                                      | c. Tunk Butter  | J                                  | ADIN  | 20.015  | 1005                         |                                     |
| Surface Own  | ner: BLM   |   |   | Mineral O  | wner: F                             | ee  |   |                                    | API No  | o.: 30-015-4                                  | 1025                         |                                     |
|  |  | T   |   |  |                                     | OF RE                                     |   |                                    | 1   |   |                              |                                     |
| Unit Letter<br>M   | Section<br>1   | Township<br>25S                               | Range<br>28E  | Feet from the  | North/S                             | South Line                                | Feet from the   | East/V                             | West Line                                     | County  | Eddy                         | /                                   |
|  |  |   | Lati  | itude: 32.155220   | 6 <b>Long</b> i                     | itude: -104.                              | 048531 NA   | AD83                               |   |   |                              |                                     |
|  |  |   |   | NAT  | URE                                 | OF RELI                                   |   |                                    |   |   |                              |                                     |
| Type of Relea  | ase: Produc  | ed Water                                      |   |  |                                     | Volume of                                 | Release: 15bbls   |                                    | Volume F                                      | Recovered: 1                                  | bbl                          |                                     |
| Source of Release: Flowline  |  |   |   |  |                                     | Date and H<br>10/27/2017                  |   | Hour of Dis<br>17 9:00am           | covery  |   |                              |                                     |
| Was Immedia  | ate Notice (   | _   | Yes 🗵   | ] No ⊠ Not Re  | equired                             | If YES, To                                | Whom?   |                                    |   |   |                              |                                     |
| By Whom?   |  |   |   |  |                                     | Date and F                                |   |                                    |   |   |                              |                                     |
| Was a Watero   | course Reac  | ched?   | Yes 🗵   | ] No   |                                     | If YES, Vo                                | lume Impacting t  | he Wate                            | ercourse.                                     |   |                              |                                     |
| If a Watercou  | rse was Im   | pacted, Descri                                | ibe Fully.  | k  |                                     |   |   |                                    |   |   |                              |                                     |
|  |  |   |   |  |                                     |   |   |                                    |   |   |                              |                                     |
| Describe Cau   | se of Probl  | em and Remed                                  | dial Action   | n Taken.*  |                                     |   |   |                                    |   |   |                              |                                     |
| A poly flowli<br>the line was f                                      |  |   | he release  | of approximately   | 15bbls o                            | of produced v                             | vater. The damage   | ed porti                           | on of the po                                  | oly flowline                                  | was re                       | moved and                           |
| Describe Are   | a Affected   | and Cleanup A                                 | Action Tak  | cen.*  |                                     |   |   |                                    |   |   |                              |                                     |
| pasture for ap<br>within the im                                      | pproximatel<br>pacted area                                 | ly 90-feet. A<br>a. Upon receip               | vacuum to<br>t of analy                             | ximately 0.3mi no<br>ruck was utilized<br>tical results from<br>equently approved  | to recov<br>the soil                | er the freest<br>sampling ev              | anding fluids. A sent a remediation                         | site asso<br>work p                | essment an<br>olan was dr                     | d soil sampl<br>afted and su                  | ing we<br>bmitted            | ere conducted<br>d to NMOCD         |
| regulations al<br>public health<br>should their of<br>or the environ | I operators<br>or the envir<br>operations h<br>nment. In a | are required to ronment. The lave failed to a | o report ar<br>acceptand<br>adequately<br>OCD accep | e is true and completed is true and completed in the certain receive of a C-141 reportance of a C-141 reportan | elease no<br>ort by the<br>emediate | otifications as<br>NMOCD m<br>contaminati | nd perform correct<br>arked as "Final Roon that pose a thro | etive act<br>eport" d<br>eat to gr | ions for rele<br>loes not rela<br>round water | eases which<br>ieve the oper<br>r, surface wa | may er<br>ator of<br>ter, hu | ndanger<br>Tliability<br>man health |
|  |  |   |   |  |                                     |   | OIL CON   | SERV                               | <b>ATION</b>                                  | DIVISIO                                       | <u>N</u>                     |                                     |
| Signature: 2   |  | on Puta                                       | m   |  | A                                   | Approved by                               | Environmental S <sub>]</sub>                                | pecialis                           | t: Ł  | Jullan  | 1 t                          | lall                                |
| Title: HSE Co  |  |   |   |  |                                     | nnroval Da                                | a. 11/17/2023   | ,                                  | Evniration                                    | Date: N/Δ                                     |                              |                                     |
|  |  | noak@aanak -                                  | aom   |  |                                     | Approval Date: 11/17/2022 Expiration      |   |                                    |   | Date: IVA                                     |                              |                                     |
|  |  | ock@concho.                                   |   |  |                                     | Conditions of                             |   |                                    |   | Attached                                      |                              |                                     |
| Date: 8/22/20  |  | ate If Nacass                                 |   | none: 575-746-201  | 10                                  | no  | ne  |                                    |   |   |                              |                                     |

<sup>\*</sup> Attach Additional Sheets If Necessary

## APPENDIX V



[Sheldon L. Hitchcock]
[HSE Coordinator]

March 5, 2018

Mike Bratcher Oil Conservation Division, District 2 811 S First St. Artesia, NM 88210

Shelly Tucker Bureau of Land Management, CFO 620 E. Green Street Carlsbad, NM 88220

Re: Work Plan

Illustrated Man Fee Com #001H

API #: 30-015-41025 RP#: 2RP-4462

Unit Letter M Section 1, Township 25S, Range 28E

**Eddy County, NM** 

Mr. Bratcher/Ms. Tucker,

COG Operating, LLC (COG) is pleased to submit for your consideration the following remediation work plan for the Illustrated Man Fee Com #001H. This plan is in response to a produced water release that occurred on October 27, 2017. Subsequent to the release a C-141 initial report was approved by the New Mexico Oil Conservation Division (NMOCD) on October 31, 3017.

#### **BACKGROUND**

The Illustrated Man Fee Com #001H release is located in Unit Letter M, Section 1, Township 25 South and Range 28 East in Eddy County, New Mexico. More specifically the latitude and longitude for this release are 32.155226 North and -104.048531 West.

On October 27, 2017, a poly flowline approximately 0.3 miles north of the Illustrated Man Fee Com #1 location failed resulting in the release of approximately fifteen (15) barrels (bbls) of produced water into the pasture adjacent to the lease road. A vacuum truck was able to recover approximately one (1) bbl of produced water.

On November 31, 2017, a site assessment and soil sampling were conducted in order to define the impacted area. A site diagram is included in Appendix I. The analytical results from the soil sampling activities are summarized in the table below.

March 5, 2018

#### GROUNDWATER AND SITE RANKING

According to the New Mexico Office of the State Engineer (NMOSE) groundwater in the project vicinity is approximately forty (40) feet below ground surface (BGS) (Appendix II). No water well or surface water was observed within one-thousand (1,000) feet of the release site. Therefore the site ranking for this release is twenty (20) based on the following:

Depth to groundwater <50-feet
Distance to surface water body >1000-feet
Wellhead Protection Area >1000-feet

### **Analytical Results**

#### 11/31/2017

| Sample ID | Depth<br>(feet) | Benzene<br>(mg/kg) | Total<br>BTEX<br>(mg/kg) | Chloride<br>(mg/kg) | Total<br>TPH<br>(mg/kg) |
|-----------|-----------------|--------------------|--------------------------|---------------------|-------------------------|
| T-1       | 0               | < 0.002            | 0.002                    | 34000               | 640                     |
| T-1       | 1               | < 0.002            | < 0.002                  | 12900               | <15.0                   |
| T-1       | 2               | < 0.002            | < 0.002                  | 12300               | <15.0                   |
| T-1       | 3               |                    |                          | 12400               |                         |
| T-1       | 4               | -                  |                          | 1880                | -                       |
| T-1       | 5               | -                  |                          | 150                 | -                       |
| T-1       | 6               | -                  |                          | 780                 | 1                       |
| T-1       | 8               | -                  |                          | 1250                | -                       |
| T-1       | 10              | -1                 |                          | 2880                |                         |
| T-1       | 12              | -                  |                          | 319                 | -                       |
| T-2       | 0               | < 0.002            | < 0.002                  | 13000               | <15.0                   |
| T-2       | 1               | < 0.002            | < 0.002                  | 9890                | <15.0                   |
| T-2       | 2               | < 0.002            | < 0.002                  | 5930                | <15.0                   |
| T-2       | 3               |                    |                          | 11.2                |                         |

<sup>(--)</sup> Analysis not requested

#### PROPOSED REMEDIAL ACTIONS

- The impacted area in the vicinity of sample location T-1 will be excavated to a depth of four (4) feet BGS.
- The impacted area in the vicinity of sample location T-2 will be excavated to a depth of three (3) feet BGS.
- All of the excavated material will be hauled to an NMOCD approved solid waste disposal facility.
- A 20-mil liner will be installed at the bottom of the excavation in the vicinity of sample location T-1 in order to encapsulate the remaining chloride impacts.
- The excavation will be backfilled with clean "like" material, contoured to match the surrounding terrain and seeded with BLM #1 seed mixture.

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

Sincerely,

Sheldon L. Hitchcock

Sheldon Jutan

**HSE Coordinator** 

slhitchcock@concho.com

### **Enclosed:**

Appendix I: Site Diagram

Appendix II: Groundwater Data Appendix III: Initial C-141 (Copy)

Appendix IV: Analytical Reports and Chain-of-Custody Forms

# APPENDIX I

March 15, 3018

## Illustrated Man Fee Com #001H



# APPENDIX II



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

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

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

closed)

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

(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

**POD** Sub-Depth Depth Water **POD Number** Code basin County 64 16 4 Sec Tws Rng **Distance Well Water Column** C 01880 3 3 2 06 25S 29E 592161 3558605\* 2429 85

> Average Depth to Water: 40 feet

> > Minimum Depth: 40 feet

40 feet Maximum Depth:

**Record Count: 1** 

**Basin/County Search:** 

County: Eddy

**UTMNAD83 Radius Search (in meters):** 

Easting (X): 589838 Radius: 2500 Northing (Y): 3557895

\*UTM location was derived from PLSS - see Help

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

# APPENDIX III

### **NM OIL CONSERVATION**

ARTESIA DISTRICT

District.!
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
120 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico Energy Minerals and Natural Resources OCT 3 0 2017

Form C-141 Revised April 3, 2017

Report Copy to appropriate District Office in accordance with 19.15.29 NMAC.

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

| Santa  | Fe, NM 87505  |   |
|--|---|---|
| Release Notificat  | on and Corrective Acti  | on  |
| NAB17305425.11   | OPERATOR  |   |
| 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: Illustrated Man Fee Com #001H   | Facility Type: Tank Battery   |   |
| Surface Owner: Fee Mineral Own   | er: Fee   | API No.: 30-015-41025                         |
| LOCAT  | ON OF RELEASE   |   |
|  |   | st/West Line   County<br>Eddy                 |
| Latitude: 32.155226 L  | ongitude: -104.048531 NAD8  | 3   |
| NATUI  | E OF RELEASE  |   |
| Type of Release: Produced Water  | Volume of Release: 15bbls   | Volume Recovered: Ibbl                        |
| Source of Release: Flowline  | Date and Hour of Occurrence:  | Date and Hour of Discovery:                   |
|  | 10/27/2017  | 10/27/2017 9:00am                             |
| Was Immediate Notice Given?  | If YES, To Whom?  |   |
| ☐ Yes 🗵 No 🗵 Not Requi   |   |   |
| By Whom?   | Date and Hour:  |   |
| Was a Watercourse Reached? ☐ Yes ☒ No  | If YES, Volume Impacting the W  | Vatercourse.                                  |
| If a Watercourse was Impacted, Describe Fully.*  |   |   |
| tion was a supplied to the sup |   |   |
| Describe Cause of Problem and Remedial Action Taken.*  |   |   |
| Describe Cause of Provident and Remodule Period Parent   |   |   |
| A poly flowline ruptured resulting in the release of approximately 15  | bls of produced water. The damaged po   | ortion of the poly flowline was removed and   |
| the line was fused back together.  |   |   |
| Describe Area Affected and Cleanup Action Taken.*  |   | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,       |
| The release occurred on the poly flowline approximately 0.3mi north  | of the Illustrated Man Fee Com #1 local   | tion. The produced water flowed east into the |
| pasture for approximately 90-feet. A vacuum truck was utilized to rec  | ver the freestanding fluids, Concho wi  | Il have the spill area evaluated for any      |
| possible impact from the release and will present a remediation work   |   |   |
| I hereby certify that the information given above is true and complete   | o the best of my knowledge and under  | stand that pursuant to NMOCD rules and        |
| regulations all operators are required to report and/or file certain releas  | e notifications and perform corrective  | actions for releases which may endanger       |
| public health or the environment. The acceptance of a C-141 report h   |   |   |
| should their operations have failed to adequately investigate and reme<br>or the environment. In addition, NMOCD acceptance of a C-141 repo  | uate contamination that pose a threat to<br>dides not relieve the operator of respo | o ground water, surface water, human health   |
| federal, state, or local laws and/or regulations.  | is add not relieve the operator of respe  | moising to compliance with any own            |
|  | OIL CONSE   | RVATION DIVISION                              |
| Signature: Stolden Al  |   |   |
|  | Approved by Environmental Specia  | Sele Brance                                   |
| Printed Name: Sheldon L. Hitchcock   |   |   |
| Title: HSE Coordinator   | Approval Date:  D  31 17  | Expiration Date: NIA                          |
| E-mail Address: slhitchcock@concho.com   | Conditions of Approval:   | /   |
|  | Secrat  | Fached Attached L                             |
| Date: 10/30/2017 Phone: 575-746-2010   |   | 1 /AKP 9706                                   |

# APPENDIX IV

## **Analytical Report 570437**

# for COG Operating, LLC

Project Manager: Sheldon Hitchcock Illustrated Man Fee Com #1H (10-27-17)

16-DEC-17

Collected By: Client





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

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

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

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





16-DEC-17

Project Manager: Sheldon Hitchcock

**COG Operating, LLC** 

600 W Illinois Midland, TX 79701

Reference: XENCO Report No(s): 570437

Illustrated Man Fee Com #1H (10-27-17)

Project Address: M-1-25S-28E

#### **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) 570437. 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. 570437 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,

Mike Kimmel

Client Services Manager

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## **Sample Cross Reference 570437**



### COG Operating, LLC, Midland, TX

Illustrated Man Fee Com #1H (10-27-17)

| Sample Id | Matrix | <b>Date Collected</b> | Sample Depth | Lab Sample Id |
|-----------|--------|-----------------------|--------------|---------------|
| T-1 0'    | S      | 12-01-17 09:00        | 0            | 570437-001    |
| T-1 1'    | S      | 12-01-17 09:02        | 1            | 570437-002    |
| T-1 2'    | S      | 12-01-17 09:04        | 2            | 570437-003    |
| T-1 3'    | S      | 12-01-17 09:06        | 3            | 570437-004    |
| T-1 4'    | S      | 12-01-17 09:08        | 4            | 570437-005    |
| T-1 5'    | S      | 12-01-17 09:10        | 5            | 570437-006    |
| T-1 6'    | S      | 12-01-17 09:12        | 6            | 570437-007    |
| T-1 8'    | S      | 12-01-17 09:14        | 8            | 570437-008    |
| T-1 10'   | S      | 12-01-17 09:16        | 10           | 570437-009    |
| T-1 12'   | S      | 12-01-17 09:18        | 12           | 570437-010    |
| T-2 0'    | S      | 12-01-17 10:00        | 0            | 570437-011    |
| T-2 1'    | S      | 12-01-17 10:02        | 1            | 570437-012    |
| T-2 2'    | S      | 12-01-17 10:04        | 2            | 570437-013    |
| T-2 3'    | S      | 12-01-17 10:06        | 3            | 570437-014    |
|           |        |                       |              |               |

Version: 1.%

### CASE NARRATIVE

Client Name: COG Operating, LLC

Project Name: Illustrated Man Fee Com #1H (10-27-17)

Project ID: Report Date: 16-DEC-17 Work Order Number(s): 570437 Date Received: 12/07/2017

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

**Analytical non conformances and comments:** 

Batch: LBA-3035740 BTEX by EPA 8021B

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

Batch: LBA-3035888 BTEX by EPA 8021B

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



**Project Id:** 

### **Certificate of Analysis Summary 570437**

### COG Operating, LLC, Midland, TX

**Project Name: Illustrated Man Fee Com #1H (10-27-17)** 

Date Received in Lab: Thu Dec-07-17 11:15 am

**Report Date:** 16-DEC-17 **Project Manager:** Kelsey Brooks



Contact: Sheldon Hitchcock

Project Location: M-1-25S-28E

|                                   | Lab Id:    | 570437-         | 001     | 570437-0        | 002     | 570437-0        | 003     | 570437-0  | 004   | 570437-0        | 05    | 570437-0        | 006   |
|-----------------------------------|------------|-----------------|---------|-----------------|---------|-----------------|---------|-----------|-------|-----------------|-------|-----------------|-------|
| A sumbosis Domesostod             | Field Id:  | T-1 0           | ,       | T-1 1'          |         | T-1 2'          |         | T-1 3'    |       | T-1 4'          |       | T-1 5'          |       |
| Analysis Requested                | Depth:     | 0-              |         | 1-              |         | 2-              |         | 3-        |       | 4-              |       | 5-              |       |
|                                   | Matrix:    | SOIL            |         | SOIL            |         | SOIL            |         | SOIL      |       | SOIL            |       | SOIL            |       |
|                                   | Sampled:   | Dec-01-17       | 09:00   | Dec-01-17       | 09:02   | Dec-01-17       | 09:04   | Dec-01-17 | 09:06 | Dec-01-17 (     | 09:08 | Dec-01-17 (     | 09:10 |
| BTEX by EPA 8021B                 | Extracted: | Dec-12-17       | 08:30   | Dec-12-17       | 08:30   | Dec-12-17       | 08:30   |           |       |                 |       |                 |       |
|                                   | Analyzed:  | Dec-12-17       | 14:01   | Dec-12-17       | 14:20   | Dec-12-17       | 14:39   |           |       |                 |       |                 |       |
|                                   | Units/RL:  | mg/kg           | RL      | mg/kg           | RL      | mg/kg           | RL      |           |       |                 |       |                 |       |
| Benzene                           |            | < 0.00200       | 0.00200 | < 0.00200       | 0.00200 | < 0.00200       | 0.00200 |           |       |                 |       |                 |       |
| Toluene                           |            | 0.00228         | 0.00200 | < 0.00200       | 0.00200 | < 0.00200       | 0.00200 |           |       |                 |       |                 |       |
| Ethylbenzene                      |            | < 0.00200       | 0.00200 | < 0.00200       | 0.00200 | < 0.00200       | 0.00200 |           |       |                 |       |                 |       |
| m,p-Xylenes                       |            | < 0.00401       | 0.00401 | < 0.00399       | 0.00399 | < 0.00399       | 0.00399 |           |       |                 |       |                 |       |
| o-Xylene                          |            | < 0.00200       | 0.00200 | < 0.00200       | 0.00200 | < 0.00200       | 0.00200 |           |       |                 |       |                 |       |
| Total Xylenes                     |            | < 0.00200       | 0.00200 | < 0.00200       | 0.00200 | < 0.00200       | 0.00200 |           |       |                 |       |                 |       |
| Total BTEX                        |            | 0.00228         | 0.00200 | < 0.00200       | 0.00200 | < 0.00200       | 0.00200 |           |       |                 |       |                 |       |
| Chloride by EPA 300               | Extracted: | Dec-08-17 16:00 |         | Dec-08-17 16:00 |         | Dec-11-17 16:20 |         | Dec-11-17 | 10:30 | Dec-11-17 10:30 |       | Dec-11-17 10:30 |       |
|                                   | Analyzed:  | Dec-09-17       | 03:23   | Dec-09-17       | 03:28   | Dec-11-17       | 18:25   | Dec-11-17 | 11:42 | Dec-11-17 1     | 11:48 | Dec-11-17       | 11:53 |
|                                   | Units/RL:  | mg/kg           | RL      | mg/kg           | RL      | mg/kg           | RL      | mg/kg     | RL    | mg/kg           | RL    | mg/kg           | RL    |
| Chloride                          | ·          | 34000           | 250     | 12900           | 98.2    | 12300           | 98.2    | 12400     | 99.4  | 1880            | 49.3  | 150             | 49.4  |
| TPH by SW8015 Mod                 | Extracted: | Dec-14-17       | 15:00   | Dec-14-17       | 15:00   | Dec-14-17       | 15:00   |           |       |                 |       |                 |       |
|                                   | Analyzed:  | Dec-15-17       | 02:48   | Dec-15-17       | 03:08   | Dec-15-17       | 04:09   |           |       |                 |       |                 |       |
|                                   | Units/RL:  | mg/kg           | RL      | mg/kg           | RL      | mg/kg           | RL      |           |       |                 |       |                 |       |
| Gasoline Range Hydrocarbons (GRO) |            | <15.0           | 15.0    | <15.0           | 15.0    | <15.0           | 15.0    |           |       |                 |       |                 |       |
| Diesel Range Organics (DRO)       |            | 533             | 15.0    | <15.0           | 15.0    | <15.0           | 15.0    |           |       |                 |       |                 |       |
| Oil Range Hydrocarbons (ORO)      |            | 107             | 15.0    | <15.0           | 15.0    | <15.0           | 15.0    |           |       |                 |       | <u> </u>        |       |
| Total TPH                         |            | 640             | 15.0    | <15.0           | 15.0    | <15.0           | 15.0    |           |       |                 |       |                 |       |

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

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Version: 1.%

Mike Kimmel
Client Services Manager



**Project Id:** 

## **Certificate of Analysis Summary 570437**

COG Operating, LLC, Midland, TX

**Project Name: Illustrated Man Fee Com #1H (10-27-17)** 

Date Received in Lab: Thu Dec-07-17 11:15 am

**Report Date:** 16-DEC-17 **Project Manager:** Kelsey Brooks



Contact: Sheldon Hitchcock

Project Location: M-1-25S-28E

|                                   | Lab Id:    | 570437-0  | 007   | 570437-0        | 800   | 570437-0        | 09   | 570437-0        | 10    | 570437-         | 011     | 570437-         | 012     |
|-----------------------------------|------------|-----------|-------|-----------------|-------|-----------------|------|-----------------|-------|-----------------|---------|-----------------|---------|
| Anglusis Paguestad                | Field Id:  | T-1 6'    |       | T-1 8'          |       | T-1 10'         |      | T-1 12          | ·     | T-2 0           | ,       | T-2 1'          |         |
| Analysis Requested                | Depth:     | 6-        |       | 8-              |       | 10-             |      | 12-             |       | 0-              |         | 1-              |         |
|                                   | Matrix:    | SOIL      |       | SOIL            |       | SOIL            |      | SOIL            |       | SOIL            | .       | SOIL            | _       |
|                                   | Sampled:   | Dec-01-17 | 09:12 | Dec-01-17       | 09:14 | Dec-01-17 (     | 9:16 | Dec-01-17       | 09:18 | Dec-01-17       | 10:00   | Dec-01-17       | 10:02   |
| BTEX by EPA 8021B                 | Extracted: |           |       |                 |       |                 |      |                 |       | Dec-13-17       | 09:30   | Dec-13-17       | 09:30   |
|                                   | Analyzed:  |           |       |                 |       |                 |      |                 |       | Dec-13-17       | 16:02   | Dec-13-17       | 16:21   |
|                                   | Units/RL:  |           |       |                 |       |                 |      |                 |       | mg/kg           | RL      | mg/kg           | RL      |
| Benzene                           |            |           |       |                 |       |                 |      |                 |       | < 0.00200       | 0.00200 | < 0.00201       | 0.00201 |
| Toluene                           |            |           |       |                 |       |                 |      |                 |       | < 0.00200       | 0.00200 | < 0.00201       | 0.00201 |
| Ethylbenzene                      |            |           |       |                 |       |                 |      |                 |       | < 0.00200       | 0.00200 | < 0.00201       | 0.00201 |
| m,p-Xylenes                       |            |           |       |                 |       |                 |      |                 |       | < 0.00399       | 0.00399 | < 0.00402       | 0.00402 |
| o-Xylene                          |            |           |       |                 |       |                 |      |                 |       | < 0.00200       | 0.00200 | < 0.00201       | 0.00201 |
| Total Xylenes                     |            |           |       |                 |       |                 |      |                 |       | < 0.00200       | 0.00200 | < 0.00201       | 0.00201 |
| Total BTEX                        |            |           |       |                 |       |                 |      |                 |       | < 0.00200       | 0.00200 | < 0.00201       | 0.00201 |
| Chloride by EPA 300               | Extracted: | Dec-11-17 | 10:30 | Dec-11-17 10:30 |       | Dec-11-17 10:30 |      | Dec-11-17 10:30 |       | Dec-11-17 10:30 |         | Dec-11-17 10:30 |         |
|                                   | Analyzed:  | Dec-11-17 | 11:59 | Dec-11-17       | 12:17 | Dec-11-17 1     | 2:23 | Dec-11-17       | 12:29 | Dec-11-17       | 12:35   | Dec-11-17       | 12:41   |
|                                   | Units/RL:  | mg/kg     | RL    | mg/kg           | RL    | mg/kg           | RL   | mg/kg           | RL    | mg/kg           | RL      | mg/kg           | RL      |
| Chloride                          |            | 780       | 49.7  | 1250            | 50.0  | 2880            | 49.8 | 319             | 24.6  | 13000           | 98.4    | 9890            | 99.4    |
| TPH by SW8015 Mod                 | Extracted: |           |       |                 |       |                 |      |                 |       | Dec-08-17       | 17:00   | Dec-08-17       | 17:00   |
|                                   | Analyzed:  |           |       |                 |       |                 |      |                 |       | Dec-09-17       | 04:23   | Dec-09-17       | 04:43   |
|                                   | Units/RL:  |           |       |                 |       |                 |      |                 |       | mg/kg           | RL      | mg/kg           | RL      |
| Gasoline Range Hydrocarbons (GRO) |            |           |       |                 |       |                 |      |                 |       | <15.0           | 15.0    | <15.0           | 15.0    |
| Diesel Range Organics (DRO)       |            |           |       |                 |       |                 |      |                 |       | <15.0           | 15.0    | <15.0           | 15.0    |
| Oil Range Hydrocarbons (ORO)      |            |           |       |                 |       |                 |      |                 |       | <15.0           | 15.0    | <15.0           | 15.0    |
| Total TPH                         |            |           |       |                 |       |                 |      |                 |       | <15.0           | 15.0    | <15.0           | 15.0    |

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

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Sheldon Hitchcock

M-1-25S-28E

**Project Id: Contact:** 

**Project Location:** 

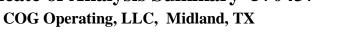
### Certificate of Analysis Summary 570437

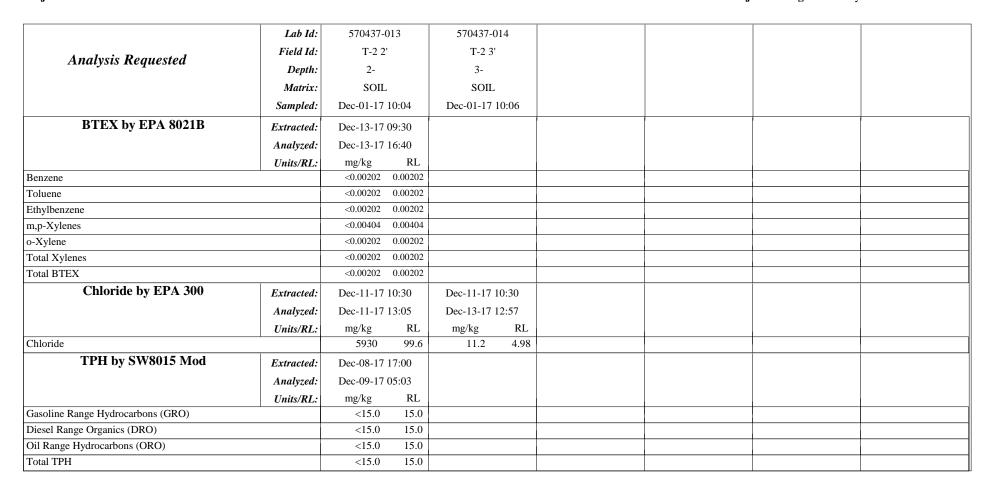
**Project Name: Illustrated Man Fee Com #1H (10-27-17)** 

**Date Received in Lab:** Thu Dec-07-17 11:15 am

Page 30 of 95

Report Date: 16-DEC-17 Project Manager: Kelsey Brooks





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Version: 1.%

Mike Kimmel



### Flagging Criteria



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

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

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

**DL** Method Detection Limit

NC Non-Calculable

- + NELAC certification not offered for this compound.
- \* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

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



**Project Name: Illustrated Man Fee Com #1H (10-27-17)** 

Work Orders: 570437,

**Project ID:** Matrix: Soil

**Lab Batch #:** 3035464 **Sample:** 570437-011 / SMP Batch: I Inita Data Analyzadi 12/00/17 04:22 ... \_ /1\_ \_

| Units:       | mg/kg | <b>Date Analyzed:</b> 12/09/17/04:23 | SURROGATE RECOVERY STUDY |                       |                |                         |       |  |  |  |  |
|--------------|-------|--------------------------------------|--------------------------|-----------------------|----------------|-------------------------|-------|--|--|--|--|
|              | TPH   | by SW8015 Mod                        | Amount<br>Found<br>[A]   | True<br>Amount<br>[B] | Recovery<br>%R | Control<br>Limits<br>%R | Flags |  |  |  |  |
|              |       | Analytes                             |                          |                       | [D]            |                         |       |  |  |  |  |
| 1-Chloroocta | ane   |                                      | 84.2                     | 99.9                  | 84             | 70-135                  |       |  |  |  |  |
| o-Terphenyl  |       |                                      | 43.5                     | 50.0                  | 87             | 70-135                  |       |  |  |  |  |

**Lab Batch #:** 3035464 Sample: 570437-012 / SMP Batch: 1 Matrix: Soil

**Units:** mg/kg Date Analyzed: 12/09/17 04:43 SURROGATE RECOVERY STUDY **Amount** True Control TPH by SW8015 Mod Found Limits Amount Recovery Flags [A] [B] %R %R [D] **Analytes** 1-Chlorooctane 87.3 99.9 87 70-135 o-Terphenyl 45.3 50.0 91 70-135

Lab Batch #: 3035464 Sample: 570437-013 / SMP Batch: Matrix: Soil

**Units:** mg/kg Date Analyzed: 12/09/17 05:03 SURROGATE RECOVERY STUDY

| TPH by SW8015 Mod  Analytes | Amount<br>Found<br>[A] | True<br>Amount<br>[B] | Recovery<br>%R<br>[D] | Control<br>Limits<br>%R | Flags |
|-----------------------------|------------------------|-----------------------|-----------------------|-------------------------|-------|
| 1-Chlorooctane              | 84.6                   | 99.8                  | 85                    | 70-135                  |       |
| o-Terphenyl                 | 43.4                   | 49.9                  | 87                    | 70-135                  |       |

**Lab Batch #:** 3035740 **Sample:** 570437-001 / SMP Matrix: Soil

| Units:      | mg/kg       | <b>Date Analyzed:</b> 12/12/17 14:01 | SURROGATE RECOVERY STUDY |                       |                       |                         |       |  |
|-------------|-------------|--------------------------------------|--------------------------|-----------------------|-----------------------|-------------------------|-------|--|
|             | ВТЕ         | X by EPA 8021B  Analytes             | Amount<br>Found<br>[A]   | True<br>Amount<br>[B] | Recovery<br>%R<br>[D] | Control<br>Limits<br>%R | Flags |  |
| 1,4-Difluor | robenzene   | Times to                             | 0.0267                   | 0.0300                | 89                    | 80-120                  |       |  |
| 4-Bromoflu  | uorobenzene |                                      | 0.0269                   | 0.0300                | 90                    | 80-120                  |       |  |

Lab Batch #: 3035740 **Sample:** 570437-002 / SMP Batch: Matrix: Soil

| <b>Units:</b> | mg/kg    | <b>Date Analyzed:</b> 12/12/17 14:20 | SURROGATE RECOVERY STUDY |                       |                       |                         |       |  |
|---------------|----------|--------------------------------------|--------------------------|-----------------------|-----------------------|-------------------------|-------|--|
|               | ВТЕ      | X by EPA 8021B  Analytes             | Amount<br>Found<br>[A]   | True<br>Amount<br>[B] | Recovery<br>%R<br>[D] | Control<br>Limits<br>%R | Flags |  |
| 1,4-Difluorob | enzene   | Analytes                             | 0.0270                   | 0.0300                | 90                    | 80-120                  |       |  |
| 4-Bromofluor  | obenzene |                                      | 0.0276                   | 0.0300                | 92                    | 80-120                  |       |  |

<sup>\*</sup> Surrogate outside of Laboratory QC limits

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

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

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



**Project Name: Illustrated Man Fee Com #1H (10-27-17)** 

Work Orders: 570437,

Sample: 570437-003 / SMP

**Project ID:** 

**Lab Batch #:** 3035740 Units: mø/kø

**Date Analyzed:** 12/12/17 14:39

Matrix: Soil Batch:

| Units:         | mg/kg    | <b>Date Analyzed:</b> 12/12/17 14:39 | SURROGATE RECOVERY STUDY |                       |                       |                         |       |  |
|----------------|----------|--------------------------------------|--------------------------|-----------------------|-----------------------|-------------------------|-------|--|
|                | ВТЕ      | X by EPA 8021B                       | Amount<br>Found<br>[A]   | True<br>Amount<br>[B] | Recovery<br>%R<br>[D] | Control<br>Limits<br>%R | Flags |  |
|                |          | Analytes                             |                          |                       | [D]                   |                         |       |  |
| 1,4-Difluorobe | enzene   |                                      | 0.0271                   | 0.0300                | 90                    | 80-120                  |       |  |
| 4-Bromofluoro  | obenzene |                                      | 0.0285                   | 0.0300                | 95                    | 80-120                  |       |  |

Lab Batch #: 3035888 Sample: 570437-011 / SMP Batch: Matrix: Soil

**Units:** mg/kg **Date Analyzed:** 12/13/17 16:02 SURROGATE RECOVERY STUDY **Amount** True Control BTEX by EPA 8021B Found Limits Amount Recovery Flags [A] [B] %R %R [D] **Analytes** 1,4-Difluorobenzene 0.0267 0.0300 89 80-120 4-Bromofluorobenzene 0.0299 0.0300 100 80-120

Lab Batch #: 3035888 Sample: 570437-012 / SMP Batch: Matrix: Soil

**Units:** mg/kg **Date Analyzed:** 12/13/17 16:21 SURROGATE RECOVERY STUDY

| BTEX by EPA 8021B  Analytes | Amount<br>Found<br>[A] | True<br>Amount<br>[B] | Recovery<br>%R<br>[D] | Control<br>Limits<br>%R | Flags |
|-----------------------------|------------------------|-----------------------|-----------------------|-------------------------|-------|
| 1,4-Difluorobenzene         | 0.0273                 | 0.0300                | 91                    | 80-120                  |       |
| 4-Bromofluorobenzene        | 0.0291                 | 0.0300                | 97                    | 80-120                  |       |

**Lab Batch #:** 3035888 Sample: 570437-013 / SMP Batch: Matrix: Soil

| Units:      | mg/kg       | <b>Date Analyzed:</b> 12/13/17 16:40 | SURROGATE RECOVERY STUDY |                       |                       |                         |       |  |
|-------------|-------------|--------------------------------------|--------------------------|-----------------------|-----------------------|-------------------------|-------|--|
|             | ВТЕ         | X by EPA 8021B  Analytes             | Amount<br>Found<br>[A]   | True<br>Amount<br>[B] | Recovery<br>%R<br>[D] | Control<br>Limits<br>%R | Flags |  |
| 1,4-Difluor | obenzene    | <del>`</del>                         | 0.0260                   | 0.0300                | 87                    | 80-120                  |       |  |
| 4-Bromoflu  | ıorobenzene |                                      | 0.0271                   | 0.0300                | 90                    | 80-120                  |       |  |

Lab Batch #: 3035998 Sample: 570437-001 / SMP Batch: Matrix: Soil

| Units:      | mg/kg | <b>Date Analyzed:</b> 12/15/17 02:48 | SURROGATE RECOVERY STUDY |                       |                       |                         |       |  |
|-------------|-------|--------------------------------------|--------------------------|-----------------------|-----------------------|-------------------------|-------|--|
|             | ТРН   | by SW8015 Mod  Analytes              | Amount<br>Found<br>[A]   | True<br>Amount<br>[B] | Recovery<br>%R<br>[D] | Control<br>Limits<br>%R | Flags |  |
| 1-Chlorooct | ane   |                                      | 96.1                     | 99.7                  | 96                    | 70-135                  |       |  |
| o-Terpheny  | 1     |                                      | 46.1                     | 49.9                  | 92                    | 70-135                  |       |  |

<sup>\*</sup> Surrogate outside of Laboratory QC limits

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

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

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



**Project Name: Illustrated Man Fee Com #1H (10-27-17)** 

Work Orders: 570437,

Project ID:

Lab Batch #: 3035998 Sample: 570437-002 / SMP Batch: 1 Matrix: Soil

| Units:      | mg/kg | <b>Date Analyzed:</b> 12/15/17 03:08 | SURROGATE RECOVERY STUDY |                       |                       |                         |       |  |
|-------------|-------|--------------------------------------|--------------------------|-----------------------|-----------------------|-------------------------|-------|--|
|             | ТРН   | by SW8015 Mod Analytes               | Amount<br>Found<br>[A]   | True<br>Amount<br>[B] | Recovery<br>%R<br>[D] | Control<br>Limits<br>%R | Flags |  |
| 1-Chlorooct | ane   |                                      | 95.0                     | 99.8                  | 95                    | 70-135                  |       |  |
| o-Terpheny  | 1     |                                      | 49.4                     | 49.9                  | 99                    | 70-135                  |       |  |

Lab Batch #: 3035998Sample: 570437-003 / SMPBatch: 1Matrix: Soil

**Units:** mg/kg Date Analyzed: 12/15/17 04:09 SURROGATE RECOVERY STUDY **Amount** True Control TPH by SW8015 Mod Found Limits Amount Recovery Flags [A] [B] %R %R [D] **Analytes** 1-Chlorooctane 98.5 99.9 99 70-135 o-Terphenyl 49.4 50.0 99 70-135

Lab Batch #: 3035464 Sample: 7635722-1-BLK / BLK Batch: 1 Matrix: Solid

Units: mg/kg Date Analyzed: 12/08/17 22:41 SURROGATE RECOVERY STUDY

| TPH by SW8015 Mod  Analytes | Amount<br>Found<br>[A] | True<br>Amount<br>[B] | Recovery<br>%R<br>[D] | Control<br>Limits<br>%R | Flags |
|-----------------------------|------------------------|-----------------------|-----------------------|-------------------------|-------|
| 1-Chlorooctane              | 88.1                   | 100                   | 88                    | 70-135                  |       |
| o-Terphenyl                 | 47.8                   | 50.0                  | 96                    | 70-135                  |       |

Lab Batch #: 3035740 Sample: 7635895-1-BLK / BLK Batch: 1 Matrix: Solid

| Units:      | mg/kg       | <b>Date Analyzed:</b> 12/12/17 09:36 | SURROGATE RECOVERY STUDY |                       |                       |                         |       |  |
|-------------|-------------|--------------------------------------|--------------------------|-----------------------|-----------------------|-------------------------|-------|--|
|             | ВТЕ         | X by EPA 8021B  Analytes             | Amount<br>Found<br>[A]   | True<br>Amount<br>[B] | Recovery<br>%R<br>[D] | Control<br>Limits<br>%R | Flags |  |
| 1,4-Difluor | robenzene   | 11mily tes                           | 0.0277                   | 0.0300                | 92                    | 80-120                  |       |  |
| 4-Bromoflu  | ıorobenzene |                                      | 0.0281                   | 0.0300                | 94                    | 80-120                  |       |  |

Lab Batch #: 3035888 Sample: 7635967-1-BLK / BLK Batch: 1 Matrix: Solid

| Units:         | mg/kg    | <b>Date Analyzed:</b> 12/13/17 09:59 | SURROGATE RECOVERY STUDY |                       |                       |                         |       |  |
|----------------|----------|--------------------------------------|--------------------------|-----------------------|-----------------------|-------------------------|-------|--|
|                | ВТЕ      | X by EPA 8021B  Analytes             | Amount<br>Found<br>[A]   | True<br>Amount<br>[B] | Recovery<br>%R<br>[D] | Control<br>Limits<br>%R | Flags |  |
| 1,4-Difluorobe | enzene   | Timing tes                           | 0.0275                   | 0.0300                | 92                    | 80-120                  |       |  |
| 4-Bromofluoro  | obenzene |                                      | 0.0252                   | 0.0300                | 84                    | 80-120                  |       |  |

<sup>\*</sup> Surrogate outside of Laboratory QC limits

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

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

Version: 1.%

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



Project Name: Illustrated Man Fee Com #1H (10-27-17)

Work Orders: 570437,

**Sample:** 7636029-1-BLK / BLK

**Project ID:** 

**Lab Batch #:** 3035998 Matrix: Solid Batch: 1 CURROLATE DECOVERY CTURY I Inite Date Analyzed: 12/15/17 01:48 ma/lea

| Omits: http://dx.de/ Date Allaryzeu: 12/15/17/01:48 | SURROGATE RECOVERY STUDY |                       |                |                         |       |  |
|---|--------------------------|-----------------------|----------------|-------------------------|-------|--|
| TPH by SW8015 Mod                                   | Amount<br>Found<br>[A]   | True<br>Amount<br>[B] | Recovery<br>%R | Control<br>Limits<br>%R | Flags |  |
| Analytes  |                          |                       | [D]            |                         |       |  |
| 1-Chlorooctane                                      | 100                      | 100                   | 100            | 70-135                  |       |  |
| o-Terphenyl   | 52.5                     | 50.0                  | 105            | 70-135                  |       |  |

**Lab Batch #:** 3035464 **Sample:** 7635722-1-BKS / BKS Batch: Matrix: Solid

| Units: mg/kg Date Analyzed: 12/08/17 23:01 SURROGATE RECOVERY STUDY |                   |                        |                       |                |                         |       |
|---|-------------------|------------------------|-----------------------|----------------|-------------------------|-------|
|   | TPH by SW8015 Mod | Amount<br>Found<br>[A] | True<br>Amount<br>[B] | Recovery<br>%R | Control<br>Limits<br>%R | Flags |
|   | Analytes          |                        |                       | [D]            |                         |       |
| 1-Chlorooct   | tane              | 88.9                   | 100                   | 89             | 70-135                  |       |
| o-Terpheny  | 1                 | 46.8                   | 50.0                  | 94             | 70-135                  |       |

**Lab Batch #:** 3035740 Sample: 7635895-1-BKS / BKS Batch: Matrix: Solid

**Units:** mg/kg **Date Analyzed:** 12/12/17 07:42 SURROGATE RECOVERY STUDY

| BTEX by EPA 8021B  Analytes | Amount<br>Found<br>[A] | True<br>Amount<br>[B] | Recovery<br>%R<br>[D] | Control<br>Limits<br>%R | Flags |
|-----------------------------|------------------------|-----------------------|-----------------------|-------------------------|-------|
| 1,4-Difluorobenzene         | 0.0251                 | 0.0300                | 84                    | 80-120                  |       |
| 4-Bromofluorobenzene        | 0.0250                 | 0.0300                | 83                    | 80-120                  |       |

**Lab Batch #:** 3035888 **Sample:** 7635967-1-BKS / BKS Batch: Matrix: Solid

| Units:                      | mg/kg    | <b>Date Analyzed:</b> 12/13/17 07:30 | SURROGATE RECOVERY STUDY |                       |                       |                         |       |  |  |
|-----------------------------|----------|--------------------------------------|--------------------------|-----------------------|-----------------------|-------------------------|-------|--|--|
| BTEX by EPA 8021B  Analytes |          |                                      | Amount<br>Found<br>[A]   | True<br>Amount<br>[B] | Recovery<br>%R<br>[D] | Control<br>Limits<br>%R | Flags |  |  |
| 1,4-Difluor                 | obenzene |                                      | 0.0278                   | 0.0300                | 93                    | 80-120                  |       |  |  |
| 4-Bromofluorobenzene        |          |                                      | 0.0299                   | 0.0300                | 100                   | 80-120                  |       |  |  |

Lab Batch #: 3035998 Sample: 7636029-1-BKS / BKS Batch: Matrix: Solid

| Units:                      | mg/kg | <b>Date Analyzed:</b> 12/15/17 02:08 | SURROGATE RECOVERY STUDY |                       |                       |                         |       |  |  |
|-----------------------------|-------|--------------------------------------|--------------------------|-----------------------|-----------------------|-------------------------|-------|--|--|
| TPH by SW8015 Mod  Analytes |       |                                      | Amount<br>Found<br>[A]   | True<br>Amount<br>[B] | Recovery<br>%R<br>[D] | Control<br>Limits<br>%R | Flags |  |  |
| 1-Chlorooct                 | ane   |                                      | 104                      | 100                   | 104                   | 70-135                  |       |  |  |
| o-Terphenyl                 |       |                                      | 55.1                     | 50.0                  | 110                   | 70-135                  |       |  |  |

<sup>\*</sup> Surrogate outside of Laboratory QC limits

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

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

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



**Project Name: Illustrated Man Fee Com #1H (10-27-17)** 

**Work Orders :** 570437, **Lab Batch #:** 3035464 **Sample:** 7635722-1-BSD / BSD **Project ID: Batch:** 1 **Matrix:** Solid

Units: mg/kg Date Analyzed: 12/08/17 23:21 SURROGATE RECOVERY STUDY

| TPH by SW8015 Mod  Analytes | Amount<br>Found<br>[A] | True<br>Amount<br>[B] | Recovery<br>%R<br>[D] | Control<br>Limits<br>%R | Flags |
|-----------------------------|------------------------|-----------------------|-----------------------|-------------------------|-------|
| 1-Chlorooctane              | 93.5                   | 100                   | 94                    | 70-135                  |       |
| o-Terphenyl                 | 49.8                   | 50.0                  | 100                   | 70-135                  |       |

**Lab Batch #:** 3035740 **Sample:** 7635895-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

**Units:** mg/kg Date Analyzed: 12/12/17 08:01 SURROGATE RECOVERY STUDY **Amount** True Control BTEX by EPA 8021B Limits Found Amount Flags Recovery [A] [B] %R %R [D] **Analytes** 1,4-Difluorobenzene 0.0285 0.0300 95 80-120 4-Bromofluorobenzene 0.0290 0.0300 97 80-120

Lab Batch #: 3035888 Sample: 7635967-1-BSD / BSD Batch: 1 Matrix: Solid

Units: mg/kg Date Analyzed: 12/13/17 07:49 SURROGATE RECOVERY STUDY

| BTEX by EPA 8021B  Analytes | Amount<br>Found<br>[A] | True<br>Amount<br>[B] | Recovery<br>%R<br>[D] | Control<br>Limits<br>%R | Flags |
|-----------------------------|------------------------|-----------------------|-----------------------|-------------------------|-------|
| 1,4-Difluorobenzene         | 0.0277                 | 0.0300                | 92                    | 80-120                  |       |
| 4-Bromofluorobenzene        | 0.0338                 | 0.0300                | 113                   | 80-120                  |       |

| Units:                      | mg/kg | <b>Date Analyzed:</b> 12/15/17 02:27 | SURROGATE RECOVERY STUDY |                       |                         |        |  |  |  |
|-----------------------------|-------|--------------------------------------|--------------------------|-----------------------|-------------------------|--------|--|--|--|
| TPH by SW8015 Mod  Analytes |       | Amount<br>Found<br>[A]               | True<br>Amount<br>[B]    | Recovery<br>%R<br>[D] | Control<br>Limits<br>%R | Flags  |  |  |  |
| 1-Chlorooc                  | ctane | •                                    | 92.3                     | 100                   | 92                      | 70-135 |  |  |  |
| o-Terpheny                  | yl    |                                      | 47.6                     | 50.0                  | 95                      | 70-135 |  |  |  |

| <b>Units:</b> | mg/kg | <b>Date Analyzed:</b> 12/09/17 01:04 | SURROGATE RECOVERY STUDY |                       |                       |                         |       |  |
|---------------|-------|--------------------------------------|--------------------------|-----------------------|-----------------------|-------------------------|-------|--|
|               | ТРН   | by SW8015 Mod  Analytes              | Amount<br>Found<br>[A]   | True<br>Amount<br>[B] | Recovery<br>%R<br>[D] | Control<br>Limits<br>%R | Flags |  |
| 1-Chlorooc    | tane  |                                      | 89.5                     | 99.8                  | 90                    | 70-135                  |       |  |
| o-Terpheny    | 1     |                                      | 48.3                     | 49.9                  | 97                    | 70-135                  |       |  |

<sup>\*</sup> Surrogate outside of Laboratory QC limits

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

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

Version: 1.%

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



**Project Name: Illustrated Man Fee Com #1H (10-27-17)** 

Work Orders: 570437,

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**Sample:** 570435-002 S / MS

**Project ID:** 

**Lab Batch #:** 3035740 Units: **Date Analyzed:** 12/12/17 08:20

Matrix: Soil Batch: 1

| Units: mg/kg Da      | ate Analyzed: 12/12/17 08:20 | SU                     | RROGATE RE            | ECOVERY S             | STUDY                   |       |
|----------------------|------------------------------|------------------------|-----------------------|-----------------------|-------------------------|-------|
| BTEX by F            |                              | Amount<br>Found<br>[A] | True<br>Amount<br>[B] | Recovery<br>%R<br>[D] | Control<br>Limits<br>%R | Flags |
| Anal                 | ytes                         |                        |                       | [D]                   |                         |       |
| 1,4-Difluorobenzene  |                              | 0.0305                 | 0.0300                | 102                   | 80-120                  |       |
| 4-Bromofluorobenzene |                              | 0.0324                 | 0.0300                | 108                   | 80-120                  |       |

**Lab Batch #:** 3035888 **Sample:** 570779-005 S / MS Batch: Matrix: Soil

| Units:       | mg/Kg      | <b>Date Analyzed:</b> 12/13/17/08:43 | SU                     | RROGATE RI            | ECOVERY S      | STUDY                   |       |
|--------------|------------|--------------------------------------|------------------------|-----------------------|----------------|-------------------------|-------|
|              | ВТЕХ       | K by EPA 8021B                       | Amount<br>Found<br>[A] | True<br>Amount<br>[B] | Recovery<br>%R | Control<br>Limits<br>%R | Flags |
|              |            | Analytes                             |                        |                       | [D]            |                         |       |
| 1,4-Difluoro | benzene    |                                      | 0.0285                 | 0.0300                | 95             | 80-120                  |       |
| 4-Bromofluo  | orobenzene |                                      | 0.0296                 | 0.0300                | 99             | 80-120                  |       |

**Lab Batch #:** 3035998 **Sample:** 570437-002 S / MS Batch: Matrix: Soil

**Units:** mg/kg **Date Analyzed:** 12/15/17 03:28 SURROGATE RECOVERY STUDY

| TPH by SW8015 Mod  Analytes | Amount<br>Found<br>[A] | True<br>Amount<br>[B] | Recovery<br>%R<br>[D] | Control<br>Limits<br>%R | Flags |
|-----------------------------|------------------------|-----------------------|-----------------------|-------------------------|-------|
| 1-Chlorooctane              | 93.9                   | 99.7                  | 94                    | 70-135                  |       |
| o-Terphenyl                 | 49.0                   | 49.9                  | 98                    | 70-135                  |       |

**Lab Batch #:** 3035464 **Sample:** 570434-004 SD / MSD Batch: 1 Matrix: Soil

| Units:     | mg/kg | <b>Date Analyzed:</b> 12/09/17 01:26 | SURROGATE RECOVERY STUDY |                       |                       |                         |       |  |  |  |  |  |
|------------|-------|--------------------------------------|--------------------------|-----------------------|-----------------------|-------------------------|-------|--|--|--|--|--|
|            | ТРН   | by SW8015 Mod  Analytes              | Amount<br>Found<br>[A]   | True<br>Amount<br>[B] | Recovery<br>%R<br>[D] | Control<br>Limits<br>%R | Flags |  |  |  |  |  |
| 1-Chlorooc | ctane | •                                    | 78.4                     | 99.8                  | 79                    | 70-135                  |       |  |  |  |  |  |
| o-Terpheny | yl    |                                      | 41.7                     | 49.9                  | 84                    | 70-135                  |       |  |  |  |  |  |

**Lab Batch #:** 3035740 Sample: 570435-002 SD / MSD Batch: Matrix: Soil

| <b>Units:</b> mg/kg  | <b>Date Analyzed:</b> 12/12/17 08:39 | SURROGATE RECOVERY STUDY |                       |                       |                         |       |  |  |  |  |
|----------------------|--------------------------------------|--------------------------|-----------------------|-----------------------|-------------------------|-------|--|--|--|--|
| ВЛ                   | TEX by EPA 8021B  Analytes           | Amount<br>Found<br>[A]   | True<br>Amount<br>[B] | Recovery<br>%R<br>[D] | Control<br>Limits<br>%R | Flags |  |  |  |  |
| 1,4-Difluorobenzene  |                                      | 0.0337                   | 0.0300                | 112                   | 80-120                  |       |  |  |  |  |
| 4-Bromofluorobenzene |                                      | 0.0344                   | 0.0300                | 115                   | 80-120                  |       |  |  |  |  |

<sup>\*</sup> Surrogate outside of Laboratory QC limits

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

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

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



**Project Name: Illustrated Man Fee Com #1H (10-27-17)** 

 Work Orders: 570437,
 Project ID:

 Lab Batch #: 3035888
 Sample: 570779-005 SD / MSD
 Batch: 1 Matrix: Soil

| Units: mg/k         | kg  | <b>Date Analyzed:</b> 12/13/17 09:02 | SU                     | RROGATE RE            | COVERY S              | STUDY                   |       |
|---------------------|-----|--------------------------------------|------------------------|-----------------------|-----------------------|-------------------------|-------|
|                     |     | y EPA 8021B<br>nalytes               | Amount<br>Found<br>[A] | True<br>Amount<br>[B] | Recovery<br>%R<br>[D] | Control<br>Limits<br>%R | Flags |
| 1,4-Difluorobenzene | ;   |                                      | 0.0274                 | 0.0300                | 91                    | 80-120                  |       |
| 4-Bromofluorobenze  | ene |                                      | 0.0283                 | 0.0300                | 94                    | 80-120                  |       |

 Lab Batch #: 3035998
 Sample: 570437-002 SD / MSD
 Batch: 1
 Matrix: Soil

| Units:      | mg/kg | <b>Date Analyzed:</b> 12/15/17 03:48 | SU                     | RROGATE RI            | ECOVERY S      | STUDY                   |       |
|-------------|-------|--------------------------------------|------------------------|-----------------------|----------------|-------------------------|-------|
|             | ТРН   | by SW8015 Mod                        | Amount<br>Found<br>[A] | True<br>Amount<br>[B] | Recovery<br>%R | Control<br>Limits<br>%R | Flags |
|             |       | Analytes                             |                        |                       | [D]            |                         |       |
| 1-Chlorooct | tane  |                                      | 102                    | 99.9                  | 102            | 70-135                  |       |
| o-Terpheny  | 1     |                                      | 51.9                   | 50.0                  | 104            | 70-135                  |       |

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

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

<sup>\*</sup> Surrogate outside of Laboratory QC limits

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



#### **BS / BSD Recoveries**



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**Project Name: Illustrated Man Fee Com #1H (10-27-17)** 

Work Order #: 570437 Project ID:

Analyst: ALJ Date Prepared: 12/12/2017 Date Analyzed: 12/12/2017

 Lab Batch ID: 3035740
 Sample: 7635895-1-BKS
 Batch #: 1
 Matrix: Solid

| Units: | mg/l | cg | BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY |
|--------|------|----|---|
|--------|------|----|---|

| BTEX by EPA 8021B | Blank<br>Sample Result<br>[A] | Spike<br>Added | Blank<br>Spike<br>Result | Blank<br>Spike<br>%R | Spike<br>Added | Blank<br>Spike<br>Duplicate | Blk. Spk<br>Dup.<br>%R | RPD<br>% | Control<br>Limits<br>%R | Control<br>Limits<br>%RPD | Flag |
|-------------------|-------------------------------|----------------|--------------------------|----------------------|----------------|-----------------------------|------------------------|----------|-------------------------|---------------------------|------|
| Analytes          |                               | [B]            | [C]                      | [D]                  | [E]            | Result [F]                  | [G]                    |          |                         |                           |      |
| Benzene           | < 0.00201                     | 0.100          | 0.107                    | 107                  | 0.0998         | 0.111                       | 111                    | 4        | 70-130                  | 35                        |      |
| Toluene           | < 0.00201                     | 0.100          | 0.103                    | 103                  | 0.0998         | 0.106                       | 106                    | 3        | 70-130                  | 35                        |      |
| Ethylbenzene      | < 0.00201                     | 0.100          | 0.105                    | 105                  | 0.0998         | 0.108                       | 108                    | 3        | 71-129                  | 35                        |      |
| m,p-Xylenes       | < 0.00402                     | 0.201          | 0.200                    | 100                  | 0.200          | 0.208                       | 104                    | 4        | 70-135                  | 35                        |      |
| o-Xylene          | < 0.00201                     | 0.100          | 0.0992                   | 99                   | 0.0998         | 0.102                       | 102                    | 3        | 71-133                  | 35                        |      |

**Analyst:** ALJ **Date Prepared:** 12/13/2017 **Date Analyzed:** 12/13/2017

Units: mg/kg BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

| BTEX by EPA 8021B  Analytes | Blank<br>Sample Result<br>[A] | Spike<br>Added<br>[B] | Blank<br>Spike<br>Result<br>[C] | Blank<br>Spike<br>%R<br>[D] | Spike<br>Added<br>[E] | Blank<br>Spike<br>Duplicate<br>Result [F] | Blk. Spk<br>Dup.<br>%R<br>[G] | RPD<br>% | Control<br>Limits<br>%R | Control<br>Limits<br>%RPD | Flag |
|-----------------------------|-------------------------------|-----------------------|---------------------------------|-----------------------------|-----------------------|---|-------------------------------|----------|-------------------------|---------------------------|------|
| Benzene                     | < 0.00201                     | 0.100                 | 0.115                           | 115                         | 0.100                 | 0.108                                     | 108                           | 6        | 70-130                  | 35                        |      |
| Toluene                     | < 0.00201                     | 0.100                 | 0.110                           | 110                         | 0.100                 | 0.103                                     | 103                           | 7        | 70-130                  | 35                        |      |
| Ethylbenzene                | < 0.00201                     | 0.100                 | 0.113                           | 113                         | 0.100                 | 0.105                                     | 105                           | 7        | 71-129                  | 35                        |      |
| m,p-Xylenes                 | < 0.00402                     | 0.201                 | 0.218                           | 108                         | 0.200                 | 0.203                                     | 102                           | 7        | 70-135                  | 35                        |      |
| o-Xylene                    | < 0.00201                     | 0.100                 | 0.107                           | 107                         | 0.100                 | 0.0990                                    | 99                            | 8        | 71-133                  | 35                        |      |

#### **BS / BSD Recoveries**



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**Project Name: Illustrated Man Fee Com #1H (10-27-17)** 

Work Order #: 570437 Project ID:

Analyst: MNV Date Prepared: 12/08/2017 Date Analyzed: 12/09/2017

**Lab Batch ID:** 3035752 **Sample:** 7635709-1-BKS **Batch #:** 1 **Matrix:** Solid

**Units:** mg/kg BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY Chloride by EPA 300 Blank Spike Blank Blank Blk. Spk Blank Spike Control Control Sample Result Added Spike Spike Added Spike Dup. RPD Limits Limits

Flag **Duplicate** %R %RPD [A] Result %R % %R [B] [C] [D]Result [F] [G]  $[\mathbf{E}]$ **Analytes** Chloride < 5.00 250 255 102 250 259 104 2 90-110 20

Analyst: OJS Date Prepared: 12/11/2017 Date Analyzed: 12/11/2017

**Lab Batch ID:** 3035758 **Sample:** 7635746-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

| Chloride by EPA 300 | Blank<br>Sample Result<br>[A] | Spike<br>Added | Blank<br>Spike<br>Result | Blank<br>Spike<br>%R | Spike<br>Added | Blank<br>Spike<br>Duplicate | Blk. Spk<br>Dup.<br>%R | RPD<br>% | Control<br>Limits<br>%R | Control<br>Limits<br>%RPD | Flag |
|---------------------|-------------------------------|----------------|--------------------------|----------------------|----------------|-----------------------------|------------------------|----------|-------------------------|---------------------------|------|
| Analytes            |                               | [B]            | [C]                      | [D]                  | [E]            | Result [F]                  | [G]                    |          |                         |                           |      |
| Chloride            | < 5.00                        | 250            | 252                      | 101                  | 250            | 255                         | 102                    | 1        | 90-110                  | 20                        |      |

Analyst: OJS Date Prepared: 12/11/2017 Date Analyzed: 12/11/2017

Units: mg/kg BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

| Chloride by EPA 300 Analytes | Blank<br>Sample Result<br>[A] | Spike<br>Added<br>[B] | Blank<br>Spike<br>Result<br>[C] | Blank<br>Spike<br>%R<br>[D] | Spike<br>Added<br>[E] | Blank<br>Spike<br>Duplicate<br>Result [F] | Blk. Spk<br>Dup.<br>%R<br>[G] | RPD<br>% | Control<br>Limits<br>%R | Control<br>Limits<br>%RPD | Flag |
|------------------------------|-------------------------------|-----------------------|---------------------------------|-----------------------------|-----------------------|---|-------------------------------|----------|-------------------------|---------------------------|------|
| Chloride                     | <5.00                         | 250                   | 251                             | 100                         | 250                   | 255                                       | 102                           | 2        | 90-110                  | 20                        |      |

#### **BS / BSD Recoveries**



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**Project Name: Illustrated Man Fee Com #1H (10-27-17)** 

Work Order #: 570437 Project ID:

 Analyst:
 ARM
 Date Prepared: 12/08/2017
 Date Analyzed: 12/08/2017

 Lab Batch ID: 3035464
 Sample: 7635722-1-BKS
 Batch #: 1
 Matrix: Solid

Units: mg/kg BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

| TPH by SW8015 Mod  Analytes       | Blank<br>Sample Result<br>[A] | Spike<br>Added<br>[B] | Blank<br>Spike<br>Result<br>[C] | Blank<br>Spike<br>%R<br>[D] | Spike<br>Added<br>[E] | Blank<br>Spike<br>Duplicate<br>Result [F] | Blk. Spk<br>Dup.<br>%R<br>[G] | RPD<br>% | Control<br>Limits<br>%R | Control<br>Limits<br>%RPD | Flag |
|-----------------------------------|-------------------------------|-----------------------|---------------------------------|-----------------------------|-----------------------|---|-------------------------------|----------|-------------------------|---------------------------|------|
| Gasoline Range Hydrocarbons (GRO) | <15.0                         | 1000                  | 922                             | 92                          | 1000                  | 928                                       | 93                            | 1        | 70-135                  | 35                        |      |
| Diesel Range Organics (DRO)       | <15.0                         | 1000                  | 994                             | 99                          | 1000                  | 1010                                      | 101                           | 2        | 70-135                  | 35                        |      |

**Analyst:** ARM **Date Prepared:** 12/14/2017 **Date Analyzed:** 12/15/2017

Units: mg/kg BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

| TPH by SW8015 Mod  Analytes       | Blank<br>Sample Result<br>[A] | Spike<br>Added<br>[B] | Blank<br>Spike<br>Result<br>[C] | Blank<br>Spike<br>%R<br>[D] | Spike<br>Added<br>[E] | Blank<br>Spike<br>Duplicate<br>Result [F] | Blk. Spk<br>Dup.<br>%R<br>[G] | RPD<br>% | Control<br>Limits<br>%R | Control<br>Limits<br>%RPD | Flag |
|-----------------------------------|-------------------------------|-----------------------|---------------------------------|-----------------------------|-----------------------|---|-------------------------------|----------|-------------------------|---------------------------|------|
| Gasoline Range Hydrocarbons (GRO) | <15.0                         | 1000                  | 961                             | 96                          | 1000                  | 893                                       | 89                            | 7        | 70-135                  | 35                        |      |
| Diesel Range Organics (DRO)       | <15.0                         | 1000                  | 1100                            | 110                         | 1000                  | 965                                       | 97                            | 13       | 70-135                  | 35                        |      |





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**Project Name: Illustrated Man Fee Com #1H (10-27-17)** 

570437 Work Order #:

3035740

**QC- Sample ID:** 570435-002 S

Batch #:

Matrix: Soil

**Project ID:** 

Lab Batch ID: Date Analyzed:

12/12/2017

**Date Prepared:** 12/12/2017

Analyst: ALJ

**Reporting Units:** 

mg/kg

#### MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

| BTEX by EPA 8021B | Parent<br>Sample<br>Result | Spike<br>Added | Spiked Sample<br>Result<br>[C] | Spiked<br>Sample<br>%R | Spike<br>Added | Duplicate<br>Spiked Sample<br>Result [F] | Spiked<br>Dup.<br>%R | RPD | Control<br>Limits<br>%R | Control<br>Limits<br>%RPD | Flag |
|-------------------|----------------------------|----------------|--------------------------------|------------------------|----------------|--|----------------------|-----|-------------------------|---------------------------|------|
| Analytes          | [A]                        | [B]            | [6]                            | [D]                    | [E]            | Result [1]                               | [G]                  | ,•  | / <b>UK</b>             | 70KI D                    |      |
| Benzene           | < 0.00200                  | 0.100          | 0.0959                         | 96                     | 0.0996         | 0.102                                    | 102                  | 6   | 70-130                  | 35                        |      |
| Toluene           | < 0.00200                  | 0.100          | 0.0885                         | 89                     | 0.0996         | 0.0889                                   | 89                   | 0   | 70-130                  | 35                        |      |
| Ethylbenzene      | < 0.00200                  | 0.100          | 0.0849                         | 85                     | 0.0996         | 0.0827                                   | 83                   | 3   | 71-129                  | 35                        |      |
| m,p-Xylenes       | < 0.00401                  | 0.200          | 0.163                          | 82                     | 0.199          | 0.159                                    | 80                   | 2   | 70-135                  | 35                        |      |
| o-Xylene          | < 0.00200                  | 0.100          | 0.0811                         | 81                     | 0.0996         | 0.0798                                   | 80                   | 2   | 71-133                  | 35                        |      |

Lab Batch ID:

3035888

**QC- Sample ID:** 570779-005 S

Batch #:

Matrix: Soil

Date Analyzed:

12/13/2017

**Date Prepared:** 12/13/2017

Analyst: ALJ

**Reporting Units:** 

mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

| BTEX by EPA 8021B | Parent<br>Sample | Spike        | Spiked Sample<br>Result | Sample    | -            | Duplicate<br>Spiked Sample | -         | RPD | Control<br>Limits | Control<br>Limits | Flag |
|-------------------|------------------|--------------|-------------------------|-----------|--------------|----------------------------|-----------|-----|-------------------|-------------------|------|
| Analytes          | Result<br>[A]    | Added<br>[B] | [C]                     | %R<br>[D] | Added<br>[E] | Result [F]                 | %R<br>[G] | %   | %R                | %RPD              |      |
| Benzene           | < 0.00200        | 0.0998       | 0.0861                  | 86        | 0.100        | 0.0950                     | 95        | 10  | 70-130            | 35                |      |
| Toluene           | < 0.00200        | 0.0998       | 0.0788                  | 79        | 0.100        | 0.0870                     | 87        | 10  | 70-130            | 35                |      |
| Ethylbenzene      | < 0.00200        | 0.0998       | 0.0760                  | 76        | 0.100        | 0.0832                     | 83        | 9   | 71-129            | 35                |      |
| m,p-Xylenes       | < 0.00399        | 0.200        | 0.145                   | 73        | 0.200        | 0.159                      | 80        | 9   | 70-135            | 35                |      |
| o-Xylene          | < 0.00200        | 0.0998       | 0.0716                  | 72        | 0.100        | 0.0794                     | 79        | 10  | 71-133            | 35                |      |

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





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**Project Name: Illustrated Man Fee Com #1H (10-27-17)** 

Work Order #: 570437

3035612

**QC- Sample ID:** 570438-015 S

Batch #:

Matrix: Soil

**Project ID:** 

Lab Batch ID: Date Analyzed:

12/11/2017

**Date Prepared:** 12/11/2017

Analyst: OJS

**Reporting Units:** mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

| Chloride by EPA 300 | Parent<br>Sample<br>Result | Spike<br>Added | Spiked Sample<br>Result<br>[C] | Spiked<br>Sample<br>%R | Spike<br>Added | Duplicate<br>Spiked Sample<br>Result [F] | Spiked<br>Dup.<br>%R | RPD | Control<br>Limits<br>%R | Control<br>Limits<br>%RPD | Flag |
|---------------------|----------------------------|----------------|--------------------------------|------------------------|----------------|--|----------------------|-----|-------------------------|---------------------------|------|
| Analytes            | [A]                        | [B]            |                                | [D]                    | [E]            |  | [G]                  |     |                         |                           |      |
| Chloride            | 5.89                       | 247            | 265                            | 105                    | 247            | 263                                      | 104                  | 1   | 90-110                  | 20                        |      |

Lab Batch ID: 3035612 **QC- Sample ID:** 570722-002 S

Batch #:

Matrix: Soil

**Date Analyzed: Reporting Units:**  12/11/2017

mg/kg

**Date Prepared:** 12/11/2017

Analyst: OJS

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

| Chloride by EPA 300 | Parent<br>Sample<br>Result | Spike<br>Added | Spiked Sample<br>Result<br>[C] | Sample<br>%R | Spike<br>Added | Duplicate<br>Spiked Sample<br>Result [F] | %R  | RPD<br>% | Control<br>Limits<br>%R | Control<br>Limits<br>%RPD | Flag |
|---------------------|----------------------------|----------------|--------------------------------|--------------|----------------|--|-----|----------|-------------------------|---------------------------|------|
| Analytes            | [A]                        | [B]            |                                | [D]          | [E]            |  | [G] |          |                         |                           |      |
| Chloride            | 71.9                       | 247            | 331                            | 105          | 247            | 327                                      | 103 | 1        | 90-110                  | 20                        |      |

Lab Batch ID:

3035752

**QC- Sample ID:** 570433-012 S

Batch #:

Matrix: Soil

**Date Analyzed:** 

12/09/2017

**Date Prepared:** 12/08/2017

Analyst: MNV

**Reporting Units:** 

mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

1

| Chloride by EPA 300 Analytes | Parent<br>Sample<br>Result<br>[A] | Spike<br>Added<br>[B] | Spiked Sample<br>Result<br>[C] | Spiked<br>Sample<br>%R<br>[D] | Spike<br>Added<br>[E] | Duplicate<br>Spiked Sample<br>Result [F] | Spiked<br>Dup.<br>%R<br>[G] | RPD<br>% | Control<br>Limits<br>%R | Control<br>Limits<br>%RPD | Flag |
|------------------------------|-----------------------------------|-----------------------|--------------------------------|-------------------------------|-----------------------|--|-----------------------------|----------|-------------------------|---------------------------|------|
| Chloride                     | 672                               | 248                   | 886                            | 86                            | 248                   | 902                                      | 93                          | 2        | 90-110                  | 20                        | X    |

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



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**Project Name: Illustrated Man Fee Com #1H (10-27-17)** 

**Work Order #:** 570437

570437 3035752

**QC- Sample ID:** 570434-008 S

Batch #:

Matrix: Soil

**Project ID:** 

Lab Batch ID: Date Analyzed:

12/09/2017

**Date Prepared:** 12/08/2017

Analyst: MNV

**Reporting Units:** 

mg/kg

Analyst. Will

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

| Chloride by EPA 300 Analytes | Parent<br>Sample<br>Result<br>[A] | Spike<br>Added<br>[B] | Spiked Sample<br>Result<br>[C] | Spiked<br>Sample<br>%R<br>[D] | Spike<br>Added<br>[E] | Duplicate<br>Spiked Sample<br>Result [F] | Spiked<br>Dup.<br>%R<br>[G] | RPD<br>% | Control<br>Limits<br>%R | Control<br>Limits<br>%RPD | Flag |
|------------------------------|-----------------------------------|-----------------------|--------------------------------|-------------------------------|-----------------------|--|-----------------------------|----------|-------------------------|---------------------------|------|
| Chloride                     | 132                               | 248                   | 372                            | 97                            | 248                   | 375                                      | 98                          | 1        | 90-110                  | 20                        |      |

**Lab Batch ID:** 3035758

**QC- Sample ID:** 570438-003 S

**Batch #:** 1 M

Matrix: Soil

**Date Analyzed:** 

12/11/2017

**Date Prepared:** 12/11/2017

Analyst: OJS

**Reporting Units:** 

mg/kg

Analyst. Off

#### MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

| Chloride by EPA 300 Analytes | Parent<br>Sample<br>Result<br>[A] | Spike<br>Added<br>[B] | Spiked Sample<br>Result<br>[C] | Spiked<br>Sample<br>%R<br>[D] | Spike<br>Added<br>[E] | Duplicate<br>Spiked Sample<br>Result [F] | Spiked<br>Dup.<br>%R<br>[G] | RPD<br>% | Control<br>Limits<br>%R | Control<br>Limits<br>%RPD | Flag |
|------------------------------|-----------------------------------|-----------------------|--------------------------------|-------------------------------|-----------------------|--|-----------------------------|----------|-------------------------|---------------------------|------|
| Chloride                     | 706                               | 249                   | 915                            | 84                            | 249                   | 914                                      | 84                          | 0        | 90-110                  | 20                        | X    |

Lab Batch ID:

3035758

mg/kg

**QC- Sample ID:** 570438-010 S

Batch #:

Matrix: Soil

Date Analyzed: Reporting Units: 12/11/2017

**Date Prepared:** 12/11/2017

Analyst: OJS

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

1

| Chloride by EPA 300 Analytes | Parent<br>Sample<br>Result<br>[A] | Spike<br>Added<br>[B] | Spiked Sample<br>Result<br>[C] | Spiked<br>Sample<br>%R<br>[D] | Spike<br>Added<br>[E] | Duplicate<br>Spiked Sample<br>Result [F] | Spiked<br>Dup.<br>%R<br>[G] | RPD<br>% | Control<br>Limits<br>%R | Control<br>Limits<br>%RPD | Flag |
|------------------------------|-----------------------------------|-----------------------|--------------------------------|-------------------------------|-----------------------|--|-----------------------------|----------|-------------------------|---------------------------|------|
| Chloride                     | 227                               | 245                   | 474                            | 101                           | 245                   | 477                                      | 102                         | 1        | 90-110                  | 20                        |      |

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





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**Project Name: Illustrated Man Fee Com #1H (10-27-17)** 

570437 Work Order #:

3035464

**QC- Sample ID:** 570434-004 S

Batch #:

Matrix: Soil

**Project ID:** 

Lab Batch ID: Date Analyzed:

12/09/2017

**Date Prepared:** 12/08/2017

Analyst: ARM

**Reporting Units:** 

mg/kg

#### MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

| TPH by SW8015 Mod  Analytes       | Parent<br>Sample<br>Result<br>[A] | Spike<br>Added<br>[B] | Spiked Sample<br>Result<br>[C] | Spiked<br>Sample<br>%R<br>[D] | Spike<br>Added<br>[E] | Duplicate<br>Spiked Sample<br>Result [F] | Spiked<br>Dup.<br>%R<br>[G] | RPD<br>% | Control<br>Limits<br>%R | Control<br>Limits<br>%RPD | Flag |
|-----------------------------------|-----------------------------------|-----------------------|--------------------------------|-------------------------------|-----------------------|--|-----------------------------|----------|-------------------------|---------------------------|------|
| Gasoline Range Hydrocarbons (GRO) | <15.0                             | 998                   | 997                            | 100                           | 998                   | 869                                      | 87                          | 14       | 70-135                  | 35                        |      |
| Diesel Range Organics (DRO)       | <15.0                             | 998                   | 1080                           | 108                           | 998                   | 940                                      | 94                          | 14       | 70-135                  | 35                        |      |

Lab Batch ID:

3035998

**QC- Sample ID:** 570437-002 S

Batch #:

Matrix: Soil

**Date Analyzed:** 

12/15/2017

**Date Prepared:** 12/14/2017

Analyst: ARM

**Reporting Units:** mg/kg

#### MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

| TPH by SW8015 Mod                 | Parent<br>Sample<br>Result | Spike        | Spiked Sample<br>Result | Sample    |              | Duplicate<br>Spiked Sample |           | RPD | Control<br>Limits | Control<br>Limits | Flag |
|-----------------------------------|----------------------------|--------------|-------------------------|-----------|--------------|----------------------------|-----------|-----|-------------------|-------------------|------|
| Analytes                          | [A]                        | Added<br>[B] | [C]                     | %R<br>[D] | Added<br>[E] | Result [F]                 | %R<br>[G] | %   | %R                | %RPD              |      |
| Gasoline Range Hydrocarbons (GRO) | <15.0                      | 997          | 983                     | 99        | 999          | 1020                       | 102       | 4   | 70-135            | 35                |      |
| Diesel Range Organics (DRO)       | <15.0                      | 997          | 973                     | 98        | 999          | 1040                       | 104       | 7   | 70-135            | 35                |      |

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

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

# CHAIN OF CUSTODY

San Antonio, Texas (210-509-3334)

Phoenix, Arizona (480-355-0900)

|  |                                  | www.xenco.com   | Xe                                 | Xenco Quote #              | Velico Tob#           |
|--|----------------------------------|---|------------------------------------|----------------------------|-----------------------|
|  |                                  |   |                                    |                            | 2/020                 |
| Client / Reporting Information   |                                  | Project Information   |                                    | Analytical information     |                       |
| COMPany Name / Branch: COG Operating, LLC  | Project Name/Number:             | umber: Illustrated Man Fee Com #1H (10-27-17)                       | (7-17)                             |                            |                       |
| Company Address:<br>2407 Pecos Ave. Artesia NM 88210   | Project Location:<br>M-1-25S-28E | n:  |                                    |                            |                       |
| Email: <u>slhitchcock@concho.com</u> Phone No: 575-703-6475 dneel2@concho.com; cgray@concho.com; rhaskell@concho.com | 6475 Invoice To:                 | COG Operating, LLC<br>Attn: Robert McNeill                          |                                    |                            |                       |
| Project Contact: Sheldon Hitchcock   | <b>&gt;</b> 0                    | 600 W. Illnois Ave. Midland Tx, 79701                               |                                    |                            |                       |
| Samplers's Name: Sheldon Hitchcock   | PO Number:                       |   | ) ED                               |                            |                       |
|  | Collection                       | Numbe   |                                    |                            |                       |
| No. Field ID / Point of Collection   |                                  |   | 14                                 |                            |                       |
|  | Sample Date                      | CI<br>aOH/Zn<br>cetate  | NO3 2SO4 aOH aHSO4 EOH PH E        | TEX                        |                       |
| 1/-/0'   | 11/51                            | S 1 Extract   | H<br>N<br>M                        | В                          |                       |
| 2 /-/ //   |                                  | n   | *                                  | Y<br>A                     |                       |
| 3 1-1 21   | 116.                             |   | x                                  | * +                        |                       |
| 1  | 18/11                            |   | + *                                | ヤヤ                         |                       |
| 47-15  | 5 11/31 9:0                      | 9:06A S 1   | ¥                                  |                            |                       |
| 57-141   | 4 11/31 9:0                      | 1 s <b>v80:6</b>  | *                                  | 1                          |                       |
| 67.19  | 5 11/31 9:1                      | 9:10 t s 1  | ۲,                                 | 1                          |                       |
| 7 7-161  | 6 11/81 9:1                      | 9:124 8 1   | Υ .                                | , 1<br>                    |                       |
| 8 1-18   | 8 11/31 9:1                      | 9:14A S 1   |                                    | 1                          |                       |
| 9 7-110'   | 10 11/31 9:1                     | 9:164 S 1   | ( 4                                | . +                        |                       |
| 10 7-112   | 12 11/81 9:                      | 9:18A S 1   | < A                                | 7                          |                       |
| Turnaround Time ( Business days)   |                                  | Data Deliverable Information  | )                                  | Notes                      |                       |
| Same Day TAT 5 Day TAT   |                                  | Level II Std QC   | Level IV (Full Data Pkg /raw data) | data)                      | 0 11- 15 1            |
| Next Day EMERGENCY 7 Day TAT   |                                  | Level III Std QC+ Forms   | TRRP Level IV                      |                            |                       |
| 2 Day EMERGENCY Contract TAT   |                                  | Level 3 (CLP Forms)   | UST / RG -411                      |                            |                       |
| 3 Day EMERGENCY  |                                  | TRRP Checklist  | è                                  | 5.50                       |                       |
| TAT Starts Day received by Lab, if received by 5:00 pm   | pm                               |   | CE-(0-6: -0.0°C)                   |                            | : Tracking #          |
| Relinquished by Sampler: SAMPLE CUSTODY I  | MUST BE DOCUMENTED BE            | SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE PO | (6.66 -0.2 0)                      |                            | 0                     |
| Kin-   | 1267083 1                        | Received By   | (6-23: +0.2°C)                     | 7 / 0 2                    | ceived By:            |
|  | Date Time: Re                    | Received By:  | Collected Lettlb:                  | 7.                         | Ceived By:            |
| Relinquished by:   | Date Time: Re                    | Received By:  | Custody Seal #                     | Preserved where applicable | 4 On Ice Cooler Temp. |

Setting the Standard since 1990

Dallas Texas (214-902-0300) Stafford, Texas (281-240-4200)

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

# CHAIN OF CUSTODY

Page 2 of 2

Phoenix, Arizona (480-355-0900)

Relinquished by Samp 10 Project Contact: Sheldon Hitchcock dneel2@concho.com; cgray@concho.com; rhaskell@concho.com Email: slhitchcock@concho.com Company Name / Branch: COG Operating, LLC 9 œ 8 Samplers's Name: Sheldon Hitchcock 2407 Pecos Ave. Artesia NM 88210 Relinquished by: 6 3 Day EMERGENCY 2 Day EMERGENCY TAT Starts Day received by Lab, if received by 5:00 pm Same Day TAT Next Day EMERGENCY 7-2 7 Client / Reporting Information l Turnaround Time (Business days) 3 Field ID / Point of Collection Contract TAT 7 Day TAT SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY 5 Day TAT Phone No: 575-703-6475 Date Time: Date Time: Date Time: Sample 2 Depth 0 PO Number: Collection Invoice To: M-1-25S-28E Project Name/Number: roject Location: Received By: 10:00 10:0a 10:04 COG Operating, LLC Attn: Robert McNeill 600 W. Illnois Ave. Midland Tx, 79701 Received By: 2010 Received By: Time Level 3 (CLP Forms) Level III Std QC+ Forms TRRP Checklist Level II Std QC Project Information Illustrated Man Fee Com #1H (10-27-17) S S S S S S S S S S Data Deliverable Information www.xenco.com # of HCI NaOH/Zn Acetate HNO3 Relinquished By: Custody Seal # Relinquished By: TRRP Level IV UST / RG -411 Level IV (Full Data Pkg /raw data) H2SO4 NaOH NaHSO4 меон Novee Xenco Quote # TPH EXTENDED Preserved where applicable BTEX Date Time: CHLORIDES Time: Analytical Information FED-EX / UPS: Iracking # Corrected Temp: Temp: CF:(0-6: -0.2°C) Notes: (6-23: +0.2°C) Received By: Received By: Xenco Job # On Ice 57043 Cooler Temp. IR ID:R-8 Field Comments Thermo. Corr. Factor SL = Sludge SW = Surface water P = Product S = Soil/Sed/SolidWW= Waste Water 0 = 01 WI = Wipe OW =Ocean/Sea Water DW = Drinking Water GW =Ground Water W = Water A = AirMatrix Codes ここと 2

Released to Imaging:

11/17/2022 3:23:26 PM

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

# CHAIN OF CUSTODY

San Antonio, Texas (210-509-3334)

Phoenix, Arizona (480-355-0900)

| elinquished by: | elinquished by: | ampler   |   | TAT Starts Day received by Lab, if received b  | 3 Day EMERGENCY  | 2 Day EMERGENCY Contract 1  | Next Day EMERGENCY 7 Day TAT  |                | i umaroung lime (Business days)  | 10 7-112   |                            |                                | 7 7-161                   |            |                           | 4 7-1 3'      | 3 7-1 21                 | 27-11'                   | 17-10'   |                    | No. Field ID / Point of Collection   | amplers's Name: Sheldon Hitchcock  | INDEAS COMMENT OF THE MOST PROPERTY COMMENTS OF THE MOST PROPERTY OF THE | cho.com; rhask   | 2407 Pecos Ave. Artesia NM 88210  | COG Operating, LLC Company Address:  | Client / Reporting Information   |  |                      |   |
|-----------------|-----------------|--|---|--|--|---|---|----------------|--|--|----------------------------|--------------------------------|---------------------------|------------|---------------------------|---------------|--------------------------|--------------------------|----------|--------------------|--|--|--|--|---|--|--|--|----------------------|---|
| Data Time       | Date Time:      | Date Time:                                     | STODY MUST BE D   | y 5:00 pm  |  | ΓΑΤ   |   | Т              |  | 12   | 10                         | 9                              | 6                         | CA         | 4                         | u             | 7                        | -                        | 0        | Sample<br>Depth    |  |  |  | : 575-703-6475<br>:ho.com  |   |  |  |  |                      |   |
| ω               | _               | T Re-  | OCUMENTED BE  |  |  |   |   |                |  | 1:6 18/11  | 11/31 9:1                  | 1:18/11                        | 1:18/11                   | 11:8 18/11 | 11/31 9:0                 |               |                          |                          |          | Date               | Collection   |  |  | Invoice To: (  | M-1-25S-28E   | Project Name/N   |  |  |                      | (1070-104-04-04-07-01)  |
|                 | ceived By:      | ceived By                                      | LOW EACH TIN  |  | TRRP Che   | Level 3 (C  | Level III S   | Level II Si    |  | 8 48   | 164 S                      | 8 <b>4 4</b>                   | 8 <b>43</b>               | S *        | S ** 8C                   | s 490         | 8 W PO                   | 52 A S                   | 4        |                    |  |  | fidland Tx, 79   | OG Operatir<br>vttn: Robert N  | 2.  | 1  | <u>اچ</u> ا  |  |                      | 1   |
|                 | Ch.             | 7  | AE SAMPLES C  |  | ecklist  | LP Forms)   | td QC+ Forms  | td QC          | Data Deliverat   | _  | _                          | _                              | _                         | <u> </u>   | _                         | _             | _                        | _                        | _        | # of               |  |  | 9701   | ng, LLC<br>fcNeill<br>Ave  |   | rated Man Fee C  | nformation   |  | www.xenc             | 1.000   |
|                 |                 |  |   |  |  |   |   |                | le Information   |  |                            |                                |                           |            |                           |               |                          |                          |          | NaOH/Zn<br>Acetate | Number   |  |  |  |   | om #1H (10-27-   |  |  | o.com                |   |
| 4               | Correcte        | (6-23  | CF:(0-6:  | Temp:  | ł  | UST / RG -4:  | TRRP Level  | Level IV (Fu   |  |  |                            |                                |                           |            |                           |               |                          |                          | _        | laOH               | f preserved b  |  |  |  |   | 17)  |  |  |                      |   |
|                 | d Temp:         | 1: +0.2°C                                      | -0.2°C)   | 2.300  |  | _   | ₹   | l Data Pkg /ra |  | <i>( )</i>   | 7 4                        | P -                            | r 1                       | 7 1        | P .                       | -             | .                        |                          | N        | EOH                | ottles   |  |  |  |   |  |  |  |                      |   |
| 9               | Li              | ٣  |   | ,  |  |   |   | w data)        |  | +  | +                          |                                | +                         | +          | +                         | _             | -                        | -                        | +        |                    | TEN  | DE   | D<br>—   |  |   |  | -  |  | Xenco Que            |   |
| ~               | 100             |  |   | 3 ID:R-  |  |   |   |                | 7  | 7  | +                          | 1                              | * 4                       | 1          | 1                         | *             | +                        |                          | +        | HLOR               | IDES   | 8  |  |  |   |  | Analy  |  | ote#                 |   |
|                 | 3               |  |   | ∞  |  |   | 300   | 2-12           | Notes:   |  |                            |                                |                           |            |                           |               |                          |                          |          |                    |  |  |  |  |   |  | Tical Information  |  |                      |   |
| ceived By:      | 2               | ceived By:                                     | : Tracking #  |  |  |   | 0   | 11             |  |  |                            | +                              |                           |            |                           |               |                          |                          | +        |                    |  |  |  |  |   |  | 3  |  | Xenco Job#           |   |
|                 | 1               |  |   |  |  |   |   |                |  |  |                            |                                |                           |            |                           |               |                          |                          |          |                    |  |  |  |  |   |  |  | 010  | アン                   |   |
|                 | 7               |  |   |  |  |   | 600   |                |  |  |                            |                                |                           |            |                           |               |                          |                          | Field    |                    |  |  |  |  |   |  |  |  | 1                    |   |
|                 | 0               |  |   |  |  |   | sallen o  |                |  |  |                            |                                |                           |            |                           |               |                          |                          | Comments |                    | WW= Waste Wat<br>A = Air   | O = Oil  | OW =Ocean/Sea  | P = Product<br>SW = Surface w<br>SL = Sludge   | S = Soil/Sed/SoI<br>GW =Ground W<br>DW = Drinking V   | W = Water  | Matrix Codes   |  | 7                    |   |
|                 | 4               | Date Time: Received By:  Corrected Temp: 7./°C | Date Time:  Date Time:  Date Time:  Received By:  Corrected Temp:  14 | SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE PI  Tampler:  Date Time:  Pare Time:  Date Time:  Received By:  CF:(0-6: -0.2°C)  (6-23: +0.2°C)  COrrected Temp:  COrrected Temp:  A  14 | Date Time:  Received By:  Date Time:  Received By:  Date Time:  Da | Day received by Lab, if received by 5:00 pm    SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE PI   Tampler:   Pate Time:   Received By:   CF:(0-6: -0.2°C)     Date Time:   Received By:   COrrected Temp:   1, | SENCY  SENCY  SENCY  Contract TAT  Level 3 (CLP Forms)  SENCY  TRP Checklist  Temp: 7, 5 € IR ID:R-8  CF:(0-6: -0.2°C)  SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE PI  (6-23: +0.2°C)  Date Time: Received By:  Date Time: Received By:  Received By: | ERGENCY        | ERGENCY  T Day TAT  Level II Std QC  Level IV (Full Data Pkg /raw data)  Stop  SENCY  SENCY  SENCY  SENCY  Contract TAT  Level II Std QC+ Forms  Level II Std QC+ Forms  Level IV (Full Data Pkg /raw data)  TRRP Level IV  Level IV (Full Data Pkg /raw data)  TRRP Level IV  Level IV (Full Data Pkg /raw data)  TRRP Level IV  Level IV (Full Data Pkg /raw data)  TRRP Level IV  Level IV (Full Data Pkg /raw data)  TRRP Level IV  Temp:  SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE PROCESS (O-6: -0.2°C)  TRRP Checklist  Temp:  CF:(0-6: -0.2°C)  CF:(0-6: -0.2°C)  CF:(0-6: -0.2°C)  COTTected Temp:  A  A  A  A  A  A  A  A  A  A  A  A  A | T S Day TAT Level II Std QC Level II Std QC Level IV (Full Data Pkg /raw data)  ERGENCY 7 Day TAT Level II Std QC Serviced Data Pkg /raw data)  SENCY Contract TAT Level II Std QC Forms TRRP Level IV  SENCY Contract TAT Level II Std QC Forms TRRP Level IV  Sency Serviced by 5:00 pm TRRP Checklist Temp: 7, 3° C IR ID:R-8  SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME: SAMPLES CHANGE PI (6-23: +0.2°C)  Date Time: Received By:  A Violes: Notes: | 12   1/51   9:14/4   S   1 | 10      3    9;   16.4   S   1 | S   1/31   9; 1/4   S   1 | C          | S   1/3    9; 1/4   S   1 | W   W   S   1 | S   1/5   9:06.4   S   1 | C   1/5   9:04.4   S   1 | 1        | 1                  | Sample   Date   Time   Marks   Solder   Date   Da | Collection   Col | Collection   Sample   Collection   Collection   Sample   Collection   Collec   | Collection   Col | ### Phone Not 251-24445   Minote COG Operating, LLC   Annual Control Make (Minote Control Collection)   Annual Control Make (Minote Collection)   Annual Collection   Annual Collection | Phone No. 575-373-4475   Phone No. 575-373-4 | Priest Annalment   Priest Anna | Project Name/Number   Project Name/Number   Name   Project Name   Project Name   Nam | Project Name/Number: | Project Internation   Project Internation |



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



Client: COG Operating, LLC

Date/ Time Received: 12/07/2017 11:15:00 AM

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

Work Order #: 570437

Temperature Measuring device used: R8

|  | Sample Receipt Checklist                              | Comments         |
|--|---|------------------|
| #1 *Temperature of cooler(s)?                      |   | 2.1              |
| #2 *Shipping container in good condition           | ?   | Yes              |
| #3 *Samples received on ice?                       |   | Yes              |
| #4 *Custody Seals intact on shipping cor           | ntainer/ cooler?                                      | No               |
| #5 Custody Seals intact on sample bottle           | es?   | 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 relinque           | uished/ received?                                     | Yes              |
| #10 Chain of Custody agrees with sample            | e 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 indicat           | ed test(s)?   | Yes              |
| #16 All samples received within hold time          | e?  | Yes              |
| #17 Subcontract of sample(s)?                      |   | No               |
| #18 Water VOC samples have zero head               | dspace?   | N/A              |
| * Must be completed for after-hours de<br>Analyst: | livery of samples prior to placing in PH Device/Lot#: | the refrigerator |
| Checklist completed by:                            | Connie Hernandez                                      | Date: 12/07/2017 |
| Checklist reviewed by:                             | Mike Kimmel   | Date: 12/13/2017 |

# APPENDIX VI

# **Analytical Report 570437**

# for COG Operating, LLC

Project Manager: Sheldon Hitchcock Illustrated Man Fee Com #1H (10-27-17)

16-DEC-17

Collected By: Client





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

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

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

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





16-DEC-17

Project Manager: Sheldon Hitchcock

**COG Operating, LLC** 

600 W Illinois Midland, TX 79701

Reference: XENCO Report No(s): 570437

Illustrated Man Fee Com #1H (10-27-17)

Project Address: M-1-25S-28E

#### **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) 570437. 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. 570437 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,

Mike Kimmel

Client Services Manager

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

Certified and approved by numerous States and Agencies.

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

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



# **Sample Cross Reference 570437**



### COG Operating, LLC, Midland, TX

Illustrated Man Fee Com #1H (10-27-17)

| Sample Id | Matrix | <b>Date Collected</b> | Sample Depth | Lab Sample Id |
|-----------|--------|-----------------------|--------------|---------------|
| T-1 0'    | S      | 12-01-17 09:00        | 0            | 570437-001    |
| T-1 1'    | S      | 12-01-17 09:02        | 1            | 570437-002    |
| T-1 2'    | S      | 12-01-17 09:04        | 2            | 570437-003    |
| T-1 3'    | S      | 12-01-17 09:06        | 3            | 570437-004    |
| T-1 4'    | S      | 12-01-17 09:08        | 4            | 570437-005    |
| T-1 5'    | S      | 12-01-17 09:10        | 5            | 570437-006    |
| T-1 6'    | S      | 12-01-17 09:12        | 6            | 570437-007    |
| T-1 8'    | S      | 12-01-17 09:14        | 8            | 570437-008    |
| T-1 10'   | S      | 12-01-17 09:16        | 10           | 570437-009    |
| T-1 12'   | S      | 12-01-17 09:18        | 12           | 570437-010    |
| T-2 0'    | S      | 12-01-17 10:00        | 0            | 570437-011    |
| T-2 1'    | S      | 12-01-17 10:02        | 1            | 570437-012    |
| T-2 2'    | S      | 12-01-17 10:04        | 2            | 570437-013    |
| T-2 3'    | S      | 12-01-17 10:06        | 3            | 570437-014    |

#### CASE NARRATIVE

Client Name: COG Operating, LLC

Project Name: Illustrated Man Fee Com #1H (10-27-17)

Project ID: Report Date: 16-DEC-17 Work Order Number(s): 570437 Date Received: 12/07/2017

#### Sample receipt non conformances and comments:

None

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

None

#### **Analytical non conformances and comments:**

Batch: LBA-3035740 BTEX by EPA 8021B

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

Batch: LBA-3035888 BTEX by EPA 8021B

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



Sheldon Hitchcock

M-1-25S-28E

**Project Id:** 

**Project Location:** 

**Contact:** 

# Certificate of Analysis Summary 570437

COG Operating, LLC, Midland, TX

**Project Name: Illustrated Man Fee Com #1H (10-27-17)** 

**Date Received in Lab:** Thu Dec-07-17 11:15 am

Page 56 of 95

Project Manager: Kelsey Brooks



Report Date: 16-DEC-17

|                                   |            |           |         |             | 1       |             |         |           |       |             |      |             |      |
|-----------------------------------|------------|-----------|---------|-------------|---------|-------------|---------|-----------|-------|-------------|------|-------------|------|
|                                   | Lab Id:    | 570437-0  | 001     | 570437-0    | 02      | 570437-0    | 03      | 570437-0  | 04    | 570437-0    | 05   | 570437-0    | 06   |
| Analysis Requested                | Field Id:  | T-1 0     | '       | T-1 1'      |         | T-1 2'      |         | T-1 3'    |       | T-1 4'      |      | T-1 5'      |      |
| Anaiysis Kequesiea                | Depth:     | 0-        |         | 1-          |         | 2-          |         | 3-        |       | 4-          |      | 5-          |      |
|                                   | Matrix:    | SOIL      | ,       | SOIL        |         | SOIL        |         | SOIL      |       | SOIL        |      | SOIL        |      |
|                                   | Sampled:   | Dec-01-17 | 09:00   | Dec-01-17 ( | 09:02   | Dec-01-17 ( | 09:04   | Dec-01-17 | 09:06 | Dec-01-17 ( | 9:08 | Dec-01-17 ( | 9:10 |
| BTEX by EPA 8021B                 | Extracted: | Dec-12-17 | 08:30   | Dec-12-17 ( | 08:30   | Dec-12-17 ( | 08:30   |           |       |             |      |             |      |
|                                   | Analyzed:  | Dec-12-17 | 14:01   | Dec-12-17 1 | 4:20    | Dec-12-17   | 14:39   |           |       |             |      |             |      |
|                                   | Units/RL:  | mg/kg     | RL      | mg/kg       | RL      | mg/kg       | RL      |           |       |             |      |             |      |
| Benzene                           |            | < 0.00200 | 0.00200 | < 0.00200   | 0.00200 | < 0.00200   | 0.00200 |           |       |             |      |             |      |
| Toluene                           |            | 0.00228   | 0.00200 | < 0.00200   | 0.00200 | < 0.00200   | 0.00200 |           |       |             |      |             |      |
| Ethylbenzene                      |            | < 0.00200 | 0.00200 | < 0.00200   | 0.00200 | < 0.00200   | 0.00200 |           |       |             |      |             |      |
| m,p-Xylenes                       |            | < 0.00401 | 0.00401 | < 0.00399   | 0.00399 | < 0.00399   | 0.00399 |           |       |             |      |             |      |
| o-Xylene                          |            | < 0.00200 | 0.00200 | < 0.00200   | 0.00200 | < 0.00200   | 0.00200 |           |       |             |      |             |      |
| Total Xylenes                     |            | < 0.00200 | 0.00200 | < 0.00200   | 0.00200 | < 0.00200   | 0.00200 |           |       |             |      |             |      |
| Total BTEX                        |            | 0.00228   | 0.00200 | < 0.00200   | 0.00200 | < 0.00200   | 0.00200 |           |       |             |      |             |      |
| Chloride by EPA 300               | Extracted: | Dec-08-17 | 16:00   | Dec-08-17 1 | 6:00    | Dec-11-17   | 16:20   | Dec-11-17 | 10:30 | Dec-11-17 1 | 0:30 | Dec-11-17 1 | 0:30 |
|                                   | Analyzed:  | Dec-09-17 | 03:23   | Dec-09-17 ( | 3:28    | Dec-11-17   | 18:25   | Dec-11-17 | 11:42 | Dec-11-17 1 | 1:48 | Dec-11-17 1 | 1:53 |
|                                   | Units/RL:  | mg/kg     | RL      | mg/kg       | RL      | mg/kg       | RL      | mg/kg     | RL    | mg/kg       | RL   | mg/kg       | RL   |
| Chloride                          |            | 34000     | 250     | 12900       | 98.2    | 12300       | 98.2    | 12400     | 99.4  | 1880        | 49.3 | 150         | 49.4 |
| TPH by SW8015 Mod                 | Extracted: | Dec-14-17 | 15:00   | Dec-14-17 1 | 15:00   | Dec-14-17   | 15:00   |           |       |             | İ    |             |      |
|                                   | Analyzed:  | Dec-15-17 | 02:48   | Dec-15-17 ( | 3:08    | Dec-15-17 ( | 04:09   |           |       |             |      |             |      |
|                                   | Units/RL:  | mg/kg     | RL      | mg/kg       | RL      | mg/kg       | RL      |           |       |             |      |             |      |
| Gasoline Range Hydrocarbons (GRO) |            | <15.0     | 15.0    | <15.0       | 15.0    | <15.0       | 15.0    |           |       |             |      |             |      |
| Diesel Range Organics (DRO)       |            | 533       | 15.0    | <15.0       | 15.0    | <15.0       | 15.0    |           |       |             |      |             |      |
| Oil Range Hydrocarbons (ORO)      |            | 107       | 15.0    | <15.0       | 15.0    | <15.0       | 15.0    |           |       |             |      |             |      |
| Total TPH                         |            | 640       | 15.0    | <15.0       | 15.0    | <15.0       | 15.0    |           |       |             |      |             |      |

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

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

Version: 1.%

Mike Kimmel Client Services Manager



**Project Id:** 

# **Certificate of Analysis Summary 570437**

COG Operating, LLC, Midland, TX

**Project Name: Illustrated Man Fee Com #1H (10-27-17)** 

Date Received in Lab: Thu Dec-07-17 11:15 am

**Report Date:** 16-DEC-17 **Project Manager:** Kelsey Brooks



Contact: Sheldon Hitchcock

Project Location: M-1-25S-28E

|                                   | Lab Id:    | 570437-0    | 007   | 570437-0    | 08    | 570437-0    | 09   | 570437-0    | 010   | 570437-   | 011     | 570437-   | 012     |
|-----------------------------------|------------|-------------|-------|-------------|-------|-------------|------|-------------|-------|-----------|---------|-----------|---------|
|                                   | Field Id:  | T-1 6'      |       | T-1 8'      |       | T-1 10'     |      | T-1 12      | ,     | T-2 0     |         | T-2 1     | ,       |
| Analysis Requested                | Depth:     | 6-          |       | 8-          |       | 10-         |      | 12-         |       | 0-        |         | 1-        |         |
|                                   | Matrix:    | SOIL        |       | SOIL        |       | SOIL        |      | SOIL        |       | SOIL      |         | SOIL      |         |
|                                   | Sampled:   | Dec-01-17 ( | 09:12 | Dec-01-17 ( | 09:14 | Dec-01-17 0 | 9:16 | Dec-01-17 ( | 09:18 | Dec-01-17 |         | Dec-01-17 |         |
| BTEX by EPA 8021B                 | Extracted: |             |       |             |       |             |      |             |       | Dec-13-17 | 09:30   | Dec-13-17 | 09:30   |
|                                   | Analyzed:  |             |       |             |       |             |      |             |       | Dec-13-17 |         | Dec-13-17 |         |
|                                   | Units/RL:  |             |       |             |       |             |      |             |       | mg/kg     | RL      | mg/kg     | RL      |
| Benzene                           | Chiis/RE.  |             |       |             |       |             |      |             |       | <0.00200  | 0.00200 | <0.00201  | 0.00201 |
| Toluene                           |            |             |       |             |       |             |      |             |       | < 0.00200 | 0.00200 | < 0.00201 | 0.00201 |
| Ethylbenzene                      |            |             |       |             |       |             |      |             |       | < 0.00200 | 0.00200 | < 0.00201 | 0.00201 |
| m,p-Xylenes                       |            |             |       |             |       |             |      |             |       | < 0.00399 | 0.00399 | < 0.00402 | 0.00402 |
| o-Xylene                          |            |             |       |             |       |             |      |             |       | < 0.00200 | 0.00200 | < 0.00201 | 0.00201 |
| Total Xylenes                     |            |             |       |             |       |             |      |             |       | < 0.00200 | 0.00200 | < 0.00201 | 0.00201 |
| Total BTEX                        |            |             |       |             |       |             |      |             |       | < 0.00200 | 0.00200 | < 0.00201 | 0.00201 |
| Chloride by EPA 300               | Extracted: | Dec-11-17   | 10:30 | Dec-11-17 1 | 0:30  | Dec-11-17 1 | 0:30 | Dec-11-17   | 10:30 | Dec-11-17 | 10:30   | Dec-11-17 | 10:30   |
|                                   | Analyzed:  | Dec-11-17   | 11:59 | Dec-11-17   | 2:17  | Dec-11-17 1 | 2:23 | Dec-11-17   | 12:29 | Dec-11-17 | 12:35   | Dec-11-17 | 12:41   |
|                                   | Units/RL:  | mg/kg       | RL    | mg/kg       | RL    | mg/kg       | RL   | mg/kg       | RL    | mg/kg     | RL      | mg/kg     | RL      |
| Chloride                          |            | 780         | 49.7  | 1250        | 50.0  | 2880        | 49.8 | 319         | 24.6  | 13000     | 98.4    | 9890      | 99.4    |
| TPH by SW8015 Mod                 | Extracted: |             |       |             |       |             |      |             |       | Dec-08-17 | 17:00   | Dec-08-17 | 17:00   |
|                                   | Analyzed:  |             |       |             |       |             |      |             |       | Dec-09-17 | 04:23   | Dec-09-17 | 04:43   |
|                                   | Units/RL:  |             |       |             |       |             |      |             |       | mg/kg     | RL      | mg/kg     | RL      |
| Gasoline Range Hydrocarbons (GRO) |            |             |       |             |       |             |      |             |       | <15.0     | 15.0    | <15.0     | 15.0    |
| Diesel Range Organics (DRO)       |            | ·           |       |             |       |             |      |             |       | <15.0     | 15.0    | <15.0     | 15.0    |
| Oil Range Hydrocarbons (ORO)      |            |             |       |             |       |             |      |             |       | <15.0     | 15.0    | <15.0     | 15.0    |
| Total TPH                         |            |             |       |             |       |             |      |             |       | <15.0     | 15.0    | <15.0     | 15.0    |

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

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Version: 1.%

Mike Kimmel Client Services Manager



**Project Id:** 

# Certificate of Analysis Summary 570437

COG Operating, LLC, Midland, TX

**Project Name: Illustrated Man Fee Com #1H (10-27-17)** 

**Date Received in Lab:** Thu Dec-07-17 11:15 am



**Contact:** Sheldon Hitchcock Report Date: 16-DEC-17 **Project Location:** M-1-25S-28E Project Manager: Kelsey Brooks

|                                   |            |             |         |             |      | <br> |  |
|-----------------------------------|------------|-------------|---------|-------------|------|------|--|
|                                   | Lab Id:    | 570437-0    | 013     | 570437-0    | 14   |      |  |
| Analysis Requested                | Field Id:  | T-2 2'      |         | T-2 3'      |      |      |  |
| Analysis Requesieu                | Depth:     | 2-          |         | 3-          |      |      |  |
|                                   | Matrix:    | SOIL        |         | SOIL        |      |      |  |
|                                   | Sampled:   | Dec-01-17   | 10:04   | Dec-01-17 1 | 0:06 |      |  |
| BTEX by EPA 8021B                 | Extracted: | Dec-13-17 ( | 09:30   |             |      |      |  |
|                                   | Analyzed:  | Dec-13-17   | 16:40   |             |      |      |  |
|                                   | Units/RL:  | mg/kg       | RL      |             |      |      |  |
| Benzene                           |            | < 0.00202   | 0.00202 |             |      |      |  |
| Toluene                           |            | < 0.00202   | 0.00202 |             |      |      |  |
| Ethylbenzene                      |            | < 0.00202   | 0.00202 |             |      |      |  |
| m,p-Xylenes                       |            | < 0.00404   | 0.00404 |             |      |      |  |
| o-Xylene                          |            | < 0.00202   | 0.00202 |             |      |      |  |
| Total Xylenes                     |            | < 0.00202   | 0.00202 |             |      |      |  |
| Total BTEX                        |            | < 0.00202   | 0.00202 |             |      |      |  |
| Chloride by EPA 300               | Extracted: | Dec-11-17   | 10:30   | Dec-11-17 1 | 0:30 |      |  |
|                                   | Analyzed:  | Dec-11-17   | 13:05   | Dec-13-17 1 | 2:57 |      |  |
|                                   | Units/RL:  | mg/kg       | RL      | mg/kg       | RL   |      |  |
| Chloride                          |            | 5930        | 99.6    | 11.2        | 4.98 |      |  |
| TPH by SW8015 Mod                 | Extracted: | Dec-08-17   | 17:00   |             |      |      |  |
|                                   | Analyzed:  | Dec-09-17 ( | 05:03   |             |      |      |  |
|                                   | Units/RL:  | mg/kg       | RL      |             |      |      |  |
| Gasoline Range Hydrocarbons (GRO) |            | <15.0       | 15.0    |             |      |      |  |
| Diesel Range Organics (DRO)       |            | <15.0       | 15.0    |             |      |      |  |
| Oil Range Hydrocarbons (ORO)      |            | <15.0       | 15.0    |             |      |      |  |
| Total TPH                         |            | <15.0       | 15.0    |             |      |      |  |

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

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Version: 1.%

Mike Kimmel Client Services Manager



### **Flagging Criteria**



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

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

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

**DL** Method Detection Limit

NC Non-Calculable

- + NELAC certification not offered for this compound.
- \* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

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**Project Name: Illustrated Man Fee Com #1H (10-27-17)** 

Work Orders: 570437,

**Sample:** 570437-011 / SMP

**Project ID:** 

**Lab Batch #:** 3035464 I Inite mø/kø

Date Analyzed: 12/09/17 04:23

Matrix: Soil Batch: 1

| Units:      | mg/kg | <b>Date Analyzed:</b> 12/09/17 04:23 | SU                     | RROGATE RE            | ECOVERY S             | STUDY                   |       |
|-------------|-------|--------------------------------------|------------------------|-----------------------|-----------------------|-------------------------|-------|
|             | ТРН   | by SW8015 Mod Analytes               | Amount<br>Found<br>[A] | True<br>Amount<br>[B] | Recovery<br>%R<br>[D] | Control<br>Limits<br>%R | Flags |
| 1-Chlorooct | tane  | <u> </u>                             | 84.2                   | 99.9                  | 84                    | 70-135                  |       |
| o-Terpheny  | ·1    |                                      | 43.5                   | 50.0                  | 87                    | 70-135                  |       |

**Lab Batch #:** 3035464 Sample: 570437-012 / SMP Batch: 1 Matrix: Soil

**Units:** mg/kg Date Analyzed: 12/09/17 04:43 SURROGATE RECOVERY STUDY TPH by SW8015 Mod **Amount** True Control Found Limits Amount Recovery Flags [A] [B] %R %R [D] **Analytes** 1-Chlorooctane 87.3 99.9 87 70-135 o-Terphenyl

45.3

Lab Batch #: 3035464 Sample: 570437-013 / SMP Batch: Matrix: Soil

**Units:** mg/kg Date Analyzed: 12/09/17 05:03 SURROGATE RECOVERY STUDY

91

70-135

50.0

| TPH by SW8015 Mod  Analytes | Amount<br>Found<br>[A] | True<br>Amount<br>[B] | Recovery<br>%R<br>[D] | Control<br>Limits<br>%R | Flags |
|-----------------------------|------------------------|-----------------------|-----------------------|-------------------------|-------|
| 1-Chlorooctane              | 84.6                   | 99.8                  | 85                    | 70-135                  |       |
| o-Terphenyl                 | 43.4                   | 49.9                  | 87                    | 70-135                  |       |

**Lab Batch #:** 3035740 Sample: 570437-001 / SMP Batch: Matrix: Soil

| Units:      | mg/kg       | <b>Date Analyzed:</b> 12/12/17 14:01 | SU                     | RROGATE RE            | ECOVERY S             | STUDY                   |       |
|-------------|-------------|--------------------------------------|------------------------|-----------------------|-----------------------|-------------------------|-------|
|             | ВТЕ         | X by EPA 8021B  Analytes             | Amount<br>Found<br>[A] | True<br>Amount<br>[B] | Recovery<br>%R<br>[D] | Control<br>Limits<br>%R | Flags |
| 1,4-Difluor | obenzene    |                                      | 0.0267                 | 0.0300                | 89                    | 80-120                  |       |
| 4-Bromoflu  | iorobenzene |                                      | 0.0269                 | 0.0300                | 90                    | 80-120                  |       |

Lab Batch #: 3035740 **Sample:** 570437-002 / SMP Batch: Matrix: Soil

| <b>Units:</b> | mg/kg    | <b>Date Analyzed:</b> 12/12/17 14:20 | SURROGATE RECOVERY STUDY |                       |                       |                         |       |  |
|---------------|----------|--------------------------------------|--------------------------|-----------------------|-----------------------|-------------------------|-------|--|
|               | ВТЕ      | X by EPA 8021B  Analytes             | Amount<br>Found<br>[A]   | True<br>Amount<br>[B] | Recovery<br>%R<br>[D] | Control<br>Limits<br>%R | Flags |  |
| 1,4-Difluorob | enzene   | Analytes                             | 0.0270                   | 0.0300                | 90                    | 80-120                  |       |  |
| 4-Bromofluor  | obenzene |                                      | 0.0276                   | 0.0300                | 92                    | 80-120                  |       |  |

<sup>\*</sup> Surrogate outside of Laboratory QC limits

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

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

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



**Project Name: Illustrated Man Fee Com #1H (10-27-17)** 

Work Orders: 570437,

Sample: 570437-003 / SMP

**Project ID:** 

**Lab Batch #:** 3035740 Matrix: Soil Batch: Units: mø/kø **Date Analyzed:** 12/12/17 14:39 SUDDOCATE DECOVEDY STUDY

| SURROGATE RECOVERY STUDY |                        |                       |                |                         |       |  |  |
|--------------------------|------------------------|-----------------------|----------------|-------------------------|-------|--|--|
| BTEX by EPA 8021B        | Amount<br>Found<br>[A] | True<br>Amount<br>[B] | Recovery<br>%R | Control<br>Limits<br>%R | Flags |  |  |
| Analytes                 |                        |                       | [D]            |                         |       |  |  |
| 1,4-Difluorobenzene      | 0.0271                 | 0.0300                | 90             | 80-120                  |       |  |  |
| 4-Bromofluorobenzene     | 0.0285                 | 0.0300                | 95             | 80-120                  |       |  |  |

Lab Batch #: 3035888 Sample: 570437-011 / SMP Batch: Matrix: Soil

**Units:** mg/kg **Date Analyzed:** 12/13/17 16:02 SURROGATE RECOVERY STUDY **Amount** True Control BTEX by EPA 8021B Found Limits Amount Recovery Flags [A] [B] %R %R [D] **Analytes** 1,4-Difluorobenzene 0.0267 0.0300 89 80-120 4-Bromofluorobenzene 0.0299 0.0300 100 80-120

Lab Batch #: 3035888 Sample: 570437-012 / SMP Batch: Matrix: Soil

**Units:** mg/kg **Date Analyzed:** 12/13/17 16:21 SURROGATE RECOVERY STUDY

| BTEX by EPA 8021B  Analytes | Amount<br>Found<br>[A] | True<br>Amount<br>[B] | Recovery<br>%R<br>[D] | Control<br>Limits<br>%R | Flags |
|-----------------------------|------------------------|-----------------------|-----------------------|-------------------------|-------|
| 1,4-Difluorobenzene         | 0.0273                 | 0.0300                | 91                    | 80-120                  |       |
| 4-Bromofluorobenzene        | 0.0291                 | 0.0300                | 97                    | 80-120                  |       |

**Lab Batch #: 3035888** Sample: 570437-013 / SMP Matrix: Soil

| Units:      | mg/kg       | <b>Date Analyzed:</b> 12/13/17 16:40 | SURROGATE RECOVERY STUDY |                       |                       |                         |       |  |  |
|-------------|-------------|--------------------------------------|--------------------------|-----------------------|-----------------------|-------------------------|-------|--|--|
|             | ВТЕ         | X by EPA 8021B  Analytes             | Amount<br>Found<br>[A]   | True<br>Amount<br>[B] | Recovery<br>%R<br>[D] | Control<br>Limits<br>%R | Flags |  |  |
| 1,4-Difluor | obenzene    |                                      | 0.0260                   | 0.0300                | 87                    | 80-120                  |       |  |  |
| 4-Bromoflu  | uorobenzene |                                      | 0.0271                   | 0.0300                | 90                    | 80-120                  |       |  |  |

Lab Batch #: 3035998 **Sample:** 570437-001 / SMP Batch: Matrix: Soil

| Units:     | mg/kg | <b>Date Analyzed:</b> 12/15/17 02:48 | SURROGATE RECOVERY STUDY |                       |                       |                         |       |  |  |
|------------|-------|--------------------------------------|--------------------------|-----------------------|-----------------------|-------------------------|-------|--|--|
|            | ТРН   | by SW8015 Mod                        | Amount<br>Found<br>[A]   | True<br>Amount<br>[B] | Recovery<br>%R<br>[D] | Control<br>Limits<br>%R | Flags |  |  |
|            |       | Analytes                             |                          |                       | رلان                  |                         |       |  |  |
| 1-Chlorood | ctane |                                      | 96.1                     | 99.7                  | 96                    | 70-135                  |       |  |  |
| o-Terpheny | yl    |                                      | 46.1                     | 49.9                  | 92                    | 70-135                  |       |  |  |

<sup>\*</sup> Surrogate outside of Laboratory QC limits

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

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

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



**Project Name: Illustrated Man Fee Com #1H (10-27-17)** 

Work Orders: 570437,

Sample: 570437-002 / SMP

**Project ID:** 

**Lab Batch #:** 3035998 Units: mø/kø

Date Analyzed: 12/15/17 03:08

Matrix: Soil Batch:

50.0

99

70-135

| Units:                      | mg/kg | <b>Date Analyzed:</b> 12/15/17 03:08 | SURROGATE RECOVERY STUDY |                       |                       |                         |       |
|-----------------------------|-------|--------------------------------------|--------------------------|-----------------------|-----------------------|-------------------------|-------|
| TPH by SW8015 Mod  Analytes |       |                                      | Amount<br>Found<br>[A]   | True<br>Amount<br>[B] | Recovery<br>%R<br>[D] | Control<br>Limits<br>%R | Flags |
| 1-Chlorooct                 | tane  |                                      | 95.0                     | 99.8                  | 95                    | 70-135                  |       |
| o-Terpheny                  | 1     |                                      | 49.4                     | 49.9                  | 99                    | 70-135                  |       |

**Lab Batch #:** 3035998 Sample: 570437-003 / SMP Batch: Matrix: Soil

**Units:** mg/kg Date Analyzed: 12/15/17 04:09 SURROGATE RECOVERY STUDY **Amount** True Control TPH by SW8015 Mod Found Limits Amount Recovery Flags [A] [B] %R %R [D] **Analytes** 1-Chlorooctane 98.5 99.9 99 70-135 o-Terphenyl

49.4

Lab Batch #: 3035464 Sample: 7635722-1-BLK / BLK Batch: Matrix: Solid

**Units:** mg/kg **Date Analyzed:** 12/08/17 22:41 SURROGATE RECOVERY STUDY

| TPH by SW8015 Mod  Analytes | Amount<br>Found<br>[A] | True<br>Amount<br>[B] | Recovery<br>%R<br>[D] | Control<br>Limits<br>%R | Flags |
|-----------------------------|------------------------|-----------------------|-----------------------|-------------------------|-------|
| 1-Chlorooctane              | 88.1                   | 100                   | 88                    | 70-135                  |       |
| o-Terphenyl                 | 47.8                   | 50.0                  | 96                    | 70-135                  |       |

**Lab Batch #:** 3035740 Sample: 7635895-1-BLK / BLK Batch: Matrix: Solid

| Units:      | mg/kg       | <b>Date Analyzed:</b> 12/12/17 09:36 | SURROGATE RECOVERY STUDY |                       |                       |                         |       |  |
|-------------|-------------|--------------------------------------|--------------------------|-----------------------|-----------------------|-------------------------|-------|--|
|             | ВТЕ         | X by EPA 8021B  Analytes             | Amount<br>Found<br>[A]   | True<br>Amount<br>[B] | Recovery<br>%R<br>[D] | Control<br>Limits<br>%R | Flags |  |
| 1,4-Difluor | robenzene   | 1 mary tes                           | 0.0277                   | 0.0300                | 92                    | 80-120                  |       |  |
| 4-Bromoflu  | uorobenzene |                                      | 0.0281                   | 0.0300                | 94                    | 80-120                  |       |  |

Lab Batch #: 3035888 Sample: 7635967-1-BLK / BLK Batch: Matrix: Solid

| Units:         | mg/kg    | <b>Date Analyzed:</b> 12/13/17 09:59 | SURROGATE RECOVERY STUDY |                       |                       |                         |       |  |
|----------------|----------|--------------------------------------|--------------------------|-----------------------|-----------------------|-------------------------|-------|--|
|                | ВТЕ      | X by EPA 8021B  Analytes             | Amount<br>Found<br>[A]   | True<br>Amount<br>[B] | Recovery<br>%R<br>[D] | Control<br>Limits<br>%R | Flags |  |
| 1,4-Difluorobe | enzene   | Timing tes                           | 0.0275                   | 0.0300                | 92                    | 80-120                  |       |  |
| 4-Bromofluoro  | obenzene |                                      | 0.0252                   | 0.0300                | 84                    | 80-120                  |       |  |

<sup>\*</sup> Surrogate outside of Laboratory QC limits

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

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

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



**Project Name: Illustrated Man Fee Com #1H (10-27-17)** 

Work Orders: 570437,

... \_ /1. \_

TT...\*4...

**Sample:** 7636029-1-BLK / BLK

**Project ID:** 

**Lab Batch #:** 3035998 Units: **Date Analyzed:** 12/15/17 01:48

Matrix: Solid Batch: 1

| <b>Units:</b> mg/kg <b>Date Analyzed:</b> 12/15/17 01:48 | SURROGATE RECOVERY STUDY |                       |                       |                         |       |
|--|--------------------------|-----------------------|-----------------------|-------------------------|-------|
| TPH by SW8015 Mod  Analytes                              | Amount<br>Found<br>[A]   | True<br>Amount<br>[B] | Recovery<br>%R<br>[D] | Control<br>Limits<br>%R | Flags |
| 1-Chlorooctane   | 100                      | 100                   | 100                   | 70-135                  |       |
| o-Terphenyl  | 52.5                     | 50.0                  | 105                   | 70-135                  |       |

**Lab Batch #:** 3035464 **Sample:** 7635722-1-BKS / BKS Batch: Matrix: Solid

-1----1- 12/09/17 22:01

| Units:      | mg/kg | <b>Date Analyzed:</b> 12/08/17 23:01 | SURROGATE RECOVERY STUDY |                       |                |                         |       |  |  |  |
|-------------|-------|--------------------------------------|--------------------------|-----------------------|----------------|-------------------------|-------|--|--|--|
|             | ТРН   | by SW8015 Mod                        | Amount<br>Found<br>[A]   | True<br>Amount<br>[B] | Recovery<br>%R | Control<br>Limits<br>%R | Flags |  |  |  |
|             |       | Analytes                             |                          |                       | [D]            |                         |       |  |  |  |
| 1-Chlorooct | ane   |                                      | 88.9                     | 100                   | 89             | 70-135                  |       |  |  |  |
| o-Terpheny  | 1     |                                      | 46.8                     | 50.0                  | 94             | 70-135                  |       |  |  |  |

**Lab Batch #:** 3035740 **Sample:** 7635895-1-BKS / BKS Batch: Matrix: Solid

**Units:** mg/kg **Date Analyzed:** 12/12/17 07:42 SURROGATE RECOVERY STUDY

| BTEX by EPA 8021B  Analytes | Amount<br>Found<br>[A] | True<br>Amount<br>[B] | Recovery<br>%R<br>[D] | Control<br>Limits<br>%R | Flags |
|-----------------------------|------------------------|-----------------------|-----------------------|-------------------------|-------|
| 1,4-Difluorobenzene         | 0.0251                 | 0.0300                | 84                    | 80-120                  |       |
| 4-Bromofluorobenzene        | 0.0250                 | 0.0300                | 83                    | 80-120                  |       |

**Lab Batch #:** 3035888 **Sample:** 7635967-1-BKS / BKS Batch: 1 Matrix: Solid

| Units:      | mg/kg       | <b>Date Analyzed:</b> 12/13/17 07:30 | analyzed: 12/13/17 07:30 SURROGATE RECOVERY STUDY |                       |                       |                         |       |  |  |  |  |
|-------------|-------------|--------------------------------------|---|-----------------------|-----------------------|-------------------------|-------|--|--|--|--|
|             | вте         | X by EPA 8021B                       | Amount<br>Found<br>[A]                            | True<br>Amount<br>[B] | Recovery<br>%R<br>[D] | Control<br>Limits<br>%R | Flags |  |  |  |  |
|             |             | Analytes                             |   |                       | [2]                   |                         |       |  |  |  |  |
| 1,4-Difluor | robenzene   |                                      | 0.0278  | 0.0300                | 93                    | 80-120                  |       |  |  |  |  |
| 4-Bromoflu  | uorobenzene |                                      | 0.0299  | 0.0300                | 100                   | 80-120                  |       |  |  |  |  |

Lab Batch #: 3035998 Sample: 7636029-1-BKS / BKS Batch: Matrix: Solid

| Units:       | mg/kg | <b>Date Analyzed:</b> 12/15/17 02:08 | SURROGATE RECOVERY STUDY |                       |                       |                         |       |  |  |  |
|--------------|-------|--------------------------------------|--------------------------|-----------------------|-----------------------|-------------------------|-------|--|--|--|
|              | ТРН   | by SW8015 Mod  Analytes              | Amount<br>Found<br>[A]   | True<br>Amount<br>[B] | Recovery<br>%R<br>[D] | Control<br>Limits<br>%R | Flags |  |  |  |
| 1-Chloroocta | ane   |                                      | 104                      | 100                   | 104                   | 70-135                  |       |  |  |  |
| o-Terphenyl  |       |                                      | 55.1                     | 50.0                  | 110                   | 70-135                  |       |  |  |  |

<sup>\*</sup> Surrogate outside of Laboratory QC limits

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

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

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



Project Name: Illustrated Man Fee Com #1H (10-27-17)

**Work Orders :** 570437, **Lab Batch #:** 3035464 **Sa** 

Sample: 7635722-1-BSD / BSD

Project ID:

Batch: 1 Matrix: Solid

Units: mg/kg

**Date Analyzed:** 12/08/17 23:21

TPH by SW8015 Mod

Lab Batch #: 3035740 Sample: 7635895-1-BSD / BSD Batch: 1 Matrix: Solid

**Date Analyzed:** 12/12/17 08:01 **Units:** mg/kg SURROGATE RECOVERY STUDY **Amount** True Control BTEX by EPA 8021B Found Limits Amount Flags Recovery [A] [B] %R %R [D] **Analytes** 1,4-Difluorobenzene 0.0285 0.0300 95 80-120 4-Bromofluorobenzene 0.0290 0.0300 97 80-120

Lab Batch #: 3035888 Sample: 7635967-1-BSD / BSD Batch: 1 Matrix: Solid

Units: mg/kg Date Analyzed: 12/13/17 07:49 SURROGATE RECOVERY STUDY

| BTEX by EPA 8021B  Analytes | Amount<br>Found<br>[A] | True<br>Amount<br>[B] | Recovery<br>%R<br>[D] | Control<br>Limits<br>%R | Flags |
|-----------------------------|------------------------|-----------------------|-----------------------|-------------------------|-------|
| 1,4-Difluorobenzene         | 0.0277                 | 0.0300                | 92                    | 80-120                  |       |
| 4-Bromofluorobenzene        | 0.0338                 | 0.0300                | 113                   | 80-120                  |       |

| Units:     | mg/kg                       | <b>Date Analyzed:</b> 12/15/17 02:27 | 2:27 SURROGATE RECOVERY STUDY |                       |                       |                         |       |  |  |  |  |
|------------|-----------------------------|--------------------------------------|-------------------------------|-----------------------|-----------------------|-------------------------|-------|--|--|--|--|
|            | TPH by SW8015 Mod  Analytes |                                      | Amount<br>Found<br>[A]        | True<br>Amount<br>[B] | Recovery<br>%R<br>[D] | Control<br>Limits<br>%R | Flags |  |  |  |  |
| 1-Chlorooc | ctane                       | •                                    | 92.3                          | 100                   | 92                    | 70-135                  |       |  |  |  |  |
| o-Terpheny | yl                          |                                      | 47.6                          | 50.0                  | 95                    | 70-135                  |       |  |  |  |  |

| Units:      | mg/kg | <b>Date Analyzed:</b> 12/09/17 01:04 | SURROGATE RECOVERY STUDY |                       |                       |                         |       |  |  |  |
|-------------|-------|--------------------------------------|--------------------------|-----------------------|-----------------------|-------------------------|-------|--|--|--|
|             | ТРН   | by SW8015 Mod  Analytes              | Amount<br>Found<br>[A]   | True<br>Amount<br>[B] | Recovery<br>%R<br>[D] | Control<br>Limits<br>%R | Flags |  |  |  |
| 1-Chlorooct | ane   |                                      | 89.5                     | 99.8                  | 90                    | 70-135                  |       |  |  |  |
| o-Terpheny  | 1     |                                      | 48.3                     | 49.9                  | 97                    | 70-135                  |       |  |  |  |

<sup>\*</sup> Surrogate outside of Laboratory QC limits

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

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

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



**Project Name: Illustrated Man Fee Com #1H (10-27-17)** 

Work Orders: 570437,

Project ID:

**Lab Batch #:** 3035740 **Sample:** 570435-002 S / MS **Batch:** 1 **Matrix:** Soil

| Units: mg          | /kg  | <b>Date Analyzed:</b> 12/12/17 08:20 | SURROGATE RECOVERY STUDY |                       |                |                         |       |  |
|--------------------|------|--------------------------------------|--------------------------|-----------------------|----------------|-------------------------|-------|--|
|                    |      | oy EPA 8021B                         | Amount<br>Found<br>[A]   | True<br>Amount<br>[B] | Recovery<br>%R | Control<br>Limits<br>%R | Flags |  |
|                    | A    | nalytes                              |                          |                       | [D]            |                         |       |  |
| 1,4-Difluorobenzen | ne   |                                      | 0.0305                   | 0.0300                | 102            | 80-120                  |       |  |
| 4-Bromofluorobenz  | zene |                                      | 0.0324                   | 0.0300                | 108            | 80-120                  |       |  |

 Lab Batch #: 3035888
 Sample: 570779-005 S / MS
 Batch: 1
 Matrix: Soil

**Units:** mg/kg Date Analyzed: 12/13/17 08:43 SURROGATE RECOVERY STUDY **Amount** True Control BTEX by EPA 8021B Found Limits Amount Recovery Flags [A] [B] %R %R [D] **Analytes** 1,4-Difluorobenzene 0.0285 0.0300 95 80-120 4-Bromofluorobenzene 0.0296 0.0300 99 80-120

Lab Batch #: 3035998 Sample: 570437-002 S / MS Batch: 1 Matrix: Soil

Units: mg/kg Date Analyzed: 12/15/17 03:28 SURROGATE RECOVERY STUDY

| TPH by SW8015 Mod  Analytes | Amount<br>Found<br>[A] | True<br>Amount<br>[B] | Recovery<br>%R<br>[D] | Control<br>Limits<br>%R | Flags |
|-----------------------------|------------------------|-----------------------|-----------------------|-------------------------|-------|
| 1-Chlorooctane              | 93.9                   | 99.7                  | 94                    | 70-135                  |       |
| o-Terphenyl                 | 49.0                   | 49.9                  | 98                    | 70-135                  |       |

**Lab Batch #:** 3035464 **Sample:** 570434-004 SD / MSD **Batch:** 1 **Matrix:** Soil

| Units:     | mg/kg                                     | <b>Date Analyzed:</b> 12/09/17 01:26 | 6 SURROGATE RECOVERY STUDY |                       |                       |                         |       |  |  |  |  |
|------------|---|--------------------------------------|----------------------------|-----------------------|-----------------------|-------------------------|-------|--|--|--|--|
|            | TPH by SW8015 Mod  Analytes  Chlorooctane |                                      | Amount<br>Found<br>[A]     | True<br>Amount<br>[B] | Recovery<br>%R<br>[D] | Control<br>Limits<br>%R | Flags |  |  |  |  |
| 1-Chlorooc | ctane                                     | •                                    | 78.4                       | 99.8                  | 79                    | 70-135                  |       |  |  |  |  |
| o-Terpheny | yl  |                                      | 41.7                       | 49.9                  | 84                    | 70-135                  |       |  |  |  |  |

| <b>Units:</b> mg/kg         | <b>Date Analyzed:</b> 12/12/17 08:39 | SURROGATE RECOVERY STUDY |                       |                       |                         |       |  |  |  |
|-----------------------------|--------------------------------------|--------------------------|-----------------------|-----------------------|-------------------------|-------|--|--|--|
| BTEX by EPA 8021B  Analytes |                                      | Amount<br>Found<br>[A]   | True<br>Amount<br>[B] | Recovery<br>%R<br>[D] | Control<br>Limits<br>%R | Flags |  |  |  |
| 1,4-Difluorobenzene         |                                      | 0.0337                   | 0.0300                | 112                   | 80-120                  |       |  |  |  |
| 4-Bromofluorobenzene        |                                      | 0.0344                   | 0.0300                | 115                   | 80-120                  |       |  |  |  |

<sup>\*</sup> Surrogate outside of Laboratory QC limits

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

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

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



**Project Name: Illustrated Man Fee Com #1H (10-27-17)** 

 Work Orders: 570437,
 Project ID:

 Lab Batch #: 3035888
 Sample: 570779-005 SD / MSD
 Batch: 1 Matrix: Soil

| Units: mg/k         | kg  | <b>Date Analyzed:</b> 12/13/17 09:02 | SURROGATE RECOVERY STUDY |                       |                       |                         |       |  |  |  |
|---------------------|-----|--------------------------------------|--------------------------|-----------------------|-----------------------|-------------------------|-------|--|--|--|
|                     |     | y EPA 8021B<br>nalytes               | Amount<br>Found<br>[A]   | True<br>Amount<br>[B] | Recovery<br>%R<br>[D] | Control<br>Limits<br>%R | Flags |  |  |  |
| 1,4-Difluorobenzene | ;   |                                      | 0.0274                   | 0.0300                | 91                    | 80-120                  |       |  |  |  |
| 4-Bromofluorobenze  | ene |                                      | 0.0283                   | 0.0300                | 94                    | 80-120                  |       |  |  |  |

| Units:      | mg/kg <b>Date Analyzed:</b> 12/15/17 03:48 | SURROGATE RECOVERY STUDY |                       |                |                         |       |  |  |  |
|-------------|--|--------------------------|-----------------------|----------------|-------------------------|-------|--|--|--|
|             | TPH by SW8015 Mod                          | Amount<br>Found<br>[A]   | True<br>Amount<br>[B] | Recovery<br>%R | Control<br>Limits<br>%R | Flags |  |  |  |
|             | Analytes                                   |                          |                       | [D]            |                         |       |  |  |  |
| 1-Chlorooct | ane  | 102                      | 99.9                  | 102            | 70-135                  |       |  |  |  |
| o-Terphenyl |  | 51.9                     | 50.0                  | 104            | 70-135                  |       |  |  |  |

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

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

<sup>\*</sup> Surrogate outside of Laboratory QC limits

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



#### **BS / BSD Recoveries**



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**Project Name: Illustrated Man Fee Com #1H (10-27-17)** 

Work Order #: 570437 **Project ID:** 

**Date Prepared:** 12/12/2017 **Date Analyzed:** 12/12/2017 **Analyst:** ALJ

**Lab Batch ID:** 3035740 Sample: 7635895-1-BKS **Batch #:** 1 Matrix: Solid

| Units: mg/kg                |                               | BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY |                                 |                             |                       |   |                               |          |                         |                           |      |
|-----------------------------|-------------------------------|---|---------------------------------|-----------------------------|-----------------------|---|-------------------------------|----------|-------------------------|---------------------------|------|
| BTEX by EPA 8021B  Analytes | Blank<br>Sample Result<br>[A] | Spike<br>Added<br>[B]                                     | Blank<br>Spike<br>Result<br>[C] | Blank<br>Spike<br>%R<br>[D] | Spike<br>Added<br>[E] | Blank<br>Spike<br>Duplicate<br>Result [F] | Blk. Spk<br>Dup.<br>%R<br>[G] | RPD<br>% | Control<br>Limits<br>%R | Control<br>Limits<br>%RPD | Flag |
| _                           |                               |   |                                 |                             | 1                     |   |                               | 1        |                         |                           |      |

|              | [A]       | Added | Result | %R  | Added  | Duplicate Duplicate | %R  | % | %R     | %RPD | riag |
|--------------|-----------|-------|--------|-----|--------|---------------------|-----|---|--------|------|------|
| Analytes     |           | [B]   | [C]    | [D] | [E]    | Result [F]          | [G] |   |        |      |      |
| Benzene      | < 0.00201 | 0.100 | 0.107  | 107 | 0.0998 | 0.111               | 111 | 4 | 70-130 | 35   |      |
| Toluene      | < 0.00201 | 0.100 | 0.103  | 103 | 0.0998 | 0.106               | 106 | 3 | 70-130 | 35   |      |
| Ethylbenzene | < 0.00201 | 0.100 | 0.105  | 105 | 0.0998 | 0.108               | 108 | 3 | 71-129 | 35   |      |
| m,p-Xylenes  | < 0.00402 | 0.201 | 0.200  | 100 | 0.200  | 0.208               | 104 | 4 | 70-135 | 35   |      |
| o-Xylene     | < 0.00201 | 0.100 | 0.0992 | 99  | 0.0998 | 0.102               | 102 | 3 | 71-133 | 35   |      |

**Date Prepared:** 12/13/2017 **Analyst:** ALJ **Date Analyzed:** 12/13/2017

**Lab Batch ID:** 3035888 **Batch #:** 1 Matrix: Solid **Sample:** 7635967-1-BKS

**Units:** mg/kg BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

| BTEX by EPA 8021B  Analytes | Blank<br>Sample Result<br>[A] | Spike<br>Added<br>[B] | Blank<br>Spike<br>Result<br>[C] | Blank<br>Spike<br>%R<br>[D] | Spike<br>Added<br>[E] | Blank<br>Spike<br>Duplicate<br>Result [F] | Blk. Spk<br>Dup.<br>%R<br>[G] | RPD<br>% | Control<br>Limits<br>%R | Control<br>Limits<br>%RPD | Flag |
|-----------------------------|-------------------------------|-----------------------|---------------------------------|-----------------------------|-----------------------|---|-------------------------------|----------|-------------------------|---------------------------|------|
| Benzene                     | < 0.00201                     | 0.100                 | 0.115                           | 115                         | 0.100                 | 0.108                                     | 108                           | 6        | 70-130                  | 35                        |      |
| Toluene                     | < 0.00201                     | 0.100                 | 0.110                           | 110                         | 0.100                 | 0.103                                     | 103                           | 7        | 70-130                  | 35                        |      |
| Ethylbenzene                | < 0.00201                     | 0.100                 | 0.113                           | 113                         | 0.100                 | 0.105                                     | 105                           | 7        | 71-129                  | 35                        |      |
| m,p-Xylenes                 | < 0.00402                     | 0.201                 | 0.218                           | 108                         | 0.200                 | 0.203                                     | 102                           | 7        | 70-135                  | 35                        |      |
| o-Xylene                    | < 0.00201                     | 0.100                 | 0.107                           | 107                         | 0.100                 | 0.0990                                    | 99                            | 8        | 71-133                  | 35                        |      |

mg/kg

**Units:** 

#### **BS / BSD Recoveries**



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**Project Name: Illustrated Man Fee Com #1H (10-27-17)** 

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

**Project ID:** Work Order #: 570437

**Analyst:** MNV **Date Prepared:** 12/08/2017 **Date Analyzed:** 12/09/2017

**Lab Batch ID:** 3035752 Sample: 7635709-1-BKS **Batch #:** 1 Matrix: Solid

|                     |                               |                | ,,                       |                      |                |                             |                        |          |                         |                           |      |
|---------------------|-------------------------------|----------------|--------------------------|----------------------|----------------|-----------------------------|------------------------|----------|-------------------------|---------------------------|------|
| Chloride by EPA 300 | Blank<br>Sample Result<br>[A] | Spike<br>Added | Blank<br>Spike<br>Result | Blank<br>Spike<br>%R | Spike<br>Added | Blank<br>Spike<br>Duplicate | Blk. Spk<br>Dup.<br>%R | RPD<br>% | Control<br>Limits<br>%R | Control<br>Limits<br>%RPD | Flag |
| Analytes            |                               | [B]            | [C]                      | [D]                  | [E]            | Result [F]                  | [G]                    |          |                         |                           |      |
| Chloride            | < 5.00                        | 250            | 255                      | 102                  | 250            | 259                         | 104                    | 2        | 90-110                  | 20                        |      |

OJS **Date Prepared:** 12/11/2017 **Date Analyzed:** 12/11/2017 **Analyst:** 

**Lab Batch ID:** 3035758 **Batch #:** 1 Matrix: Solid **Sample:** 7635746-1-BKS

**Units:** mg/kg BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

| Chloride by EPA 300 | Blank<br>Sample Result<br>[A] | Spike<br>Added | Blank<br>Spike<br>Result | Blank<br>Spike<br>%R | Spike<br>Added | Blank<br>Spike<br>Duplicate | Blk. Spk<br>Dup.<br>%R | RPD<br>% | Control<br>Limits<br>%R | Control<br>Limits<br>%RPD | Flag |
|---------------------|-------------------------------|----------------|--------------------------|----------------------|----------------|-----------------------------|------------------------|----------|-------------------------|---------------------------|------|
| Analytes            |                               | [B]            | [C]                      | [D]                  | [E]            | Result [F]                  | [G]                    |          |                         |                           |      |
| Chloride            | <5.00                         | 250            | 252                      | 101                  | 250            | 255                         | 102                    | 1        | 90-110                  | 20                        |      |

Analyst: OJS **Date Prepared:** 12/11/2017 **Date Analyzed:** 12/11/2017

**Lab Batch ID:** 3035612 **Sample:** 7635780-1-BKS **Batch #:** 1 Matrix: Solid

Units: mg/kg BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

| Chloride by EPA 300 Analytes | Blank<br>Sample Result<br>[A] | Spike<br>Added<br>[B] | Blank<br>Spike<br>Result<br>[C] | Blank<br>Spike<br>%R<br>[D] | Spike<br>Added<br>[E] | Blank<br>Spike<br>Duplicate<br>Result [F] | Blk. Spk<br>Dup.<br>%R<br>[G] | RPD<br>% | Control<br>Limits<br>%R | Control<br>Limits<br>%RPD | Flag |
|------------------------------|-------------------------------|-----------------------|---------------------------------|-----------------------------|-----------------------|---|-------------------------------|----------|-------------------------|---------------------------|------|
| Chloride                     | <5.00                         | 250                   | 251                             | 100                         | 250                   | 255                                       | 102                           | 2        | 90-110                  | 20                        |      |

mg/kg

**Units:** 

#### **BS / BSD Recoveries**



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**Project Name: Illustrated Man Fee Com #1H (10-27-17)** 

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Work Order #: 570437 **Project ID:** 

**Date Prepared:** 12/08/2017 **Analyst:** ARM **Date Analyzed:** 12/08/2017

**Lab Batch ID:** 3035464 Sample: 7635722-1-BKS **Batch #:** 1 Matrix: Solid

|                                   |                               |                |                          | JI IIII , .          |                |                             |                        | 1120011  |                         |                           |      |
|-----------------------------------|-------------------------------|----------------|--------------------------|----------------------|----------------|-----------------------------|------------------------|----------|-------------------------|---------------------------|------|
| TPH by SW8015 Mod                 | Blank<br>Sample Result<br>[A] | Spike<br>Added | Blank<br>Spike<br>Result | Blank<br>Spike<br>%R | Spike<br>Added | Blank<br>Spike<br>Duplicate | Blk. Spk<br>Dup.<br>%R | RPD<br>% | Control<br>Limits<br>%R | Control<br>Limits<br>%RPD | Flag |
| Analytes                          |                               | [B]            | [C]                      | [D]                  | [E]            | Result [F]                  | [G]                    |          |                         |                           |      |
| Gasoline Range Hydrocarbons (GRO) | <15.0                         | 1000           | 922                      | 92                   | 1000           | 928                         | 93                     | 1        | 70-135                  | 35                        |      |
| Diesel Range Organics (DRO)       | <15.0                         | 1000           | 994                      | 99                   | 1000           | 1010                        | 101                    | 2        | 70-135                  | 35                        |      |

**Date Analyzed:** 12/15/2017 **Date Prepared:** 12/14/2017 **Analyst:** ARM

**Lab Batch ID:** 3035998 Sample: 7636029-1-BKS **Batch #:** 1 Matrix: Solid

**Units:** mg/kg BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

| TPH by SW8015 Mod Analytes        | Blank<br>Sample Result<br>[A] | Spike<br>Added<br>[B] | Blank<br>Spike<br>Result<br>[C] | Blank<br>Spike<br>%R<br>[D] | Spike<br>Added<br>[E] | Blank<br>Spike<br>Duplicate<br>Result [F] | Blk. Spk<br>Dup.<br>%R<br>[G] | RPD<br>% | Control<br>Limits<br>%R | Control<br>Limits<br>%RPD | Flag |
|-----------------------------------|-------------------------------|-----------------------|---------------------------------|-----------------------------|-----------------------|---|-------------------------------|----------|-------------------------|---------------------------|------|
| Gasoline Range Hydrocarbons (GRO) | <15.0                         | 1000                  | 961                             | 96                          | 1000                  | 893                                       | 89                            | 7        | 70-135                  | 35                        |      |
| Diesel Range Organics (DRO)       | <15.0                         | 1000                  | 1100                            | 110                         | 1000                  | 965                                       | 97                            | 13       | 70-135                  | 35                        |      |





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**Project Name: Illustrated Man Fee Com #1H (10-27-17)** 

570437 Work Order #:

3035740

**QC- Sample ID:** 570435-002 S

Batch #:

Matrix: Soil

**Project ID:** 

Lab Batch ID: Date Analyzed:

12/12/2017

**Date Prepared:** 12/12/2017

Analyst: ALJ

**Reporting Units:** 

mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

| BTEX by EPA 8021B  Analytes | Parent<br>Sample<br>Result<br>[A] | Spike<br>Added<br>[B] | Spiked Sample<br>Result<br>[C] | Spiked<br>Sample<br>%R<br>[D] | Spike<br>Added<br>[E] | Duplicate<br>Spiked Sample<br>Result [F] | Spiked<br>Dup.<br>%R<br>[G] | RPD<br>% | Control<br>Limits<br>%R | Control<br>Limits<br>%RPD | Flag |
|-----------------------------|-----------------------------------|-----------------------|--------------------------------|-------------------------------|-----------------------|--|-----------------------------|----------|-------------------------|---------------------------|------|
| Benzene                     | < 0.00200                         | 0.100                 | 0.0959                         | 96                            | 0.0996                | 0.102                                    | 102                         | 6        | 70-130                  | 35                        |      |
| Toluene                     | < 0.00200                         | 0.100                 | 0.0885                         | 89                            | 0.0996                | 0.0889                                   | 89                          | 0        | 70-130                  | 35                        |      |
| Ethylbenzene                | < 0.00200                         | 0.100                 | 0.0849                         | 85                            | 0.0996                | 0.0827                                   | 83                          | 3        | 71-129                  | 35                        |      |
| m,p-Xylenes                 | < 0.00401                         | 0.200                 | 0.163                          | 82                            | 0.199                 | 0.159                                    | 80                          | 2        | 70-135                  | 35                        |      |
| o-Xylene                    | < 0.00200                         | 0.100                 | 0.0811                         | 81                            | 0.0996                | 0.0798                                   | 80                          | 2        | 71-133                  | 35                        |      |

3035888 Lab Batch ID:

**QC- Sample ID:** 570779-005 S

Batch #:

Matrix: Soil

Date Analyzed:

12/13/2017

**Date Prepared:** 12/13/2017

Analyst: ALJ

**Reporting Units:** mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

| BTEX by EPA 8021B | Parent<br>Sample | Spike        | Spiked Sample<br>Result | Spiked<br>Sample | Spike        | Duplicate<br>Spiked Sample | Spiked<br>Dup. | RPD | Control<br>Limits | Control<br>Limits | Flag |
|-------------------|------------------|--------------|-------------------------|------------------|--------------|----------------------------|----------------|-----|-------------------|-------------------|------|
| Analytes          | Result<br>[A]    | Added<br>[B] | [C]                     | %R<br>[D]        | Added<br>[E] | Result [F]                 | %R<br>[G]      | %   | %R                | %RPD              |      |
| Benzene           | < 0.00200        | 0.0998       | 0.0861                  | 86               | 0.100        | 0.0950                     | 95             | 10  | 70-130            | 35                |      |
| Toluene           | < 0.00200        | 0.0998       | 0.0788                  | 79               | 0.100        | 0.0870                     | 87             | 10  | 70-130            | 35                |      |
| Ethylbenzene      | < 0.00200        | 0.0998       | 0.0760                  | 76               | 0.100        | 0.0832                     | 83             | 9   | 71-129            | 35                |      |
| m,p-Xylenes       | < 0.00399        | 0.200        | 0.145                   | 73               | 0.200        | 0.159                      | 80             | 9   | 70-135            | 35                |      |
| o-Xylene          | < 0.00200        | 0.0998       | 0.0716                  | 72               | 0.100        | 0.0794                     | 79             | 10  | 71-133            | 35                |      |

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





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**Project Name: Illustrated Man Fee Com #1H (10-27-17)** 

Work Order #:

570437

3035612

**QC- Sample ID:** 570438-015 S

Batch #:

Matrix: Soil

**Project ID:** 

Lab Batch ID: Date Analyzed:

12/11/2017

**Date Prepared:** 12/11/2017

Analyst: OJS

**Reporting Units:** mg/kg MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

| Chloride by EPA 300  Analytes | Parent<br>Sample<br>Result<br>[A] | Spike<br>Added<br>[B] | Spiked Sample<br>Result<br>[C] | Spiked<br>Sample<br>%R<br>[D] | Spike<br>Added<br>[E] | Duplicate<br>Spiked Sample<br>Result [F] | Spiked<br>Dup.<br>%R<br>[G] | RPD<br>% | Control<br>Limits<br>%R | Control<br>Limits<br>%RPD | Flag |
|-------------------------------|-----------------------------------|-----------------------|--------------------------------|-------------------------------|-----------------------|--|-----------------------------|----------|-------------------------|---------------------------|------|
| Chloride                      | 5.89                              | 247                   | 265                            | 105                           | 247                   | 263                                      | 104                         | 1        | 90-110                  | 20                        |      |

Lab Batch ID: 3035612 **QC- Sample ID:** 570722-002 S

Batch #:

Matrix: Soil

**Date Analyzed:** 

12/11/2017

**Date Prepared:** 12/11/2017

Analyst: OJS

**Reporting Units:** 

mg/kg

# MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

| Chloride by EPA 300 | Parent<br>Sample | Spike        | Spiked Sample<br>Result | Sample    |              | Duplicate<br>Spiked Sample |           | RPD | Control<br>Limits | Control<br>Limits | Flag |  |
|---------------------|------------------|--------------|-------------------------|-----------|--------------|----------------------------|-----------|-----|-------------------|-------------------|------|--|
| Analytes            | Result<br>[A]    | Added<br>[B] | [C]                     | %R<br>[D] | Added<br>[E] | Result [F]                 | %R<br>[G] | %   | %R                | %RPD              |      |  |
| Chloride            | 71.9             | 247          | 331                     | 105       | 247          | 327                        | 103       | 1   | 90-110            | 20                |      |  |

Lab Batch ID:

3035752

**QC- Sample ID:** 570433-012 S

Batch #:

Matrix: Soil

**Date Analyzed:** 

12/09/2017

**Date Prepared:** 12/08/2017

Analyst: MNV

**Reporting Units:** 

mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

1

| Chloride by EPA 300 | Parent<br>Sample | Spike        | Spiked Sample<br>Result | Spiked<br>Sample | Spike        | Duplicate<br>Spiked Sample | Spiked<br>Dup. | RPD | Control<br>Limits | Control<br>Limits | Flag |
|---------------------|------------------|--------------|-------------------------|------------------|--------------|----------------------------|----------------|-----|-------------------|-------------------|------|
| Analytes            | Result [A]       | Added<br>[B] | [C]                     | %R<br>[D]        | Added<br>[E] | Result [F]                 | %R<br>[G]      | %   | %R                | %RPD              |      |
| Chloride            | 672              | 248          | 886                     | 86               | 248          | 902                        | 93             | 2   | 90-110            | 20                | X    |

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





Page 72 of 95

**Project Name: Illustrated Man Fee Com #1H (10-27-17)** 

Work Order #:

570437

3035752

**QC- Sample ID:** 570434-008 S

Batch #:

Matrix: Soil

**Project ID:** 

Lab Batch ID: Date Analyzed:

12/09/2017

**Date Prepared:** 12/08/2017

Analyst: MNV

**Reporting Units:** 

mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

| Chloride by EPA 300  Analytes | Parent<br>Sample<br>Result<br>[A] | Spike<br>Added<br>[B] | Spiked Sample<br>Result<br>[C] | Spiked<br>Sample<br>%R<br>[D] | Spike<br>Added<br>[E] | Duplicate<br>Spiked Sample<br>Result [F] | Spiked<br>Dup.<br>%R<br>[G] | RPD<br>% | Control<br>Limits<br>%R | Control<br>Limits<br>%RPD | Flag |
|-------------------------------|-----------------------------------|-----------------------|--------------------------------|-------------------------------|-----------------------|--|-----------------------------|----------|-------------------------|---------------------------|------|
| Chloride                      | 132                               | 248                   | 372                            | 97                            | 248                   | 375                                      | 98                          | 1        | 90-110                  | 20                        |      |

Lab Batch ID: 3035758 **QC- Sample ID:** 570438-003 S

Batch #:

Matrix: Soil

**Date Analyzed:** 

12/11/2017

**Date Prepared:** 12/11/2017

Analyst: OJS

**Reporting Units:** 

mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

1

| Chloride by EPA 300 Analytes | Parent<br>Sample<br>Result<br>[A] | Spike<br>Added<br>[B] | Spiked Sample<br>Result<br>[C] | Spiked<br>Sample<br>%R<br>[D] | Spike<br>Added<br>[E] | Duplicate<br>Spiked Sample<br>Result [F] | Spiked<br>Dup.<br>%R<br>[G] | RPD<br>% | Control<br>Limits<br>%R | Control<br>Limits<br>%RPD | Flag |   |
|------------------------------|-----------------------------------|-----------------------|--------------------------------|-------------------------------|-----------------------|--|-----------------------------|----------|-------------------------|---------------------------|------|---|
| Chloride                     | 706                               | 249                   | 915                            | 84                            | 249                   | 914                                      | 84                          | 0        | 90-110                  | 20                        | X    | Ī |

Lab Batch ID:

3035758

**QC- Sample ID:** 570438-010 S

Batch #:

Matrix: Soil

**Date Analyzed:** 

12/11/2017

**Date Prepared:** 12/11/2017

Analyst: OJS

**Reporting Units:** 

mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

| Chloride by EPA 300 | Parent<br>Sample | Spike        | Spiked Sample<br>Result | Sample    |              | Duplicate<br>Spiked Sample | . 1       | RPD | Control<br>Limits | Control<br>Limits | Flag |
|---------------------|------------------|--------------|-------------------------|-----------|--------------|----------------------------|-----------|-----|-------------------|-------------------|------|
| Analytes            | Result<br>[A]    | Added<br>[B] | [C]                     | %R<br>[D] | Added<br>[E] | Result [F]                 | %R<br>[G] | %   | %R                | %RPD              |      |
| Chloride            | 227              | 245          | 474                     | 101       | 245          | 477                        | 102       | 1   | 90-110            | 20                |      |

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



### Form 3 - MS / MSD Recoveries



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**Project Name: Illustrated Man Fee Com #1H (10-27-17)** 

**Work Order #:** 570437

570437 3035464

**QC- Sample ID:** 570434-004 S

Batch #:

Matrix: Soil

**Project ID:** 

Lab Batch ID: Date Analyzed:

12/09/2017

**Date Prepared:** 12/08/2017

Analyst: ARM

**Reporting Units:** 

mg/kg

Analyst: Mill

### MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

| TPH by SW8015 Mod  Analytes       | Parent<br>Sample<br>Result<br>[A] | Spike<br>Added<br>[B] | Spiked Sample<br>Result<br>[C] | Spiked<br>Sample<br>%R<br>[D] | Spike<br>Added<br>[E] | Duplicate<br>Spiked Sample<br>Result [F] | Spiked<br>Dup.<br>%R<br>[G] | RPD<br>% | Control<br>Limits<br>%R | Control<br>Limits<br>%RPD | Flag |
|-----------------------------------|-----------------------------------|-----------------------|--------------------------------|-------------------------------|-----------------------|--|-----------------------------|----------|-------------------------|---------------------------|------|
| Gasoline Range Hydrocarbons (GRO) | <15.0                             | 998                   | 997                            | 100                           | 998                   | 869                                      | 87                          | 14       | 70-135                  | 35                        |      |
| Diesel Range Organics (DRO)       | <15.0                             | 998                   | 1080                           | 108                           | 998                   | 940                                      | 94                          | 14       | 70-135                  | 35                        |      |

Lab Batch ID:

3035998

mg/kg

**QC- Sample ID:** 570437-002 S

Batch #:

Matrix: Soil

Date Analyzed:

**Reporting Units:** 

12/15/2017

**Date Prepared:** 12/14/2017

Analyst: ARM

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

| TPH by SW8015 Mod  Analytes       | Parent<br>Sample<br>Result<br>[A] | Spike<br>Added<br>[B] | Spiked Sample<br>Result<br>[C] | Spiked<br>Sample<br>%R<br>[D] | Spike<br>Added<br>[E] | Duplicate<br>Spiked Sample<br>Result [F] | Spiked<br>Dup.<br>%R<br>[G] | RPD<br>% | Control<br>Limits<br>%R | Control<br>Limits<br>%RPD | Flag |
|-----------------------------------|-----------------------------------|-----------------------|--------------------------------|-------------------------------|-----------------------|--|-----------------------------|----------|-------------------------|---------------------------|------|
| Gasoline Range Hydrocarbons (GRO) | <15.0                             | 997                   | 983                            | 99                            | 999                   | 1020                                     | 102                         | 4        | 70-135                  | 35                        |      |
| Diesel Range Organics (DRO)       | <15.0                             | 997                   | 973                            | 98                            | 999                   | 1040                                     | 104                         | 7        | 70-135                  | 35                        |      |

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

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

Dallas Texas (214-902-0300)

# CHAIN OF CUSTODY

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

Phoenix, Arizona (480-355-0900)

|   | WWW  | www.xenco.com                          | Xenco Quote #              | Xenco Job# 670437                                  |
|---|--|--|----------------------------|--|
| Client / Reporting Information  | Droinet Informati  |  | Analytical Information     | on Matrix Codes                                    |
| COG Operating, LLC  | Project Name/Number: Illustrated Man Fo  | Illustrated Man Fee Com #1H (10-27-17) |                            | W = Water  |
| Company Address:<br>2407 Pecos Ave. Artesia NM 88210  | Project Location:<br>M-1-25S-28E   |  |                            | S = Soil/Sed/Solid<br>GW =Ground Water             |
| Email: <u>slhitchcock@concho.com</u> Phone No: 575-703-6475<br>dneel2@concho.com; cgray@concho.com; rhaskell@concho.com   | Invoice To:  |  |                            | DW = DITIKING Water P = Product SW = Surface water |
| Project Contact: Sheldon Hitchcock  | Midland Tx, 79701  |  | 0                          | OW = Ocean/Sea Water                               |
| Samplers's Name: Sheldon Hitchcock  | PO Number:   |  | DEC                        | VI = Wipe  |
|   | Collection   | Number of preserved bottles            | DES                        | WW= Waste Water A = Air                            |
| No. Field ID / Point of Collection  |  | 4<br>04                                | X                          |  |
|   | Depth Date Time Matrix bottles   | HCI NaOH/Acetate HNO3 H2SO4 NaOH NaHSO | BTE                        | 1  |
| 17-10'  |  | 1                                      | 1                          | Field Comments                                     |
| 2 7-1 1'  |  | 7 3                                    | 1                          |  |
| 3 7-1 2'  |  |  | 7                          |  |
| 4 7-1 3'  |  |  | -                          |  |
| 5 17 141  | 1 1/31 9:08 4 8 1  |  | 7 1                        |  |
| 67-15   | 5 1/31 9:104 8 1   |  | P 4                        |  |
| 7 7-161   | 11/81 8:124 8 1  |  |                            |  |
| 8 7-10  | 11/31 9:14.4 8 1   |  |                            |  |
| 9 7-1 10  | 0 11/81 9:164 8 1  |  | 7 1                        |  |
| 10 5-112" 12  | 11/S1 9:18A S 1  |  | 7 4                        |  |
| iumaround lime ( Business days)   | Data C   | Data Deliverable Information           | Notes:                     |  |
| Same Day TAT 5 Day TAT  | Level II Std QC  | Level IV (Full Data Pkg /              | raw data)                  | 0 11- 15 5 12- 1-1                                 |
| Next Day EMERGENCY 7 Day TAT  | Level III Std QC+ Forms  | Forms TRRP Level IV                    |                            | C3 1/2 600 m/1/23                                  |
| 2 Day EMERGENCY Contract TAT  | Level 3 (CLP Forms)  | rms) UST / RG -411                     |                            |  |
| 3 Day EMERGENCY   | TRRP Checklist   | Tomp: -1 5 3                           |                            |  |
| TAT Starts Day received by Lab, if received by 5:00 pm  | m  | CF;(0-6; -0.2°C                        |                            | : Tracking #                                       |
| Relinquished by Sampler:   Date   | Date Time:  The Most Received By  The Most R |  | 0)                         | celyed By:   |
|   | Date Time: Received By:  | Corrected Temp                         | J./°C                      | Ceived By:   |
| Relinquished by:  | Date Time: Received By:  | 4 Custody Spal #                       | 4                          |  |
| 5 Cooler Temp. Thermo. Corr. Factor  Notice: Notice: Signature of this document and relinquishment of samples constitutes a valid nurchase and of the constitutes a valid nurchase and of the constitutes and | Ch   | Castody Coul #                         | rreserved where applicable | On Ice Cooler Temp. Thermo. Corr. Factor           |

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Final 1.000

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

# CHAIN OF CUSTODY

San Antonio, Texas (210-509-3334)

Phoenix, Arizona (480-355-0900)

| bate Time:    Bate Time:   Custody Seal #   Preserved where applicable   Cooler Temp. Thermo. Corr. Factor | 3                | Relinquished by: | Relinquished by Sampler:  | IAI Starts Day received by Lab, if received by 5:00 pm | 3 Day EMERGENCY | 2 Day EMERGENCY     | Next Day EMERGENCY      | Same Day TAT               | Copies and anno promos rays) | Turnaround Time ( Business de | 9      |        | 7 | 6   | 5    | 4 T-2 3' | 3 1-22 | 2 1 - 0 - | 1-100         | 1                         | No. Field ID / Point of Collection | Samplers's Name: Sheldon Hitchcock   | Project Contact: Sheldon Hitchcock | Phone No: 575-703- dneel2@concho.com; cgray@concho.com; rhaskell@concho.com | 2407 Pecos Ave. Artesia NM 88210                        | COG Operating, LLC                     | Company Name / Branch: | Client                 |               | Panao (214-302-0300)          |
|--|------------------|------------------|---|--|-----------------|---------------------|-------------------------|----------------------------|------------------------------|-------------------------------|--------|--------|---|-----|------|----------|--------|-----------|---------------|---------------------------|------------------------------------|--|------------------------------------|---|---|--|------------------------|------------------------|---------------|-------------------------------|
| inquishment of samples constitu  |                  |                  | SAMPLE CUSTOD   | Lab, if received by 5:0                                |                 | Contract TAT        | 7 Day TAT               | 5 Day TAT                  |                              |                               |        |        |   |     |      |          |        |           |               |                           | of Collection                      |  |                                    | Phone No: 575-703-6475<br>COM; rhaskell@concho.com                          |   |  |                        |                        |               |                               |
| Date Time:   | Date Tille:      | 1                | MUST BE DOCL  | 0 pm   |                 |                     |                         |                            |                              |                               |        |        |   |     |      | Cu       | 0      | -         | 0             | Sample<br>Depth           | C                                  |  | 8                                  | 6475  |   | Pri                                    | 2                      |                        |               | 3                             |
| Received By:   | Received By:     | 6928 1 SUS       | SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY |  | TRI             | Lev                 | Lev                     | Lev                        |                              |                               |        |        |   |     |      | 10:04    | 10:04  | 20101     | 00:01 4/16/18 | Date Time                 | Collection                         | THE STATE OF THE S | Midland                            | Invoice To: COG Op<br>Attn: Ro<br>600 W. I                                  | Project Location:<br>M-1-25S-28E                        | Project Name/Number:                   | Pro                    |                        |               | Midland, Texas (432-704-5251) |
| By:  | By:              | ant.             | ACH TIME SAMP   |  | TRRP Checklist  | Level 3 (CLP Forms) | Level III Std QC+ Forms | Level II Std QC            | Data De                      | s<br>1                        | σ<br>- | о<br>1 | S | S 1 | S 1  | S 1      | s 1    | S         | S             | # of Matrix bottles       |                                    |  | Midland Tx, 79701                  | COG Operating, LLC Attn: Robert McNeill 600 W. Illnois Ave                  |   | Illustrated Man                        | Project Information    |                        | WWW.          | 2-704-5251)                   |
|  |                  |                  | LES CHANGE PO   |  |                 | ns)                 | Forms                   |                            | Data Deliverable Information |                               |        |        |   |     |      |          |        |           |               | HCI<br>NaOH/Zn<br>Acetate | Numb                               |  |                                    |   |   | Illustrated Man Fee Com #1H (10-27-17) | on                     |                        | www.xenco.com |                               |
| Custody Seal #   | Relinquished By: | Relinquished By: | SSESSION, INCLU   |  |                 | UST / RG -411       | TRRP Level IV           | Level IV (F                | ion                          |                               |        |        |   |     |      |          |        |           |               | HNO3<br>H2SO4<br>NaOH     | Number of preserved bottles        |  |                                    |   |   | .27-17)                                |                        |                        |               |                               |
| al #   | d By:            | d By:            | JDING COURIER   |  |                 | 411                 | N Ie                    | Level IV (Full Data Pkg /r |                              |                               |        |        |   |     |      | \        | \      | 1         | \             | MEOH                      | bottles                            |  |                                    |   |   |  |                        |                        |               |                               |
| Preserved  | Date             | Date             | DELIVERY  | -  |                 |                     |                         | /raw data)                 |                              |                               |        |        |   |     |      |          | \      | 1.1       | 1             | TPH E.  BTEX  CHLOF       |                                    |  | D                                  |   |   |  |                        |                        | Xenco Quote # |                               |
| Preserved where applicable   | Date Time:       | Date Time:       |   | FED-E)   | 0               |                     | 0 -                     |                            | Z.                           |                               |        |        |   |     |      | ,        | ,      | ,         |               |                           |                                    |  |                                    |   |   |  |                        | Analytical Information |               |                               |
| ble 4  | Received By:     | Received By:     |   | FED-EX / UPS: Iracking #                               | Corrected Temp: | (6-23:              | CF:(0-6: -0 >°C )       | emp.                       | Notes:                       |                               |        |        | + |     |      |          |        |           |               |                           |                                    |  |                                    |   |   |  |                        | mation                 | Xenco Job#    |                               |
| On Ice   | ву:              | By:              |   | =<br>*<br>-  | Temp:           | (6-23: +0.2°C)      | )                       | 20/                        | -                            |                               |        |        |   |     |      |          |        |           |               |                           |                                    |  |                                    |   |   |  |                        |                        | 5             |                               |
| Cooler Temp. T   |                  | 1                |   | 2:- (  | ) / 0 ^         |                     | IR ID:R-8               |                            |                              |                               |        |        |   |     |      |          |        |           |               | Field                     |                                    |  |                                    |   |   |  |                        |                        | 10437         |                               |
| Thermo. Corr. Factor   | 11:10            | 0                |   |  |                 |                     |                         |                            |                              |                               |        |        |   |     |      |          |        |           |               | Field Comments            | A = Air                            | 0 = 0il  | OW =Ocean/Sea Water WI = Wine      | P = Product<br>SW = Surface water<br>SL = Sludge                            | S = Soll/Sed/Solld GW =Ground Water DW = Drinking Water | W = Water                              | 30000                  | Matrix Codes           |               |                               |
| d to I   | mag              | ing:             | 11  | /17  | <del>7/20</del> | 22                  | 3:23                    | :26                        | PA                           | 1                             |        |        |   |     | Poge | 24       |        | 17        |               |                           |                                    |  | ater                               |   | ୟ <sup>-</sup><br>al 1.000                              |  |                        |                        |               |                               |

Released to Imaging: 11/17/2022 3:23:26

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

# CHAIN OF CUSTODY

Phoenix, Arizona (480-355-0900)

San Antonio, Texas (210-509-3334)

boses 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. Thermo, Corr. Factor

| Cooler Temp. Thermo, Corr. Factor
| Cooler Temp. Thermo, Corr. Factor
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| Cooler Temp. Thermo, Coo 10 dneel2@concho.com; cgray@concho.com; rhaskell@concho.com 6 No Project Contact: Sheldon Hitchcock Email: slhitchcock@concho.com 2407 Pecos Ave. Artesia NM 88210 Company Name / Branch: COG Operating, LLC Relinquished by: 5 Samplers's Name: Sheldon Hitchcock Relinquished by Sampl Relinquished by: TAT Starts Day received by Lab, if received by 5:00 pm Same Day TAT 3 Day EMERGENCY 2 Day EMERGENCY Next Day EMERGENCY Client / Reporting Information -112' 18 -1 10 1 61 1 Turnaround Time ( Business days) 9 14 S 19 0 Field ID / Point of Collection X 7 Day TAT SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE P Contract TAT 5 Day TAT Phone No: 575-703-6475 Date Time: 1267093 Date Time: 5 0 9 2 u 1 0 11/31 118/11 18/11 11/31 11/81 PO Number: Invoice To: Collection M-1-25S-28E Project Name/Number: Midland, Texas (432-704-5251) 9:142 9:10 4 480:6 9:164 9:18A 431:4 4:06A 9:02 4 4:044 9:00 4 COG Operating, LLC Attn: Robert McNeill 600 W. Illnois Ave. Received By: Received By: Received By Midland Tx, 79701 Time TRRP Checklist Level 3 (CLP Forms) Level III Std QC+ Forms Level II Std QC Project Information Illustrated Man Fee Com #1H (10-27-17) Matrix S S S S S S S S S S Data Deliverable Information www.xenco.com # of bottles HCI NaOH/Zn Number of preserved bottles Acetate HNO3 Temp: 7.3°C CF:(0-6: -0.2°C) Corrected Temp: UST / RG -411 TRRP Level IV Level IV (Full Data Pkg /raw data) (6-23: +0.2°C NaHSO4 МЕОН Y X X + NONE X TPH EXTENDED Xenco Quote # + X BTEX IR ID:R-8 \* A **CHLORIDES** Analytical Information 3400 ceived By: Xenco Job # ceived By: Tracking # مل 7043 00 Field Comments OW =Ocean/Sea Water
WI = Wipe
O = Oil
WW= Waste Water SW = Surface water DW = Drinking Water SL = Sludge P = Product GW =Ground Water W = Water S = Soil/Sed/Solid Matrix Codes sallery في

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Final 1.000

Setting the Standard since 1990

Dallas Texas (214-902-0300) Stafford, Texas (281-240-4200)

# CHAIN OF CUSTODY

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

| Received By:   Custody Seal #   Preserved where applicable   On Ice   Cooler Temp. Thermo. Corr. Factor | 3 Relinquished by: | 1 States Active Relinquished by: |   | TAT Starts Day received by Lab, if received by 5:00 pm | 3 Day EMERGENCY | 2 Day EMERGENCY Contract TAT | Next Day EMERGENCY 7 Day TAT | Same Day TAT 5 Day TAT  |                              | Turnaround Time ( Business days) | 9   | 8   | 7 | 6     | o.  | 4 T-2 3   | 3 7-2 2 | 2 7 2 7  | 1 1 2 0        | 7  | No. Field ID / Point of Collection | Samplers's Name: Sheldon Hitchcock | Project Contact: Sheldon Hitchcock | icho.com; rhask                         | 2407 Pecos Ave. Artesia NM 88210                              | COG Operating, LLC Company Address:            | Client / Reporting Information Company Name / Branch: |     |               |                               |
|---|--------------------|----------------------------------|---|--|-----------------|------------------------------|------------------------------|-------------------------|------------------------------|----------------------------------|-----|-----|---|-------|-----|-----------|---------|----------|----------------|--|------------------------------------|------------------------------------|------------------------------------|---|---|--|---|-----|---------------|-------------------------------|
| Stances beyond the control of Xonco And   |                    | 12671 0918 1                     | CUSTODY MUST BE DOCUMENTED BI   | by 5:00 pm   |                 | :t TAT                       |                              | TAT                     |                              |                                  |     |     |   |       |     | _         | 2       |          | of Upelia O    | Sample<br>Depth Date                         | Collection                         | PO Number:                         | 1                                  | 6475 Invoice To:                        | Project Location:<br>M-1-25S-28E                              | Project Name/Number:                           |   |     |               | Midland, Te                   |
| Received By:  5  om client company to Xenco, its affiliates and A minimum observations.                 | Received By:       | Received By:                     | SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY |  | TRRP Checklist  | Level 3 (CLP Forms)          | Level III Std QC+ Forms      | Level II Std QC         | Data Deliverable Information | S 1                              | S 1 | S 1 | S | ν<br> | S 1 | 10:04 S 1 | 1 s 1   | 0102 8 1 | S 1            | Time Matrix bottles # of HCI NaOH/Zn Acctate | Nur                                |                                    | Midland Tx, 79701                  | COG Operating, LLC Attn: Robert McNeill | on:   | Number: Illustrated Man Fee Com #1H (10-27-17) | Project Information                                   |     | www.xenco.com | Midland, Texas (432-704-5251) |
| Custody Seal #  | Relinquished By:   | Relinquished By:                 | POSSESSION, INCLUDING COURIER D   |  |                 | UST / RG -411                |                              | Level IV (Full Data Pkg | nation                       |                                  |     |     |   |       |     |           |         |          | 1              | HNO3<br>H2SO4<br>NaOH<br>NaHSO4              | Number of preserved bottles        |                                    |                                    |   |   | (10-27-17)                                     |   |     |               |                               |
| Preserved where applicable  | Date Time:         | Date Time:                       |   |  |                 |                              |                              | raw data)               |                              |                                  |     |     |   |       |     |           |         |          | E              | TPH EX                                       |                                    |                                    | )                                  |   |   |  | Analytical Information                                |     | Xenco Quote # |                               |
| cable On Ice Coo  | ece                | Received By:                     | FED-EX / UPS: Tracking #  | corrected Lemp:  | (0-23: +0.2°C)  | (6-33; -0.2°C)               | Temp: L. S"C                 | ١                       | Notes:                       |                                  |     |     |   |       |     |           |         |          |                |  |                                    |                                    |                                    |   |   |  | formation   | - C | Xenco Job#    |                               |
| Cooler Temp. Thermo. Corr. Factor   |                    | 2 2                              | -   | 2-100  |                 |                              | IR ID:R-8                    |                         |                              |                                  |     |     |   |       |     |           |         |          | Field Comments |  | WW= Waste Water<br>A = Air         | WI = Wipe<br>O = Oil               | OW =Ocean/Sea Water                | P = Product<br>SW = Surface water       | S = Soil/Sed/Solid<br>GW =Ground Water<br>DW = Drinking Water | W = Water                                      | Matrix Codes  | 045 |               |                               |

Page 26 of 27

Final 1.000



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



Client: COG Operating, LLC

Date/ Time Received: 12/07/2017 11:15:00 AM

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

Date: 12/13/2017

Work Order #: 570437

Temperature Measuring device used: R8

|  | Sample Receipt Checklist              | Comments         |
|--|---------------------------------------|------------------|
| #1 *Temperature of cooler(s)?              |                                       | 2.1              |
| #2 *Shipping container in good condition   | ?                                     | Yes              |
| #3 *Samples received on ice?               |                                       | Yes              |
| #4 *Custody Seals intact on shipping cor   | ntainer/ cooler?                      | No               |
| #5 Custody Seals intact on sample bottle   | es?                                   | 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 relinqu    | uished/ received?                     | Yes              |
| #10 Chain of Custody agrees with sampl     | e 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 indicate  | ed test(s)?                           | Yes              |
| #16 All samples received within hold time  | e?                                    | Yes              |
| #17 Subcontract of sample(s)?              |                                       | No               |
| #18 Water VOC samples have zero head       | dspace?                               | N/A              |
| * Must be completed for after-hours de     | livery of samples prior to placing in | the refrigerator |
| Analyst:                                   | PH Device/Lot#:                       |                  |
| Checklist completed by:                    | Connie Hernandez                      | Date: 12/07/2017 |

Checklist reviewed by:



### Certificate of Analysis Summary 589746

COG Operating LLC, Artesia, NM

Project Name: Illustrated Man Fee 6#



**Project Id: Contact:** 

**Project Location:** 

Sheldon Hitchcock

Eddy Co. NM

Date Received in Lab: Wed Jun-20-18 10:19 am

**Report Date:** 21-JUN-18

Project Manager: Jessica Kramer

|                     | Lab Id:    | 589746-0    | 01   | 589746-0    | 02   | 589746-0    | 03   | 589746-00    | )4   | 589746-0    | 005   |  |
|---------------------|------------|-------------|------|-------------|------|-------------|------|--------------|------|-------------|-------|--|
| Analysis Requested  | Field Id:  | T-2 Bttm    | 3'   | N.Sidewa    | all  | S.Sidewa    | all  | E.Sidewa     | 11   | W. Sidew    | all   |  |
| Anaiysis Requesieu  | Depth:     | 3- ft       |      |             |      |             |      |              |      |             |       |  |
|                     | Matrix:    | SOIL        |      | SOIL        |      | SOIL        |      | SOIL         |      | SOIL        |       |  |
|                     | Sampled:   | Jun-19-18 1 | 3:20 | Jun-19-18 1 | 3:30 | Jun-19-18 1 | 3:35 | Jun-19-18 1  | 3:40 | Jun-19-18 1 | 13:45 |  |
| Chloride by EPA 300 | Extracted: | Jun-20-18 1 | 5:45 | Jun-20-18 1 | 5:45 | Jun-20-18 1 | 5:45 | Jun-20-18 1: | 5:45 | Jun-20-18 1 | 5:45  |  |
|                     | Analyzed:  | Jun-21-18 1 | 0:12 | Jun-20-18 1 | 9:20 | Jun-21-18 1 | 0:17 | Jun-21-18 10 | 0:22 | Jun-20-18 2 | 20:09 |  |
|                     | Units/RL:  | mg/kg       | RL   | mg/kg       | RL   | mg/kg       | RL   | mg/kg        | RL   | mg/kg       | RL    |  |
| Chloride            |            | <4.95       | 4.95 | 1010        | 49.9 | 6.29        | 5.00 | <4.96        | 4.96 | 338         | 5.00  |  |

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

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

lession beamer

### **Analytical Report 589746**

### for COG Operating LLC

Project Manager: Sheldon Hitchcock
Illustrated Man Fee 6#

21-JUN-18

Collected By: Client





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

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

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

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-17-12)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-17-16)
Xenco-Odessa (EPA Lab Code: TX00158): Texas (T104704400-18-15)
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)





21-JUN-18

Project Manager: Sheldon Hitchcock

COG Operating LLC 2407 Pecos Avenue Artesia, NM 88210

Reference: XENCO Report No(s): 589746

**Illustrated Man Fee 6#** 

Project Address: Eddy Co. NM

### **Sheldon Hitchcock:**

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 589746. 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. 589746 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

Jessica Kramer

Jessich Weamer

**Project Assistant** 

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

Certified and approved by numerous States and Agencies.

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

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



### **Sample Cross Reference 589746**



### COG Operating LLC, Artesia, NM

Illustrated Man Fee 6#

| Sample Id   | Matrix | <b>Date Collected</b> | Sample Depth | Lab Sample Id |
|-------------|--------|-----------------------|--------------|---------------|
| T-2 Bttm 3' | S      | 06-19-18 13:20        | 3 ft         | 589746-001    |
| N.Sidewall  | S      | 06-19-18 13:30        | N/A          | 589746-002    |
| S.Sidewall  | S      | 06-19-18 13:35        | N/A          | 589746-003    |
| E.Sidewall  | S      | 06-19-18 13:40        | N/A          | 589746-004    |
| W. Sidewall | S      | 06-19-18 13:45        | N/A          | 589746-005    |

### **CASE NARRATIVE**

Client Name: COG Operating LLC Project Name: Illustrated Man Fee 6#

Project ID: Report Date: 21-JUN-18 Work Order Number(s): 589746 Date Received: 06/20/2018

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None





### COG Operating LLC, Artesia, NM

Illustrated Man Fee 6#

Sample Id: T-2 Bttm 3'

Matrix: Soil

Date Received:06.20.18 10.19

Lab Sample Id: 589746-001

Date Collected: 06.19.18 13.20

Sample Depth: 3 ft

Analytical Method: Chloride by EPA 300

SCM

Prep Method: E300P

Tech: SCM

Analyst:

Date Prep: 06.20.18 15.45

% Moisture: Basis:

Wet Weight

| Parameter | Cas Number | Result | RL   | Units | <b>Analysis Date</b> | Flag | Dil |
|-----------|------------|--------|------|-------|----------------------|------|-----|
| Chloride  | 16887-00-6 | <4.95  | 4.95 | mg/kg | 06.21.18 10.12       | U    | 1   |





### COG Operating LLC, Artesia, NM

Illustrated Man Fee 6#

Sample Id: N.Sidewall

Matrix: Soil

Date Received:06.20.18 10.19

Lab Sample Id: 589746-002

Date Collected: 06.19.18 13.30

Prep Method: E300P

% Moisture:

Tech: SCM

Analyst:

SCM

Analytical Method: Chloride by EPA 300

Date Prep: 06.20.18 15.45

Basis: Wet

Wet Weight

| Parameter | Cas Number | Result | RL   | Units | <b>Analysis Date</b> | Flag | Dil |
|-----------|------------|--------|------|-------|----------------------|------|-----|
| Chloride  | 16887-00-6 | 1010   | 49.9 | mg/kg | 06.20.18 19.20       |      | 10  |





### COG Operating LLC, Artesia, NM

Illustrated Man Fee 6#

Sample Id: S.Sidewall

Matrix: Soil

Date Received:06.20.18 10.19

Lab Sample Id: 589746-003

SCM

Date Collected: 06.19.18 13.35

Prep Method: E300P

Analytical Method: Chloride by EPA 300

% Moisture:

Tech: SCM

Analyst:

Date Prep:

06.20.18 15.45

Basis:

Wet Weight

| Parameter | Cas Number | Result | RL   | Units | Analysis Date  | Flag | Dil |
|-----------|------------|--------|------|-------|----------------|------|-----|
| Chloride  | 16887-00-6 | 6.29   | 5.00 | mg/kg | 06.21.18 10.17 |      | 1   |





### COG Operating LLC, Artesia, NM

Illustrated Man Fee 6#

Sample Id: E.Sidewall

Matrix: Soil

Date Received:06.20.18 10.19

Lab Sample Id: 589746-004

Date Collected: 06.19.18 13.40

06.20.18 15.45

Prep Method: E300P

COM

Analytical Method: Chloride by EPA 300

% Moisture:

Tech: SCM

Analyst:

SCM Date Prep:

Basis:

Wet Weight

| Parameter | Cas Number | Result | RL   | Units | Analysis Date  | Flag | Dil |
|-----------|------------|--------|------|-------|----------------|------|-----|
| Chloride  | 16887-00-6 | <4.96  | 4.96 | mg/kg | 06.21.18 10.22 | U    | 1   |





### COG Operating LLC, Artesia, NM

Illustrated Man Fee 6#

Sample Id: W. Sidewall

Analytical Method: Chloride by EPA 300

SCM

Matrix: Soil Date Received:06.20.18 10.19

Lab Sample Id: 589746-005

Date Collected: 06.19.18 13.45

Prep Method: E300P

SCM

% Moisture:

Tech:

Analyst:

Date Prep: 06.20.18 15.45 Basis:

Wet Weight

| Parameter | Cas Number | Result | RL   | Units | <b>Analysis Date</b> | Flag | Dil |
|-----------|------------|--------|------|-------|----------------------|------|-----|
| Chloride  | 16887-00-6 | 338    | 5.00 | mg/kg | 06.20.18 20.09       |      | 1   |



### Flagging Criteria



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

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

<sup>\*\*</sup> Surrogate recovered outside laboratory control limit.

E300P



### **QC Summary** 589746

### **COG Operating LLC**

Illustrated Man Fee 6#

Analytical Method: Chloride by EPA 300

Prep Method: Seq Number: 3054119 Matrix: Solid Date Prep: 06.20.18

LCS Sample Id: 7657017-1-BKS LCSD Sample Id: 7657017-1-BSD MB Sample Id: 7657017-1-BLK

MR Spike LCS LCS Limits %RPD RPD Limit Units LCSD LCSD **Analysis** Flag **Parameter** Result Amount Result %Rec Date %Rec Result Chloride 90-110 06.20.18 18:42 < 5.00 250 263 105 252 101 4 20 mg/kg

Analytical Method: Chloride by EPA 300

E300P Prep Method: Seq Number: 3054119 Matrix: Soil Date Prep: 06.20.18

589724-001 SD Parent Sample Id: 589724-001 MS Sample Id: 589724-001 S MSD Sample Id:

Spike MS MS %RPD RPD Limit Units Parent **MSD** MSD Limits Analysis Flag **Parameter** Result Date Result Amount %Rec Result %Rec

Chloride 9.14 248 262 102 262 102 90-110 0 20 06.20.18 18:59 mg/kg

Analytical Method: Chloride by EPA 300

Prep Method: E300P Seq Number: 3054119 Matrix: Soil Date Prep: 06.20.18

MS Sample Id: 589746-005 S MSD Sample Id: 589746-005 SD Parent Sample Id: 589746-005

%RPD RPD Limit Units MS Parent Spike MS **MSD MSD** Limits **Analysis** Flag **Parameter** Result Date Result %Rec Amount Result %Rec 06.20.18 20:14 Chloride 338 250 567 92 573 94 90-110 20 mg/kg

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

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

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

LCS = Laboratory Control Sample A = Parent Result

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

### Setting the Standard since 1990 ABORATORIES

### CHAIN OF CUSTODY

Revision 2016.1

Dallas, TX (214) 902-0300 Stafford, TX (281) 240-4200

Project Contact: Sheldon Hitch coll

Sholdon Hitchcock

spritchade concho, com

Samplers's Name: 5 holdon Hitch cock

N<sub>O</sub>

Field ID / Point of Collection

N. 5 down SINCTEN side wall

\*\*

S

# of HCI Acetate

H2SO4 NaOH vaHSO4

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ショルロレル

134 9: 1:05 130  $\overline{\beta}$ 

Company Address: Company Name / Branch: Client / Reporting Information COG-Artesia Lubbock, TX (806) 794-1296 El Paso, TX (915) 585-3443 Phone No: Project Name/Number: 11 45+ MATCA MAK FCC 6# Invoice To: Eddy G. NM Project Information San Antonio, TX (210) 509-3334 Midland, TX (432) 704-5440 www.xenco.com Service Center - Baton Rouge, LA (832) 712-8143 Phoenix, AZ (480) 355-0900 Chloride EPA 300 Analytical Information Xenco Job# Service Center- Amarillo, TX (806)678-4514 rvice Center-Hobbs, NM (575) 392-7550 W = Water
S = Soil/Sed/Solid
GW = Ground Water
DW = Drinking Water SL - Sludge OW = Ocean/Sea Water WI = Wipe O = Oil WW = Waste Water A = Air SW = Surface Water P = Product **Matrix Codes** 

| 10 Turnaround Time (Business days)                     |                       | Data  | Data Deliverable Information        |                                    |   | Notes:                   |            |                    |
|--|-----------------------|---|-------------------------------------|------------------------------------|---|--------------------------|------------|--------------------|
| П  | 5 Day ТАТ             | Level II Std QC   |                                     | Level IV (Full Data Pkg /raw data) | v data)   |                          |            |                    |
| Next Day EMERGENCY 7 D:                                | 7 Day TAT             | Level III Std QC+ Forms   |                                     | TRRP Level IV                      |   |                          |            |                    |
| 2 Day ÉMERGENCY Con                                    | Contract TAT          | Level 3 (CLP Forms)   |                                     | UST / RG -411                      |   |                          |            |                    |
| 3 Day EMERGENCY  |                       | Level II Repo   | Level II Report with TRRP checklist | ,                                  |   |                          | •          | •                  |
| TAT Starts Day received by Lab, if received by 5:00 pm | ved by 5:00 pm        |   | ,                                   | <i>&gt;</i>                        | FE  | FED-EX / UPS: Tracking # | 力な         | LOSONIBI           |
|  | LE CUSTODY MUST BE DO | SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DE | SAMPLES CHANGE POSSES               | SSIPN, INCLUDING COURIE            | R DELIVERY  |                          |            |                    |
| Relinquished by Samplor:                               | Date Time:            | Date Time: Received By:   | PATO GIVENORO                       | 6/(叫《Relinquished By:)             | 78   Date Times   1/8 | 19 (8 15:30 Received     |            | 811000             |
| Relinquished by: 1                                     | Date Time:            | Received By:  | 4 Re                                | Relinquished By:                   | Date Timer  | Received By:             |            | -                  |
| Relinquished by:                                       | Date Time:            | Received By:  | Ç                                   | Custody Seal #                     | Preserved where applicable  | plicable                 | Coole Temp | Thrmg Corr. Factor |

Released to Amaging: 11/17/2022 3:23:26 PM

Field Comments

### CHAIN OF CUSTODY

Revision 2016.1

Stafford Dallas, Setting the Standard since 1990

| 5 Notice: Signature of this document and relinquitor any losses or expenses incurred by the Clie sample. These terms will be enforced unless pr   | Relinquished by:  | Relinquished by:   | TAT Starts Day received by Lab, if received by 5:00 pm | 3 Day EMERGENCY                     | 2 Day EMERGENCY     | Next Day EMERGENCY   | Same Day TAT                       | Turnaround Time ( Business days) | 9 8 | 7 | 5 W. Siderall | 4 E, Side wall | 3 Si Sidewall  |     | 1 T-2 BHM 3         | No. Field ID / Point of Collection                                   | samplers s name: 5 holdon Hitch colk | Sholdon Hitchcoan           | Stritchack Coulde, com | Email:                                   | Company Name / Branch: COG<br>Company Address:                    | Client / Reporting Information |                           | Stafford, TX (281) 240-4200<br>Dallas, TX (214) 902-0300                               |
|---|-------------------|--|--|-------------------------------------|---------------------|--|------------------------------------|----------------------------------|-----|---|---------------|----------------|----------------|-----|---------------------|--|--------------------------------------|-----------------------------|------------------------|--|---|--------------------------------|---------------------------|--|
| hment of samples constitutes a valid p<br>the function of the samples constitutes a valid p<br>the function of the samples of the samples of the samples<br>eviously negotiated under a fully execu   | Date Time:        | Date T   | ab, if received by 5:00 pm                             |                                     | Contract TAT        | 7 Day TAT  | 5 Day TAT                          | /5)                              |     |   | -             |                |                | N/A | 7                   | Collection Sample  | a Hitch cock                         | Hitcheou                    | the com                | Phone No:                                | -Artesia  |                                |                           | El Paso, TX (915) 585-3443<br>Lubbock, TX (806) 794-1296                               |
| 5  Urchase order from client company to Xenco, its aff ces beyond the control of Xenco. A minimum charge ited client contract.  | Ime: Received By: | Date Time: Received By: 61 W& Relinquished By: 61 P 14:30 1 MWW P 14:30 2 MWW P 14:30 2 MWWW    P 14:30 2 MWWWWW W P 14:30 2 MWWWWW P 14:30 2 MWWWWWWWWWWW P 14:30 2 MWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWW | BE DOCUMENTED BELOW EACH TIME SAMPLE                   | Level II Report with TRRP checklist | Level 3 (CLP Forms) | Level III Std QC+ Forms  | Level II Std QC                    | Data Delivers                    |     |   | 1 3 34:1      |                | 1 1:35   5   1 |     | 1   5   02; 1 B/M/P | ple Time Matrix bottles H  | 2                                    | PO Number:                  |                        | Invoice To:                              | Project Name/Number:  | Project Information            | www.xenco.com             | 3 Midland, TX (432) 704-5440<br>96 San Antonio, TX (210) 509-3334                      |
| of \$75 will be applied to each project. Xenco's liab   | Custody Spal#     | P 4:75-2 MV/VW No.   | S CHANGE POSSESSIDN, INCLUDING COURIER                 | TRRP checklist                      | UST / RG -411       | ns TRRP Level IV   | Level IV (Full Data Pkg /raw data) | Data Deliverable Information     |     |   |               |                |                |     |                     | NaOH/Zn<br>Acetate HNO3 of preserved NaOH NaOH NaHSO4 NAOH NAOH NONE |                                      |                             | T+Chrock               | NW                                       | Illustrated man fee GH  |                                |                           |  |
| is and conditions of service. Xenco will be liable of the cost of samples. Any sam  | 4                 | Date Time Received B   | DELIVERY FED-EX / UPS: Tracking #                      |                                     |                     | The state of the s |                                    | Notes:                           |     |   |               |                | 7              |     | 7                   | Ch lor   | ide                                  |                             | PP                     | 130                                      | 0   | Analytical Information         | Xenco Quote # Xenco Job # | Phoenix, AZ (480) 355-0900<br>Service Center - Baton Rouge, LA (832) 712-8143          |
| Some process of expenses incurred by the Client if such losses are due to circumstances beyond the control of Xenco. A minimum charge of \$75 will be applied to each project. Xenco's liability will be limited to the cost of samples received by Xenco but not analyzed will be invicided at \$5 per sample. These terms will be enforced unless previously negotiated under a fully executed client contract. | Control           | 1 81/06/01 xmpm  | * TIBILISOH  |                                     |                     |  |                                    |                                  |     |   |               |                |                |     |                     | Field Comments   |                                      | WW = Waste Water<br>A = Air | Wi = Wipe  O = Oil     | P= Product SW = Surface Water SL- Sludge | W = Water S = Soil/Sed/Solid GW = Ground Water DW = Driving waser | Matrix Codes                   | ANI has                   | Service Center- Amarillo, TX (806)678-4514<br>Service Center- Hobbs, NM (575) 392-7550 |



### After printing this label:

1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.

2. Fold the printed page along the horizontal line.

3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.

Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com.FedEx will not be responsible for any claim in excess of \$100 per package, whether the result of loss, damage, delay, non-delivery,misdelivery,or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim.Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental,consequential, or special is limited to the greater of \$100 or the authorized declared value. Recovery cannot exceed actual documented loss.Maximum for items of extraordinary value is \$1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.



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



Client: COG Operating LLC

Date/ Time Received: 06/20/2018 10:19:31 AM

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

Work Order #: 589746

Temperature Measuring device used: R8

|  | Sample Receipt Checklist | Comments         |  |  |  |  |  |  |
|--|--------------------------|------------------|--|--|--|--|--|--|
| #1 *Temperature of cooler(s)?  |                          | 4.2              |  |  |  |  |  |  |
| #2 *Shipping container in good condition?  | ?                        | Yes              |  |  |  |  |  |  |
| #3 *Samples received on ice?   |                          | Yes              |  |  |  |  |  |  |
| #4 *Custody Seals intact on shipping con   | tainer/ cooler?          | N/A              |  |  |  |  |  |  |
| #5 Custody Seals intact on sample bottle   | s?                       | 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 relinqu  | ished/ received?         | Yes              |  |  |  |  |  |  |
| #10 Chain of Custody agrees with sample  | e 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 indicate  | ed test(s)?              | Yes              |  |  |  |  |  |  |
| #16 All samples received within hold time  | ?                        | Yes              |  |  |  |  |  |  |
| #17 Subcontract of sample(s)?  |                          | N/A              |  |  |  |  |  |  |
| #18 Water VOC samples have zero head   | space?                   | N/A              |  |  |  |  |  |  |
| * Must be completed for after-hours delivery of samples prior to placing in the refrigerator  Analyst: PH Device/Lot#: |                          |                  |  |  |  |  |  |  |
| Checklist completed by:  |                          | Date: 06/20/2018 |  |  |  |  |  |  |
| Checklist reviewed by:   | Jessica Kramer           | Date: 06/20/2018 |  |  |  |  |  |  |

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720 District II

811 S. First St., Artesia, NM 88210 Phone:(575) 748-1283 Fax:(575) 748-9720 District III

1000 Rio Brazos Rd., Aztec, NM 87410 Phone:(505) 334-6178 Fax:(505) 334-6170

1220 S. St Francis Dr., Santa Fe, NM 87505 Phone:(505) 476-3470 Fax:(505) 476-3462

**State of New Mexico Energy, Minerals and Natural Resources Oil Conservation Division** 1220 S. St Francis Dr. **Santa Fe, NM 87505** 

CONDITIONS

Action 159869

### **CONDITIONS**

| Operator:          | OGRID:   |
|--------------------|--|
| COG OPERATING LLC  | 229137   |
| 600 W Illinois Ave | Action Number:                                   |
| Midland, TX 79701  | 159869   |
|                    | Action Type:                                     |
|                    | [IM-SD] Incident File Support Doc (ENV) (IM-BNF) |

### CONDITIONS

| Create<br>By | d Condition | Condition Date |
|--------------|-------------|----------------|
| bha          | l None      | 11/17/2022     |