[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.

## 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 (feet) | Benzene (mg/kg) | Total BTEX (mg/kg) | Chloride (mg/kg) | Total TPH (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 | -- |
| **T-1** | 8 | -- | -- | 1250 | -- |
| **T-1** | 10 | -- | -- | 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 | -- |

(--) 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
HSE Coordinator
slhitchcock@concho.com

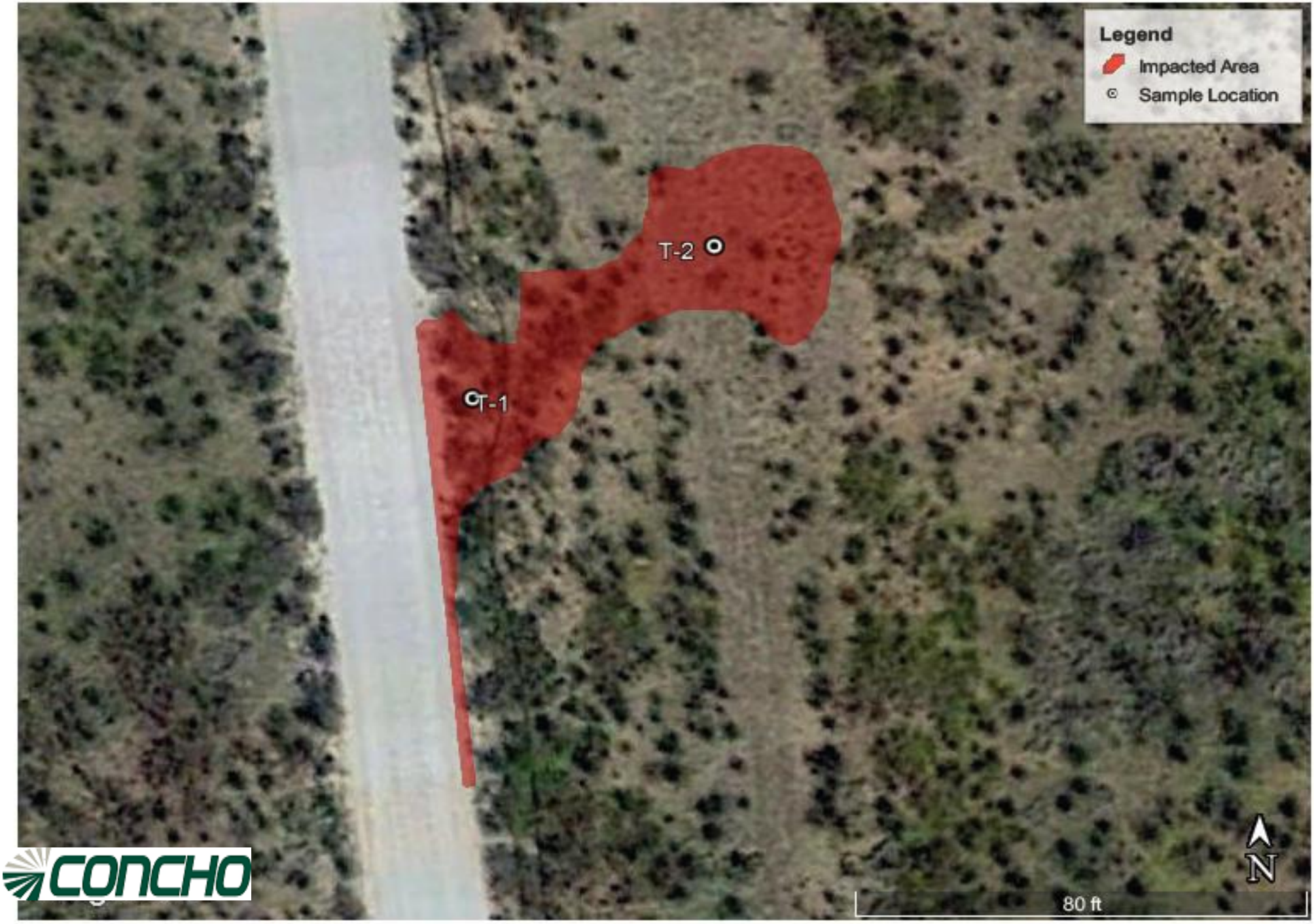
Enclosed:

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 Number | POD Sub-basin | County | Q 64 | Q 16 | Q 4 | Sec | Tws | Rng | X | Y | Distance | Depth Well | Depth Water | 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**

# APPENDIX III

NM OIL CONSERVATION
ARTESIA DISTRICT
OCT 30 2017
RECEIVED

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

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised April 3, 2017

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

# Release Notification and Corrective Action

nAB1730542511

## OPERATOR

☒ Initial Report ☐ Final Report

| | |
|---|---|
| Name of Company: **COG Operating, LLC** (OGRID# 229137) | Contact: **Robert McNeill** |
| Address: **600 West Illinois Avenue, Midland TX 79701** | Telephone No.: **432-683-7443** |
| Facility Name: **Illustrated Man Fee Com #001H** | Facility Type: **Tank Battery** |

| | | |
|---|---|---|
| Surface Owner: ~~Fee~~ BLM | Mineral Owner: Fee | API No.: 30-015-41025 |

## LOCATION OF RELEASE

| Unit Letter | Section | Township | Range | Feet from the | North/South Line | Feet from the | East/West Line | County |
|---|---|---|---|---|---|---|---|---|
| M | 1 | 25S | 28E | | | | | Eddy |

**Latitude:** 32.155226 **Longitude:** -104.048531 NAD83

## NATURE OF RELEASE

| | | |
|---|---|---|
| Type of Release: Produced Water | Volume of Release: 15bbls | Volume Recovered: 1bbl |
| Source of Release: Flowline | Date and Hour of Occurrence: 10/27/2017 | Date and Hour of Discovery: 10/27/2017 9:00am |
| Was Immediate Notice Given? ☐ Yes ☒ No ☒ Not Required | If YES, To Whom? | |
| By Whom? | Date and Hour: | |
| Was a Watercourse Reached? ☐ Yes ☒ No | If YES, Volume Impacting the Watercourse. | |

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

A poly flowline ruptured resulting in the release of approximately 15bbls of produced water. The damaged portion 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 location. The produced water flowed east into the pasture for approximately 90-feet. A vacuum truck was utilized to recover the freestanding fluids. Concho will have the spill area evaluated for any possible impact from the release and will present a remediation work plan to the NMOCD prior to any significant remediation activities.

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

Signature: Sheldon Hitchcock

Printed Name: Sheldon L. Hitchcock

Title: HSE Coordinator

E-mail Address: slhitchcock@concho.com

Date: 10/30/2017 Phone: 575-746-2010

## OIL CONSERVATION DIVISION

Approved by Environmental Specialist: Signed By Mike Bratcher

Approval Date: 10/31/17 Expiration Date: N/A

Conditions of Approval: See attached

Attached ☐ 2RP-4462

* Attach Additional Sheets If Necessary

# 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

# Sample Cross Reference 570437

## COG Operating, LLC, Midland, TX

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

| Sample Id | Matrix | Date Collected | 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 |

**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.

# Certificate of Analysis Summary 570437

## COG Operating, LLC, Midland, TX

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

**Project Id:**

**Contact:** Sheldon Hitchcock

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

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

**Report Date:** 16-DEC-17

**Project Manager:** Kelsey Brooks

| *Analysis Requested* | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ***Lab Id:*** | 570437-001 | | 570437-002 | | 570437-003 | | 570437-004 | | 570437-005 | | 570437-006 | |
| | ***Field Id:*** | T-1 0' | | T-1 1' | | T-1 2' | | T-1 3' | | T-1 4' | | T-1 5' | |
| | ***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 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 | | | | | | |
| Total TPH | | 640 | 15.0 | <15.0 | 15.0 | <15.0 | 15.0 | | | | | | |

# Certificate of Analysis Summary 570437

## COG Operating, LLC, Midland, TX

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

**Project Id:**
**Contact:** Sheldon Hitchcock
**Project Location:** M-1-25S-28E

**Date Received in Lab:** Thu Dec-07-17 11:15 am
**Report Date:** 16-DEC-17
**Project Manager:** Kelsey Brooks

| *Analysis Requested* | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ***Lab Id:*** | 570437-007 | | 570437-008 | | 570437-009 | | 570437-010 | | 570437-011 | | 570437-012 | |
| | ***Field Id:*** | T-1 6' | | T-1 8' | | T-1 10' | | T-1 12' | | T-2 0' | | T-2 1' | |
| | ***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 09:16 | | 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 12:23 | | 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 |

# Certificate of Analysis Summary 570437

## COG Operating, LLC, Midland, TX

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

**Project Id:**
**Contact:** Sheldon Hitchcock
**Project Location:** M-1-25S-28E

**Date Received in Lab:** Thu Dec-07-17 11:15 am
**Report Date:** 16-DEC-17
**Project Manager:** Kelsey Brooks

| *Analysis Requested* | | | | | | | |
|---|---|---|---|---|---|---|---|
| | ***Lab Id:*** | 570437-013 | | 570437-014 | | | |
| | ***Field Id:*** | T-2 2' | | T-2 3' | | | |
| | ***Depth:*** | 2- | | 3- | | | |
| | ***Matrix:*** | SOIL | | SOIL | | | |
| | ***Sampled:*** | Dec-01-17 10:04 | | Dec-01-17 10:06 | | | |
| **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 10:30 | | | |
| | ***Analyzed:*** | Dec-11-17 13:05 | | Dec-13-17 12:57 | | | |
| | ***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 | | | | |





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





| | Phone | Fax |
|---|---|---|
| 4147 Greenbriar Dr, Stafford, TX 77477 | (281) 240-4200 | (281) 240-4280 |
| 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 | |

# Form 2 - Surrogate Recoveries

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

**Work Orders :** 570437,

**Project ID:**

**Lab Batch #:** 3035464 **Sample:** 570437-011 / SMP **Batch:** 1 **Matrix:** Soil

**Units:** mg/kg **Date Analyzed:** 12/09/17 04:23

**SURROGATE RECOVERY STUDY**

| TPH by SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 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**

| TPH by SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 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:** 1 **Matrix:** Soil

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

**SURROGATE RECOVERY STUDY**

| TPH by SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %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:** 1 **Matrix:** Soil

**Units:** mg/kg **Date Analyzed:** 12/12/17 14:01

**SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0267 | 0.0300 | 89 | 80-120 | |
| 4-Bromofluorobenzene | 0.0269 | 0.0300 | 90 | 80-120 | |

**Lab Batch #:** 3035740 **Sample:** 570437-002 / SMP **Batch:** 1 **Matrix:** Soil

**Units:** mg/kg **Date Analyzed:** 12/12/17 14:20

**SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0270 | 0.0300 | 90 | 80-120 | |
| 4-Bromofluorobenzene | 0.0276 | 0.0300 | 92 | 80-120 | |

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

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

# Form 2 - Surrogate Recoveries

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

**Work Orders :** 570437,

**Project ID:**

**Lab Batch #:** 3035740 **Sample:** 570437-003 / SMP **Batch:** 1 **Matrix:** Soil

**Units:** mg/kg **Date Analyzed:** 12/12/17 14:39

**SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 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:** 1 **Matrix:** Soil

**Units:** mg/kg **Date Analyzed:** 12/13/17 16:02

**SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 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:** 1 **Matrix:** Soil

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

**SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %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:** 1 **Matrix:** Soil

**Units:** mg/kg **Date Analyzed:** 12/13/17 16:40

**SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0260 | 0.0300 | 87 | 80-120 | |
| 4-Bromofluorobenzene | 0.0271 | 0.0300 | 90 | 80-120 | |

**Lab Batch #:** 3035998 **Sample:** 570437-001 / SMP **Batch:** 1 **Matrix:** Soil

**Units:** mg/kg **Date Analyzed:** 12/15/17 02:48

**SURROGATE RECOVERY STUDY**

| TPH by SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 96.1 | 99.7 | 96 | 70-135 | |
| o-Terphenyl | 46.1 | 49.9 | 92 | 70-135 | |

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

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

# Form 2 - Surrogate Recoveries

**Project Name:** 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 **Date Analyzed:** 12/15/17 03:08

**SURROGATE RECOVERY STUDY**

| TPH by SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 95.0 | 99.8 | 95 | 70-135 | |
| o-Terphenyl | 49.4 | 49.9 | 99 | 70-135 | |

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

**Units:** mg/kg **Date Analyzed:** 12/15/17 04:09

**SURROGATE RECOVERY STUDY**

| TPH by SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 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<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %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 **Date Analyzed:** 12/12/17 09:36

**SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0277 | 0.0300 | 92 | 80-120 | |
| 4-Bromofluorobenzene | 0.0281 | 0.0300 | 94 | 80-120 | |

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

**Units:** mg/kg **Date Analyzed:** 12/13/17 09:59

**SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0275 | 0.0300 | 92 | 80-120 | |
| 4-Bromofluorobenzene | 0.0252 | 0.0300 | 84 | 80-120 | |

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

# Form 2 - Surrogate Recoveries

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

**Work Orders :** 570437,

**Project ID:**

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

**Units:** mg/kg **Date Analyzed:** 12/15/17 01:48

**SURROGATE RECOVERY STUDY**

**TPH by SW8015 Mod**

| Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %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:** 1 **Matrix:** Solid

**Units:** mg/kg **Date Analyzed:** 12/08/17 23:01

**SURROGATE RECOVERY STUDY**

**TPH by SW8015 Mod**

| Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 88.9 | 100 | 89 | 70-135 | |
| o-Terphenyl | 46.8 | 50.0 | 94 | 70-135 | |

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

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

**SURROGATE RECOVERY STUDY**

**BTEX by EPA 8021B**

| Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0251 | 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 **Date Analyzed:** 12/13/17 07:30

**SURROGATE RECOVERY STUDY**

**BTEX by EPA 8021B**

| Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0278 | 0.0300 | 93 | 80-120 | |
| 4-Bromofluorobenzene | 0.0299 | 0.0300 | 100 | 80-120 | |

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

**Units:** mg/kg **Date Analyzed:** 12/15/17 02:08

**SURROGATE RECOVERY STUDY**

**TPH by SW8015 Mod**

| Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 104 | 100 | 104 | 70-135 | |
| o-Terphenyl | 55.1 | 50.0 | 110 | 70-135 | |

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

# Form 2 - Surrogate Recoveries

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

**Work Orders :** 570437,

**Project ID:**

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

**Units:** mg/kg **Date Analyzed:** 12/08/17 23:21

**SURROGATE RECOVERY STUDY**

**TPH by SW8015 Mod**

| Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %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**

**BTEX by EPA 8021B**

| Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0285 | 0.0300 | 95 | 80-120 | |
| 4-Bromofluorobenzene | 0.0290 | 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 Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0277 | 0.0300 | 92 | 80-120 | |
| 4-Bromofluorobenzene | 0.0338 | 0.0300 | 113 | 80-120 | |

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

**Units:** mg/kg **Date Analyzed:** 12/15/17 02:27

**SURROGATE RECOVERY STUDY**

**TPH by SW8015 Mod**

| Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 92.3 | 100 | 92 | 70-135 | |
| o-Terphenyl | 47.6 | 50.0 | 95 | 70-135 | |

**Lab Batch #:** 3035464 **Sample:** 570434-004 S / MS **Batch:** 1 **Matrix:** Soil

**Units:** mg/kg **Date Analyzed:** 12/09/17 01:04

**SURROGATE RECOVERY STUDY**

**TPH by SW8015 Mod**

| Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 89.5 | 99.8 | 90 | 70-135 | |
| o-Terphenyl | 48.3 | 49.9 | 97 | 70-135 | |

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

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

# Form 2 - Surrogate Recoveries

**Project Name:** 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 **Date Analyzed:** 12/12/17 08:20

**SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0305 | 0.0300 | 102 | 80-120 | |
| 4-Bromofluorobenzene | 0.0324 | 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**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0285 | 0.0300 | 95 | 80-120 | |
| 4-Bromofluorobenzene | 0.0296 | 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<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %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 **Date Analyzed:** 12/09/17 01:26

**SURROGATE RECOVERY STUDY**

| TPH by SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 78.4 | 99.8 | 79 | 70-135 | |
| o-Terphenyl | 41.7 | 49.9 | 84 | 70-135 | |

**Lab Batch #:** 3035740 **Sample:** 570435-002 SD / MSD **Batch:** 1 **Matrix:** Soil

**Units:** mg/kg **Date Analyzed:** 12/12/17 08:39

**SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0337 | 0.0300 | 112 | 80-120 | |
| 4-Bromofluorobenzene | 0.0344 | 0.0300 | 115 | 80-120 | |

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

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

# Form 2 - Surrogate Recoveries

**Project Name:** 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/kg **Date Analyzed:** 12/13/17 09:02

**SURROGATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1,4-Difluorobenzene | 0.0274 | 0.0300 | 91 | 80-120 | |
| 4-Bromofluorobenzene | 0.0283 | 0.0300 | 94 | 80-120 | |

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

**Units:** mg/kg **Date Analyzed:** 12/15/17 03:48

**SURROGATE RECOVERY STUDY**

| TPH by SW8015 Mod<br>Analytes | Amount Found [A] | True Amount [B] | Recovery %R [D] | Control Limits %R | Flags |
|---|---|---|---|---|---|
| 1-Chlorooctane | 102 | 99.9 | 102 | 70-135 | |
| o-Terphenyl | 51.9 | 50.0 | 104 | 70-135 | |

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

# BS / BSD Recoveries

## Project Name: 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/kg

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Blank Sample Result [A] | Spike Added [B] | Blank Spike Result [C] | Blank Spike %R [D] | Spike Added [E] | Blank Spike Duplicate Result [F] | Blk. Spk Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.00201 | 0.100 | 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

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

**Units:** mg/kg

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

| BTEX by EPA 8021B<br>Analytes | Blank Sample Result [A] | Spike Added [B] | Blank Spike Result [C] | Blank Spike %R [D] | Spike Added [E] | Blank Spike Duplicate Result [F] | Blk. Spk Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.00201 | 0.100 | 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 | |

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

Version: 1.%

# BS / BSD Recoveries

## 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<br>Analytes | Blank Sample Result [A] | Spike Added [B] | Blank Spike Result [C] | Blank Spike %R [D] | Spike Added [E] | Blank Spike Duplicate Result [F] | Blk. Spk Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | <5.00 | 250 | 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 /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

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

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

Version: 1.%

# BS / BSD Recoveries

## 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<br>Analytes | Blank Sample Result [A] | Spike Added [B] | Blank Spike Result [C] | Blank Spike %R [D] | Spike Added [E] | Blank Spike Duplicate Result [F] | Blk. Spk Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | <15.0 | 1000 | 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

**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<br>Analytes | Blank Sample Result [A] | Spike Added [B] | Blank Spike Result [C] | Blank Spike %R [D] | Spike Added [E] | Blank Spike Duplicate Result [F] | Blk. Spk Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | <15.0 | 1000 | 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 | |

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

Version: 1.%

# Form 3 - MS / MSD Recoveries

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

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

**Lab Batch ID:** 3035740 **QC- Sample ID:** 570435-002 S **Batch #:** 1 **Matrix:** Soil

**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<br>Analytes | Parent Sample Result [A] | Spike Added [B] | Spiked Sample Result [C] | Spiked Sample %R [D] | Spike Added [E] | Duplicate Spiked Sample Result [F] | Spiked Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.00200 | 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 #:** 1 **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<br>Analytes | Parent Sample Result [A] | Spike Added [B] | Spiked Sample Result [C] | Spiked Sample %R [D] | Spike Added [E] | Duplicate Spiked Sample Result [F] | Spiked Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | <0.00200 | 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)|

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

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

# Form 3 - MS / MSD Recoveries

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

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

**Lab Batch ID:** 3035612 **QC- Sample ID:** 570438-015 S **Batch #:** 1 **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<br>Analytes | Parent Sample Result [A] | Spike Added [B] | Spiked Sample Result [C] | Spiked Sample %R [D] | Spike Added [E] | Duplicate Spiked Sample Result [F] | Spiked Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 5.89 | 247 | 265 | 105 | 247 | 263 | 104 | 1 | 90-110 | 20 | |

**Lab Batch ID:** 3035612 **QC- Sample ID:** 570722-002 S **Batch #:** 1 **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<br>Analytes | Parent Sample Result [A] | Spike Added [B] | Spiked Sample Result [C] | Spiked Sample %R [D] | Spike Added [E] | Duplicate Spiked Sample Result [F] | Spiked Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 71.9 | 247 | 331 | 105 | 247 | 327 | 103 | 1 | 90-110 | 20 | |

**Lab Batch ID:** 3035752 **QC- Sample ID:** 570433-012 S **Batch #:** 1 **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**

| Chloride by EPA 300<br>Analytes | Parent Sample Result [A] | Spike Added [B] | Spiked Sample Result [C] | Spiked Sample %R [D] | Spike Added [E] | Duplicate Spiked Sample Result [F] | Spiked Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 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)|

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

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

# Form 3 - MS / MSD Recoveries

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

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

**Lab Batch ID:** 3035752 **QC- Sample ID:** 570434-008 S **Batch #:** 1 **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**

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

**Lab Batch ID:** 3035758 **QC- Sample ID:** 570438-003 S **Batch #:** 1 **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 Analytes | Parent Sample Result [A] | Spike Added [B] | Spiked Sample Result [C] | Spiked Sample %R [D] | Spike Added [E] | Duplicate Spiked Sample Result [F] | Spiked Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 706 | 249 | 915 | 84 | 249 | 914 | 84 | 0 | 90-110 | 20 | X |

**Lab Batch ID:** 3035758 **QC- Sample ID:** 570438-010 S **Batch #:** 1 **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 Analytes | Parent Sample Result [A] | Spike Added [B] | Spiked Sample Result [C] | Spiked Sample %R [D] | Spike Added [E] | Duplicate Spiked Sample Result [F] | Spiked Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Chloride | 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)|

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

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

# Form 3 - MS / MSD Recoveries

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

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

**Lab Batch ID:** 3035464 **QC- Sample ID:** 570434-004 S **Batch #:** 1 **Matrix:** Soil

**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<br>Analytes | Parent Sample Result [A] | Spike Added [B] | Spiked Sample Result [C] | Spiked Sample %R [D] | Spike Added [E] | Duplicate Spiked Sample Result [F] | Spiked Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | <15.0 | 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 #:** 1 **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<br>Analytes | Parent Sample Result [A] | Spike Added [B] | Spiked Sample Result [C] | Spiked Sample %R [D] | Spike Added [E] | Duplicate Spiked Sample Result [F] | Spiked Dup. %R [G] | RPD % | Control Limits %R | Control Limits %RPD | Flag |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gasoline Range Hydrocarbons (GRO) | <15.0 | 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

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

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

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

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

# CHAIN OF CUSTODY

Page 1 Of 2

XENCO LABORATORIES

*Setting the Standard since 1990*

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

www.xenco.com

Xenco Quote #

Xenco Job # 570437

**Client / Reporting Information**

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

**Project Information**

Project Name/Number: Illustrated Man Fee Com #1H (10-27-17)
Project Location: M-1-25S-28E
Invoice To: COG Operating, LLC
Attn: Robert McNeill
600 W. Illnois Ave.
Midland Tx, 79701
PO Number:

**Analytical Information**

**Matrix Codes**

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

| No. | Field ID / Point of Collection | Collection: Sample Depth | Collection: Date | Collection: Time | Matrix | # of bottles | Number of preserved bottles: HCl | NaOH/Zn Acetate | HNO3 | H2SO4 | NaOH | NaHSO4 | MEOH | None | TPH EXTENDED | BTEX | CHLORIDES | Field Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | T-1 0' | 0 | 11/31 | 9:00 A | S | 1 | | | | | | | | X | X | X | X | |
| 2 | T-1 1' | 1 | 11/31 | 9:02 A | S | 1 | | | | | | | | X | X | X | X | |
| 3 | T-1 2' | 2 | 11/31 | 9:04 A | S | 1 | | | | | | | | X | X | X | X | |
| 4 | T-1 3' | 3 | 11/31 | 9:06 A | S | 1 | | | | | | | | X | | | X | |
| 5 | T-1 4' | 4 | 11/31 | 9:08 A | S | 1 | | | | | | | | X | | | X | |
| 6 | T-1 5' | 5 | 11/31 | 9:10 A | S | 1 | | | | | | | | X | | | X | |
| 7 | T-1 6' | 6 | 11/31 | 9:12 A | S | 1 | | | | | | | | X | | | X | |
| 8 | T-1 8' | 8 | 11/31 | 9:14 A | S | 1 | | | | | | | | X | | | X | |
| 9 | T-1 10' | 10 | 11/31 | 9:16 A | S | 1 | | | | | | | | X | | | X | |
| 10 | T-1 12' | 12 | 11/31 | 9:18 A | S | 1 | | | | | | | | X | | | X | |

Turnaround Time ( Business days)

- [ ] Same Day TAT
- [ ] 5 Day TAT
- [ ] Next Day EMERGENCY
- [ ] 7 Day TAT
- [ ] 2 Day EMERGENCY
- [x] Contract TAT
- [ ] 3 Day EMERGENCY

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

Data Deliverable Information

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

Notes: Stop Cl- if > 600 mg/kg

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE P

| | Relinquished by Sampler: | Date Time: | Received By: |
|---|---|---|---|
| 1 | Sheldon Neel | 12 6 17 0925 | 1 |
| 3 | Relinquished by: | Date Time: | Received By: 3 |
| 5 | Relinquished by: | Date Time: | Received By: 5 |

Temp: 2.3°C IR ID:R-8
CF:(0-6: -0.2°C )
(6-23: +0.2°C)
Corrected Temp: 2.1°C

: Tracking #

ceived By:

ceived By: 9/7 11:15

| 4 | 4 |
|---|---|
| Custody Seal # | Preserved where applicable |

On Ice: X
Cooler Temp.: 5.6
Thermo. Corr. Factor

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

Final 1.000

Page 23 of 27

# CHAIN OF CUSTODY

Page 2 Of 2

XENCO LABORATORIES
Setting the Standard since 1990

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

Xenco Quote #
Xenco Job # 570437

**Client / Reporting Information**

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

**Project Information**

Project Name/Number: Illustrated Man Fee Com #1H (10-27-17)
Project Location: M-1-25S-28E
Invoice To: COG Operating, LLC
Attn: Robert McNeill
600 W. Illnois Ave.
Midland Tx, 79701
PO Number:

**Analytical Information**

| No. | Field ID / Point of Collection | Collection: Sample Depth | Collection: Date | Collection: Time | Matrix | # of bottles | Number of preserved bottles: HCl | NaOH/Zn Acetate | HNO3 | H2SO4 | NaOH | NaHSO4 | MEOH | None | TPH EXTENDED | BTEX | CHLORIDES | Field Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | T-2 0' | 0 | 11/31/17 | 10:00 | S | 1 | | | | | | | | / | / | / | / | |
| 2 | T-2 1' | 1 | | 10:02 | S | 1 | | | | | | | | / | / | / | / | |
| 3 | T-2 2' | 2 | | 10:04 | S | 1 | | | | | | | | / | / | / | / | |
| 4 | T-2 3' | 3 | | 10:06 | S | 1 | | | | | | | | / | | | / | |
| 5 | | | | | S | 1 | | | | | | | | | | | | |
| 6 | | | | | S | 1 | | | | | | | | | | | | |
| 7 | | | | | S | 1 | | | | | | | | | | | | |
| 8 | | | | | S | 1 | | | | | | | | | | | | |
| 9 | | | | | S | 1 | | | | | | | | | | | | |
| 10 | | | | | S | 1 | | | | | | | | | | | | |

**Matrix Codes**

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

Turnaround Time ( Business days)

- [ ] Same Day TAT
- [ ] 5 Day TAT
- [ ] Next Day EMERGENCY
- [ ] 7 Day TAT
- [ ] 2 Day EMERGENCY
- [x] Contract TAT
- [ ] 3 Day EMERGENCY

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

Data Deliverable Information

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

Notes:

Temp: 2.3°C IR ID:R-8
CF:(0-6: -0.2°C )
(6-23: +0.2°C)
Corrected Temp: 2.1°C

FED-EX / UPS: Tracking #

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

| | Relinquished by Sampler: | Date Time: | Received By: | Relinquished By: | Date Time: | Received By: |
|---|---|---|---|---|---|---|
| 1 | Sheldon Hitchcock | 12.6.17 0925 | 1 | 2 | | 2 9/7 |
| 3 | Relinquished by: | Date Time: | Received By: | Relinquished By: | Date Time: | Received By: |
| 5 | Relinquished by: | Date Time: | Received By: | Custody Seal # | Preserved where applicable | 4 11:15 |

On Ice: X
Cooler Temp.: 5.6
Thermo. Corr. Factor:

# CHAIN OF CUSTODY

Page 1 Of 2


XENCO LABORATORIES
Setting the Standard since 1990
Stafford,Texas (281-240-4200)
Dallas Texas (214-902-0300)
San Antonio, Texas (210-509-3334)
Midland, Texas (432-704-5251)
Phoenix, Arizona (480-355-0900)
www.xenco.com


Xenco Quote # | Xenco Job # 570437

**Client / Reporting Information**

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

**Project Information**

Project Name/Number: Illustrated Man Fee Com #1H (10-27-17)
Project Location: M-1-25S-28E
Invoice To: COG Operating, LLC
Attn: Robert McNeill
600 W. Illnois Ave.
Midland Tx, 79701
PO Number:

**Analytical Information**

| No. | Field ID / Point of Collection | Collection: Sample Depth | Collection: Date | Collection: Time | Matrix | # of bottles | Number of preserved bottles: HCl | NaOH/Zn Acetate | HNO3 | H2SO4 | NaOH | NaHSO4 | MEOH | None | TPH EXTENDED | BTEX | CHLORIDES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | T-1 0' | 0 | 11/31 | 9:00 A | S | 1 | | | | | | | | X | X | X | X |
| 2 | T-1 1' | 1 | 11/31 | 9:02 A | S | 1 | | | | | | | | X | X | X | X |
| 3 | T-1 2' | 2 | 11/31 | 9:04 A | S | 1 | | | | | | | | X | X | X | X |
| 4 | T-1 3' | 3 | 11/31 | 9:06 A | S | 1 | | | | | | | | X | | | X |
| 5 | T-1 4' | 4 | 11/31 | 9:08 A | S | 1 | | | | | | | | X | | | X |
| 6 | T-1 5' | 5 | 11/31 | 9:10 A | S | 1 | | | | | | | | X | | | X |
| 7 | T-1 6' | 6 | 11/31 | 9:12 A | S | 1 | | | | | | | | X | | | X |
| 8 | T-1 8' | 8 | 11/31 | 9:14 A | S | 1 | | | | | | | | X | | | X |
| 9 | T-1 10' | 10 | 11/31 | 9:16 A | S | 1 | | | | | | | | X | | | X |
| 10 | T-1 12' | 12 | 11/31 | 9:18 A | S | 1 | | | | | | | | X | | | X |

**Matrix Codes**

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

Field Comments

**Turnaround Time ( Business days)**

- [ ] Same Day TAT
- [ ] 5 Day TAT
- [ ] Next Day EMERGENCY
- [ ] 7 Day TAT
- [ ] 2 Day EMERGENCY
- [x] Contract TAT
- [ ] 3 Day EMERGENCY

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

**Data Deliverable Information**

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

**Notes:**

Stop Cl⁻ if ≤ 600 mg/kg

Temp: 2.3°C IR ID:R-8
CF:(0-6: -0.2°C )
(6-23: +0.2°C)
Corrected Temp: 2.1°C

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE P

| | Relinquished by Sampler: | Date Time: | Received By: |
|---|---|---|---|
| 1 | Sheldon Neel | 12 6 17 0925 | 1 |
| 2 | Relinquished by: | Date Time: | Received By: 2 |
| 3 | Relinquished by: | Date Time: | Received By: 3 |
| 4 | | | Received By: 4 |
| 5 | Relinquished by: | Date Time: | Received By: 5 |

: Tracking #

ceived By:
ceived By: 12/7 11:15

Custody Seal # | Preserved where applicable | On Ice: X | Cooler Temp. 5.6 | Thermo. Corr. Factor

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

Final 1.000

Page 25 of 27

# CHAIN OF CUSTODY

Page 2 Of 2

XENCO LABORATORIES
Setting the Standard since 1990

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

Xenco Quote #

Xenco Job # 570437

**Client / Reporting Information**

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

**Project Information**

Project Name/Number: Illustrated Man Fee Com #1H (10-27-17)
Project Location: M-1-25S-28E
Invoice To: COG Operating, LLC
Attn: Robert McNeill
600 W. Illnois Ave.
Midland Tx, 79701
PO Number:

**Analytical Information**

**Matrix Codes**

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

| No. | Field ID / Point of Collection | Collection: Sample Depth | Collection: Date | Collection: Time | Matrix | # of bottles | Number of preserved bottles: HCl | NaOH/Zn Acetate | HNO3 | H2SO4 | NaOH | NaHSO4 | MEOH | None | TPH EXTENDED | BTEX | CHLORIDES | Field Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | T-2 0' | 0 | 11/31/17 | 10:00 | S | 1 | | | | | | | | / | / | / | / | |
| 2 | T-2 1' | 1 | | 10:02 | S | 1 | | | | | | | | / | / | / | / | |
| 3 | T-2 2' | 2 | | 10:04 | S | 1 | | | | | | | | / | / | / | / | |
| 4 | T-2 3' | 3 | | 10:06 | S | 1 | | | | | | | | / | | | / | |
| 5 | | | | | S | 1 | | | | | | | | | | | / | |
| 6 | | | | | S | 1 | | | | | | | | | | | | |
| 7 | | | | | S | 1 | | | | | | | | | | | | |
| 8 | | | | | S | 1 | | | | | | | | | | | | |
| 9 | | | | | S | 1 | | | | | | | | | | | | |
| 10 | | | | | S | 1 | | | | | | | | | | | | |

Turnaround Time ( Business days)

- [ ] Same Day TAT
- [ ] 5 Day TAT
- [ ] Next Day EMERGENCY
- [ ] 7 Day TAT
- [ ] 2 Day EMERGENCY
- [x] Contract TAT
- [ ] 3 Day EMERGENCY

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

Data Deliverable Information

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

Notes:

Temp: 2.3°C IR ID:R-8
CF:(0-6: -0.2°C )
(6-23: +0.2°C)
Corrected Temp: 2.1°C

FED-EX / UPS: Tracking #

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

| | | | | | |
|---|---|---|---|---|---|
| 1 Relinquished by Sampler: Sheldon Hitchcock | Date Time: 12617 0925 | Received By: 1 | Relinquished By: 2 | Date Time: | Received By: 2 |
| 3 Relinquished by: | Date Time: | Received By: 3 | Relinquished By: 4 | Date Time: | Received By: 4 12/7 11:15 |
| 5 Relinquished by: | Date Time: | Received By: 5 | Custody Seal # | Preserved where applicable | On Ice: X Cooler Temp. 5.6 Thermo. Corr. Factor |

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

Final 1.000

Page 26 of 27

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

**Client:** COG Operating, LLC

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

**Work Order #:** 570437

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

**Temperature Measuring device used : R8**

| Sample Receipt Checklist | Comments |
|---|---|
| #1 *Temperature of cooler(s)? | 2.1 |
| #2 *Shipping container in good condition? | **Yes** |
| #3 *Samples received on ice? | **Yes** |
| #4 *Custody Seals intact on shipping container/ cooler? | **No** |
| #5 Custody Seals intact on sample bottles? | **N/A** |
| #6*Custody Seals Signed and dated? | **N/A** |
| #7 *Chain of Custody present? | **Yes** |
| #8 Any missing/extra samples? | **No** |
| #9 Chain of Custody signed when relinquished/ received? | **Yes** |
| #10 Chain of Custody agrees with sample labels/matrix? | **Yes** |
| #11 Container label(s) legible and intact? | **Yes** |
| #12 Samples in proper container/ bottle? | **Yes** |
| #13 Samples properly preserved? | **Yes** |
| #14 Sample container(s) intact? | **Yes** |
| #15 Sufficient sample amount for indicated test(s)? | **Yes** |
| #16 All samples received within hold time? | **Yes** |
| #17 Subcontract of sample(s)? | **No** |
| #18 Water VOC samples have zero headspace? | **N/A** |

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

Analyst: PH Device/Lot#:

**Checklist completed by:** Connie Hernandez Date: 12/07/2017

**Checklist reviewed by:** Mike Kimmel Date: 12/13/2017