



[Sheldon L. Hitchcock]  
[HSE Coordinator]

March 28, 2018

Crystal Weaver  
Oil Conservation Division, District 2  
811 S First St.  
Artesia, NM 88210

Henryetta Price  
Bureau of Land Management, CFO  
620 E. Green Street  
Carlsbad, NM 88220

**Re: Closure Letter  
Gehrig Federal #001  
API #: 30-015-33600  
RP#: 2RP-4241 & 2RP-4498  
Unit Letter I Section 9, Township 26S, Range 29E  
Eddy County, NM**

Ms. Weaver/Ms. Price,

COG Operating, LLC (COG) is pleased to submit for your consideration the following closure report for the Gehrig Federal #001. The remediation conducted at this site was in repose to two oil and produced water releases that occurred on May 28 and again on November 18 of 2017. A remediation work plan was submitted to the New Mexico Oil Conservation Division (NMOCD) and the Bureau of Land Management (BLM) on December 28, 2017. The work plan was approved by NMOCD on March 12, 2018 and by BLM on March 21, 2018.

## **BACKGROUND**

The Gehrig Federal #001 release is located in Unit Letter I, Section 9, Township 26 South, and Range 29 East in Eddy County, New Mexico. More specifically the latitude and longitude for this release are 32.055139 North and -103.980409 West.

On May 28, 2018, a stuffing box leak resulted in the release of approximately one-half (0.5) barrel (bbl) of oil and six (6) bbls of produced water. Approximately four (4) bbls of produced water were recovered. The RP number NMOCD assigned to this release was 2RP-4241.

On November 18, 2017, a stuffing box leak resulted in the release of approximately four (4) bbls of oil and six (6) bbls of produced water. Approximately three (3) bbls of oil and four (4) bbls of produced water were recovered. The RP number NMOCD assigned to this release was 2RP-4498. This release covered the same area of the well pad as the release that occurred on May 28, 2018.

March 28, 2018

On December 12, 2017, a site assessment and soil sampling were conducted in order to vertically and horizontally define the area impacted by the two releases at this site. 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 2005 Chevron Texaco groundwater trend map, groundwater in the project vicinity is approximately one-hundred and twenty (120) 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 zero (0) based on the following:

Depth to groundwater	>100-feet
Distance to surface water body	>1000-feet
Wellhead Protection Area	>1000-feet

## ANALYTICAL RESULTS

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	10700	45.8
T-1	1	<0.002	<0.002	96.6	<15.0
T-1	2	<0.002	<0.002	24.3	<15.0
T-1	3	<0.002	<0.002	74.5	<15.0
T-2	0	<0.002	<0.002	13300	995
T-2	1	<0.002	<0.002	271	<15.0
T-2	2	<0.002	<0.002	33.8	<15.0
T-2	3	<0.002	<0.002	120	<15.0
NORTH	0	--	--	<4.98	--
SOUTH	0	--	--	<4.90	--
EAST	0	--	--	61	--
WEST	0	--	--	507	--

(--) Analysis not requested

March 28, 2018

## REMEDIAL ACTIONS

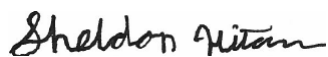
- The impacted area was excavated to the depth of one (1) foot BGS.
- All of the excavated material was hauled to an NMOCD approved solid waste disposal facility.
- The excavation was backfilled with caliche and contoured to match the surrounding location.

## CLOSURE REQUEST

COG Operating, LLC respectfully requests that the New Mexico Oil Conservation Division and Bureau of Land Management grant closure approval for the Gehrig Federal #001 incidents that occurred on May 28, 2017 and November 18, 2017.

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

Sincerely,



Sheldon L. Hitchcock  
HSE Coordinator  
[slhitchcock@concho.com](mailto:slhitchcock@concho.com)

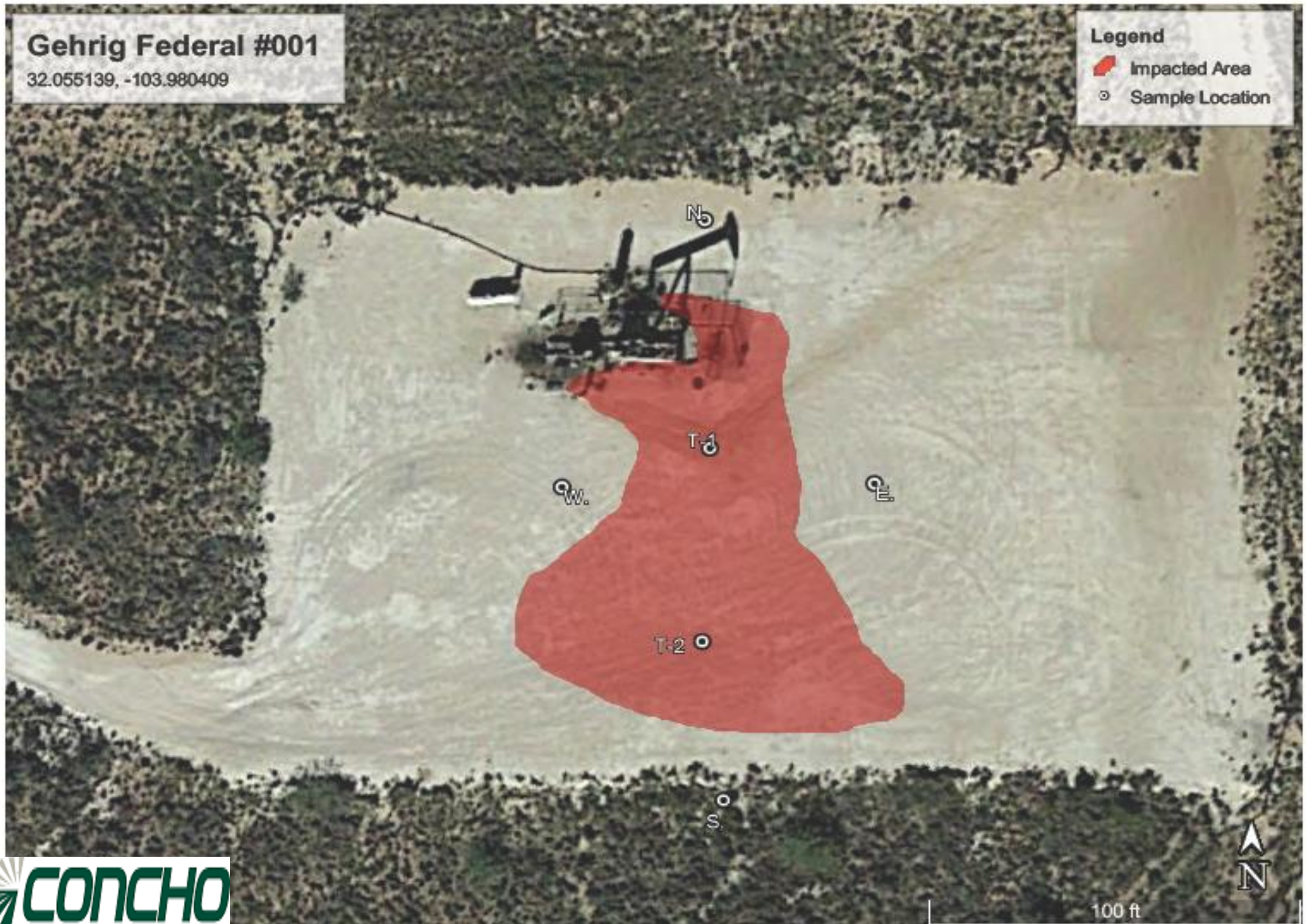
Enclosed:

Appendix I: Site Diagram  
Appendix II: Groundwater Data  
Appendix III: Final C-141(s)  
Appendix IV: Analytical Reports and Chain-of-Custody Forms  
Appendix V: Approved Work Plan (Copy)

# APPENDIX I

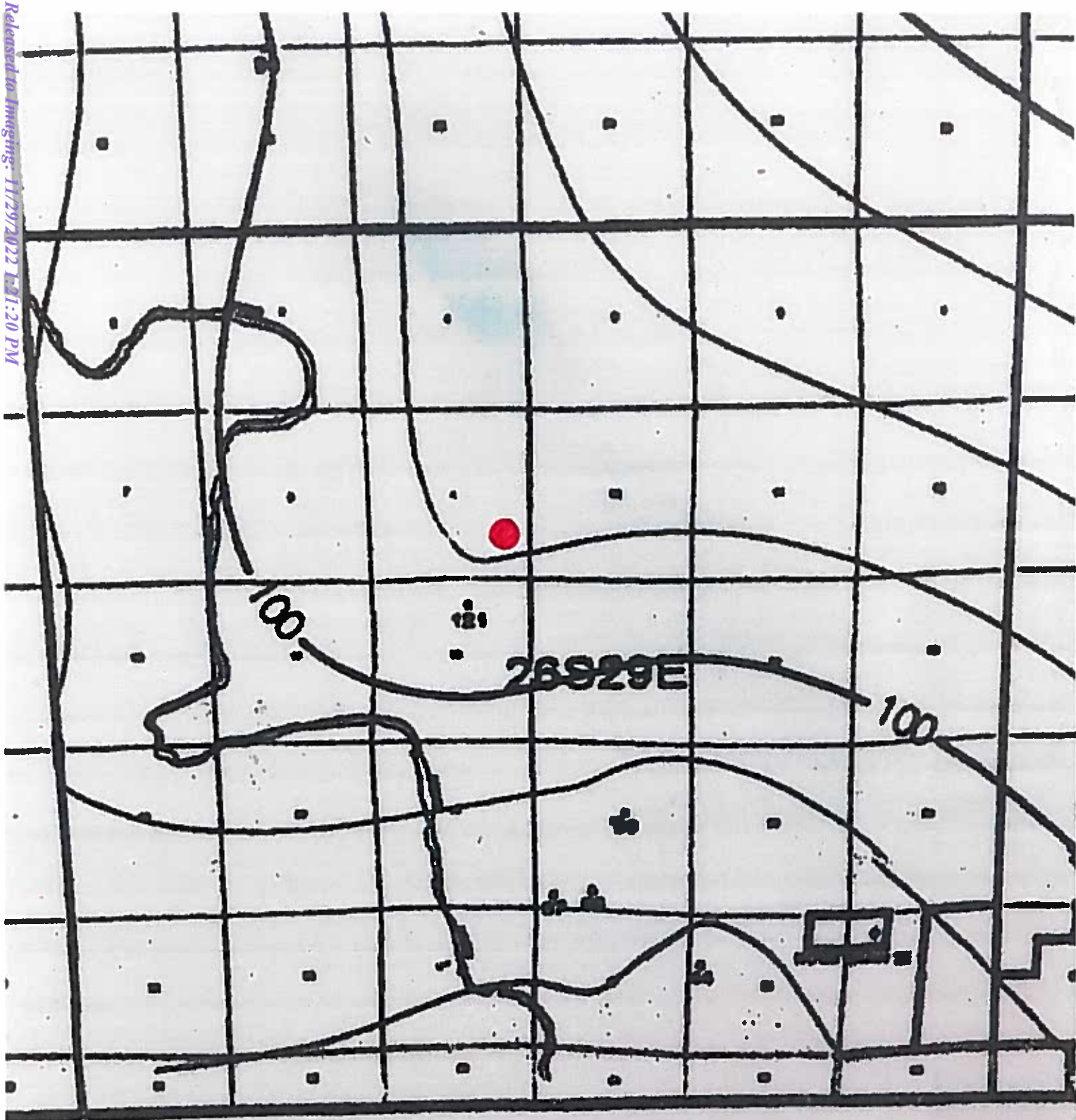
December 28, 2017

# Gehrig Federal #001



# APPENDIX II





# APPENDIX III



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

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

Form C-141  
Revised August 8, 2011  
Submit 1 Copy to appropriate District Office in  
accordance with 19.15.29 NMAC.

## Release Notification and Corrective Action

### OPERATOR

☐ Initial Report ☒ Final Report

Name of Company: COG Operating LLC OGRID # 229137	Contact: Robert McNeill
Address: 600 West Illinois Avenue, Midland TX 79701	Telephone No. 432-683-7443
Facility Name: Gehrig Federal #001	Facility Type: Wellhead
Surface Owner: Federal	Mineral Owner: Federal
API No. 30-015-33600	

### LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
I	09	26S	29E	1980	South	10	East	Eddy

Latitude 32.05513 Longitude -103.9804077

### NATURE OF RELEASE

Type of Release: Oil and Produced Water	Volume of Release: 0.5 bbls Oil & 6 bbls PW	Volume Recovered: 4 bbls Produced Water
Source of Release: Wellhead	Date and Hour of Occurrence: May 28, 2017 5:00 am	Date and Hour of Discovery: May 28, 2017 5:00 am
Was Immediate Notice Given? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/> Not Required	If YES, To Whom?	
By Whom?	Date and Hour:	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.\*

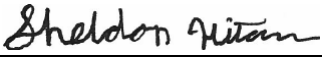

Describe Cause of Problem and Remedial Action Taken.\*

The packing blew due to pressure which was caused by a buildup of trash in the back pressure valve.

Describe Area Affected and Cleanup Action Taken.\*

The release occurred on the pad. A vacuum truck was dispatched to remove all freestanding fluids. Concho performed a site assessment and soil sampling within the impacted area in preparation for the construction of a remediation work plan. A remediation work plan was subsequently submitted to and approved by NMOCD and BLM. Remedial activities were completed in accordance with the approved work plan.

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: 	<b>OIL CONSERVATION DIVISION</b>	
Printed Name: Sheldon Hitchcock	Approved by Environmental Specialist: 	
Title: HSE Coordinator	Approval Date: 11/29/2022	Expiration Date:
E-mail Address: <a href="mailto:slhitchcock@concho.com">slhitchcock@concho.com</a>	Conditions of Approval:	Attached <input type="checkbox"/>
Date: March 28, 2018 Phone: 575-746-2010		

\* Attach Additional Sheets If Necessary

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

### OPERATOR

☐ Initial Report ☒ Final Report

Name of Company: <b>COG Operating LLC (OGRID #229137)</b>	Contact: <b>Robert McNeill</b>
Address: <b>600 West Illinois Avenue, Midland TX 79701</b>	Telephone No. <b>432-683-7443</b>
Facility Name: <b>Gehrig Federal #001</b>	Facility Type: <b>Oil Well</b>
Surface Owner: <b>Federal</b>	Mineral Owner: <b>Federal</b>
API No. <b>30-015-33600</b>	

### LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
I	09	26S	29E	1980	South	10	East	Eddy

Latitude: 32.05513 Longitude: -103.9804077 NAD83

### NATURE OF RELEASE

Type of Release: <b>Oil &amp; Produced Water</b>	Volume of Release: 4bbls Oil & 6bbls Produced water	Volume Recovered: 3bbls Oil & 4bbls Produced water
Source of Release: <b>Wellhead</b>	Date and Hour of Occurrence: 11-18-2017 1:00pm	Date and Hour of Discovery: 11-18-2017 1:00pm
Was Immediate Notice Given? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/> Not Required	If YES, To Whom?	
By Whom?	Date and Hour:	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse.	
If a Watercourse was Impacted, Describe Fully.*		
Describe Cause of Problem and Remedial Action Taken.*		
This release was caused by a <b>Stuffing Box Leak</b> . The stuffing box was repacked, associated valve was cleaned and pressure switch was tested.		
Describe Area Affected and Cleanup Action Taken.*		
The release occurred on the pad. A vacuum truck was dispatched to remove all freestanding fluids. Concho performed a site assessment and soil sampling within the impacted area in preparation for the construction of a remediation work plan. A remediation work plan was subsequently submitted to and approved by NMOCD and BLM. Remedial activities were completed in accordance with the approved work plan.		
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: <i>Sheldon Hitchcock</i>		<b>OIL CONSERVATION DIVISION</b>
Printed Name: Sheldon Hitchcock		Approved by Environmental Specialist: <i>Ashley Maxwell</i>
Title: HSE Coordinator	Approval Date: <b>11/29/2022</b>	Expiration Date:
E-mail Address: <a href="mailto:slhitchcock@concho.com">slhitchcock@concho.com</a>	Conditions of Approval:	Attached <input type="checkbox"/>
Date: <b>March 28, 2018</b>	Phone: <b>575-746-2010</b>	

\* Attach Additional Sheets If Necessary

# APPENDIX IV



# Certificate of Analysis Summary 571793

COG Operating LLC, Artesia, NM

Project Name: Gehrig Federal #001



Project Id:

Contact: Sheldon Hitchcock

Project Location: Eddy County NM

Date Received in Lab: Tue Dec-19-17 11:45 am

Report Date: 27-DEC-17

Project Manager: Kelsey Brooks

<i>Analysis Requested</i>	<i>Lab Id:</i>	571793-001	571793-002	571793-003	571793-004	571793-005	571793-006
	<i>Field Id:</i>	T-1 0'	T-1 1'	T-1 2'	T-1 3'	T-2 0'	T-2 1'
	<i>Depth:</i>		1- ft	2- ft	3- ft		1- ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Dec-13-17 09:00	Dec-13-17 09:02	Dec-13-17 09:04	Dec-13-17 09:06	Dec-13-17 09:30	Dec-13-17 09:32
<b>BTEX by EPA 8021B</b>	<i>Extracted:</i>	Dec-21-17 13:00	Dec-21-17 13:00	Dec-21-17 13:00	Dec-21-17 13:00	Dec-21-17 13:00	Dec-21-17 13:00
	<i>Analyzed:</i>	Dec-21-17 20:40	Dec-21-17 20:59	Dec-21-17 21:18	Dec-21-17 21:37	Dec-21-17 21:56	Dec-21-17 22:15
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00200 0.00200	<0.00201 0.00201	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199
Toluene		<0.00200 0.00200	<0.00201 0.00201	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199
Ethylbenzene		<0.00200 0.00200	<0.00201 0.00201	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199
m,p-Xylenes		<0.00401 0.00401	<0.00402 0.00402	<0.00398 0.00398	<0.00399 0.00399	<0.00401 0.00401	<0.00398 0.00398
o-Xylene		<0.00200 0.00200	<0.00201 0.00201	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199
Total Xylenes		<0.00200 0.00200	<0.00201 0.00201	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199
Total BTEX		<0.00200 0.00200	<0.00201 0.00201	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199
<b>Chloride by EPA 300</b>	<i>Extracted:</i>	Dec-22-17 16:14	Dec-22-17 16:14	Dec-22-17 16:14	Dec-22-17 16:14	Dec-22-17 16:14	Dec-22-17 16:14
	<i>Analyzed:</i>	Dec-22-17 22:30	Dec-22-17 22:51	Dec-22-17 20:24	Dec-22-17 22:02	Dec-22-17 23:12	Dec-22-17 23:19
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		10700 50.0	96.6 5.00	24.3 5.00	74.5 5.00	13300 100	271 5.00
<b>TPH By SW8015 Mod</b>	<i>Extracted:</i>	Dec-21-17 07:00	Dec-21-17 07:00	Dec-21-17 07:00	Dec-21-17 07:00	Dec-21-17 07:00	Dec-21-17 07:00
	<i>Analyzed:</i>	Dec-21-17 19:58	Dec-21-17 20:20	Dec-21-17 20:41	Dec-21-17 21:01	Dec-21-17 21:21	Dec-21-17 21:42
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg 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	<15.0 15.0	<15.0 15.0	<15.0 15.0
Diesel Range Organics (DRO)		30.1 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	780 15.0	<15.0 15.0
Oil Range Hydrocarbons (ORO)		15.7 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	215 15.0	<15.0 15.0
Total TPH		45.8 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	995 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

Kelsey Brooks  
Project Manager



# Certificate of Analysis Summary 571793

COG Operating LLC, Artesia, NM

Project Name: Gehrig Federal #001



Project Id:

Contact: Sheldon Hitchcock

Project Location: Eddy County NM

Date Received in Lab: Tue Dec-19-17 11:45 am

Report Date: 27-DEC-17

Project Manager: Kelsey Brooks

<b>Analysis Requested</b>	<b>Lab Id:</b>	571793-007	571793-008				
	<b>Field Id:</b>	T-2 2'	T-2 3'				
	<b>Depth:</b>	2- ft	3- ft				
	<b>Matrix:</b>	SOIL	SOIL				
	<b>Sampled:</b>	Dec-13-17 09:34	Dec-13-17 09:36				
<b>BTEX by EPA 8021B</b>	<b>Extracted:</b>	Dec-21-17 13:00	Dec-21-17 13:00				
	<b>Analyzed:</b>	Dec-21-17 22:34	Dec-21-17 22:53				
	<b>Units/RL:</b>	mg/kg RL	mg/kg RL				
Benzene		<0.00200 0.00200	<0.00202 0.00202				
Toluene		<0.00200 0.00200	<0.00202 0.00202				
Ethylbenzene		<0.00200 0.00200	<0.00202 0.00202				
m,p-Xylenes		<0.00399 0.00399	<0.00403 0.00403				
o-Xylene		<0.00200 0.00200	<0.00202 0.00202				
Total Xylenes		<0.00200 0.00200	<0.00202 0.00202				
Total BTEX		<0.00200 0.00200	<0.00202 0.00202				
<b>Chloride by EPA 300</b>	<b>Extracted:</b>	Dec-22-17 16:14	Dec-22-17 16:14				
	<b>Analyzed:</b>	Dec-22-17 23:25	Dec-22-17 23:32				
	<b>Units/RL:</b>	mg/kg RL	mg/kg RL				
Chloride		33.8 5.00	120 5.00				
<b>TPH By SW8015 Mod</b>	<b>Extracted:</b>	Dec-21-17 07:00	Dec-21-17 07:00				
	<b>Analyzed:</b>	Dec-21-17 22:02	Dec-21-17 23:04				
	<b>Units/RL:</b>	mg/kg RL	mg/kg RL				
Gasoline Range Hydrocarbons (GRO)		<14.9 14.9	<15.0 15.0				
Diesel Range Organics (DRO)		<14.9 14.9	<15.0 15.0				
Oil Range Hydrocarbons (ORO)		<14.9 14.9	<15.0 15.0				
Total TPH		<14.9 14.9	<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

Kelsey Brooks  
Project Manager



# Analytical Report 571793

for  
COG Operating LLC

Project Manager: Sheldon Hitchcock

Gehrig Federal #001

27-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)



27-DEC-17

Project Manager: **Sheldon Hitchcock**

**COG Operating LLC**

2407 Pecos Avenue

Artesia, NM 88210

Reference: XENCO Report No(s): **571793**

**Gehrig Federal #001**

Project Address: Eddy County 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) 571793. 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. 571793 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,

A handwritten signature in black ink, appearing to read 'Kelsey Brooks', written over a horizontal line.

**Kelsey Brooks**

Project 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 571793****COG Operating LLC, Artesia, NM**

Gehrig Federal #001

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
T-1 0'	S	12-13-17 09:00		571793-001
T-1 1'	S	12-13-17 09:02	1 ft	571793-002
T-1 2'	S	12-13-17 09:04	2 ft	571793-003
T-1 3'	S	12-13-17 09:06	3 ft	571793-004
T-2 0'	S	12-13-17 09:30		571793-005
T-2 1'	S	12-13-17 09:32	1 ft	571793-006
T-2 2'	S	12-13-17 09:34	2 ft	571793-007
T-2 3'	S	12-13-17 09:36	3 ft	571793-008



## CASE NARRATIVE

**Client Name: COG Operating LLC**

**Project Name: Gehrig Federal #001**

Project ID:

Work Order Number(s): 571793

Report Date: 27-DEC-17

Date Received: 12/19/2017

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### **Sample receipt non conformances and comments:**

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

None

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

Batch: LBA-3036624 BTEX by EPA 8021B

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

Batch: LBA-3036815 Chloride by EPA 300

Lab Sample ID 571793-004 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD).

Chloride recovered above QC limits in the Matrix Spike. Outlier/s are due to possible matrix interference.

Samples in the analytical batch are: 571793-001, -002, -003, -004, -005, -006, -007, -008.

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



# Certificate of Analytical Results 571793



## COG Operating LLC, Artesia, NM

Gehrig Federal #001

Sample Id: **T-1 0'**  
Lab Sample Id: 571793-001

Matrix: Soil  
Date Collected: 12.13.17 09.00

Date Received: 12.19.17 11.45

Analytical Method: Chloride by EPA 300

Tech: OJS

Analyst: OJS

Seq Number: 3036815

Prep Method: E300P

% Moisture:

Date Prep: 12.22.17 16.14

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<b>10700</b>	50.0	mg/kg	12.22.17 22.30		10

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3036672

Prep Method: TX1005P

% Moisture:

Date Prep: 12.21.17 07.00

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	12.21.17 19.58	U	1
Diesel Range Organics (DRO)	C10C28DRO	<b>30.1</b>	15.0	mg/kg	12.21.17 19.58		1
Oil Range Hydrocarbons (ORO)	PHCG2835	<b>15.7</b>	15.0	mg/kg	12.21.17 19.58		1
Total TPH	PHC635	<b>45.8</b>	15.0	mg/kg	12.21.17 19.58		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	70	%	70-135	12.21.17 19.58	
o-Terphenyl	84-15-1	72	%	70-135	12.21.17 19.58	





# Certificate of Analytical Results 571793



## COG Operating LLC, Artesia, NM

Gehrig Federal #001

Sample Id: **T-1 0'**  
Lab Sample Id: 571793-001

Matrix: Soil  
Date Collected: 12.13.17 09.00

Date Received: 12.19.17 11.45

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 12.21.17 13.00

Basis: Wet Weight

Seq Number: 3036624

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	12.21.17 20.40	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	12.21.17 20.40	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	12.21.17 20.40	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	12.21.17 20.40	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	12.21.17 20.40	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	12.21.17 20.40	U	1
Total BTEX		<0.00200	0.00200	mg/kg	12.21.17 20.40	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
4-Bromofluorobenzene	460-00-4	91	%	80-120	12.21.17 20.40		
1,4-Difluorobenzene	540-36-3	91	%	80-120	12.21.17 20.40		



# Certificate of Analytical Results 571793



## COG Operating LLC, Artesia, NM

Gehrig Federal #001

Sample Id: **T-1 1'**  
Lab Sample Id: 571793-002

Matrix: Soil  
Date Collected: 12.13.17 09.02

Date Received: 12.19.17 11.45  
Sample Depth: 1 ft

Analytical Method: Chloride by EPA 300

Tech: OJS

Analyst: OJS

Seq Number: 3036815

Date Prep: 12.22.17 16.14

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	96.6	5.00	mg/kg	12.22.17 22.51		1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3036672

Date Prep: 12.21.17 07.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	12.21.17 20.20	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	12.21.17 20.20	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	12.21.17 20.20	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	12.21.17 20.20	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	75	%	70-135	12.21.17 20.20	
o-Terphenyl	84-15-1	78	%	70-135	12.21.17 20.20	



# Certificate of Analytical Results 571793



## COG Operating LLC, Artesia, NM

Gehrig Federal #001

Sample Id: **T-1 1'**  
Lab Sample Id: 571793-002

Matrix: Soil  
Date Collected: 12.13.17 09.02

Date Received: 12.19.17 11.45  
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 12.21.17 13.00

Basis: Wet Weight

Seq Number: 3036624

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	12.21.17 20.59	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	12.21.17 20.59	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	12.21.17 20.59	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	12.21.17 20.59	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	12.21.17 20.59	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	12.21.17 20.59	U	1
Total BTEX		<0.00201	0.00201	mg/kg	12.21.17 20.59	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
1,4-Difluorobenzene	540-36-3	92	%	80-120	12.21.17 20.59		
4-Bromofluorobenzene	460-00-4	88	%	80-120	12.21.17 20.59		



# Certificate of Analytical Results 571793



## COG Operating LLC, Artesia, NM

Gehrig Federal #001

Sample Id: **T-1 2'**  
Lab Sample Id: 571793-003

Matrix: Soil  
Date Collected: 12.13.17 09.04

Date Received: 12.19.17 11.45  
Sample Depth: 2 ft

Analytical Method: Chloride by EPA 300

Tech: OJS

Analyst: OJS

Seq Number: 3036815

Date Prep: 12.22.17 16.14

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	24.3	5.00	mg/kg	12.22.17 20.24		1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3036672

Date Prep: 12.21.17 07.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	12.21.17 20.41	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	12.21.17 20.41	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	12.21.17 20.41	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	12.21.17 20.41	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	89	%	70-135	12.21.17 20.41	
o-Terphenyl	84-15-1	90	%	70-135	12.21.17 20.41	



# Certificate of Analytical Results 571793



## COG Operating LLC, Artesia, NM

Gehrig Federal #001

Sample Id: **T-1 2'**  
Lab Sample Id: 571793-003

Matrix: Soil  
Date Collected: 12.13.17 09.04

Date Received: 12.19.17 11.45  
Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 12.21.17 13.00

Basis: Wet Weight

Seq Number: 3036624

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	12.21.17 21.18	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	12.21.17 21.18	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	12.21.17 21.18	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	12.21.17 21.18	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	12.21.17 21.18	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	12.21.17 21.18	U	1
Total BTEX		<0.00199	0.00199	mg/kg	12.21.17 21.18	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
1,4-Difluorobenzene	540-36-3	88	%	80-120	12.21.17 21.18		
4-Bromofluorobenzene	460-00-4	83	%	80-120	12.21.17 21.18		





# Certificate of Analytical Results 571793



## COG Operating LLC, Artesia, NM

Gehrig Federal #001

Sample Id: **T-1 3'**  
Lab Sample Id: 571793-004

Matrix: Soil  
Date Collected: 12.13.17 09.06

Date Received: 12.19.17 11.45  
Sample Depth: 3 ft

Analytical Method: Chloride by EPA 300

Tech: OJS

Analyst: OJS

Seq Number: 3036815

Date Prep: 12.22.17 16.14

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	74.5	5.00	mg/kg	12.22.17 22.02		1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3036672

Date Prep: 12.21.17 07.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	12.21.17 21.01	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	12.21.17 21.01	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	12.21.17 21.01	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	12.21.17 21.01	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	80	%	70-135	12.21.17 21.01	
o-Terphenyl	84-15-1	83	%	70-135	12.21.17 21.01	



# Certificate of Analytical Results 571793



## COG Operating LLC, Artesia, NM

Gehrig Federal #001

Sample Id: **T-1 3'**  
Lab Sample Id: 571793-004

Matrix: Soil  
Date Collected: 12.13.17 09.06

Date Received: 12.19.17 11.45  
Sample Depth: 3 ft

Analytical Method: BTEX by EPA 8021B

Tech: ALJ

Analyst: ALJ

Seq Number: 3036624

Date Prep: 12.21.17 13.00

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	12.21.17 21.37	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	12.21.17 21.37	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	12.21.17 21.37	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	12.21.17 21.37	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	12.21.17 21.37	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	12.21.17 21.37	U	1
Total BTEX		<0.00200	0.00200	mg/kg	12.21.17 21.37	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
1,4-Difluorobenzene	540-36-3	94	%	80-120	12.21.17 21.37		
4-Bromofluorobenzene	460-00-4	89	%	80-120	12.21.17 21.37		



# Certificate of Analytical Results 571793



## COG Operating LLC, Artesia, NM

Gehrig Federal #001

Sample Id: **T-2 0'**  
Lab Sample Id: 571793-005

Matrix: Soil  
Date Collected: 12.13.17 09.30

Date Received: 12.19.17 11.45

Analytical Method: Chloride by EPA 300

Tech: OJS

Analyst: OJS

Seq Number: 3036815

Prep Method: E300P

% Moisture:

Date Prep: 12.22.17 16.14

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	13300	100	mg/kg	12.22.17 23.12		20

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3036672

Prep Method: TX1005P

% Moisture:

Date Prep: 12.21.17 07.00

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	12.21.17 21.21	U	1
Diesel Range Organics (DRO)	C10C28DRO	780	15.0	mg/kg	12.21.17 21.21		1
Oil Range Hydrocarbons (ORO)	PHCG2835	215	15.0	mg/kg	12.21.17 21.21		1
Total TPH	PHC635	995	15.0	mg/kg	12.21.17 21.21		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	79	%	70-135	12.21.17 21.21	
o-Terphenyl	84-15-1	85	%	70-135	12.21.17 21.21	



# Certificate of Analytical Results 571793



## COG Operating LLC, Artesia, NM

Gehrig Federal #001

Sample Id: **T-2 0'**  
Lab Sample Id: 571793-005

Matrix: Soil  
Date Collected: 12.13.17 09.30

Date Received: 12.19.17 11.45

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 12.21.17 13.00

Basis: Wet Weight

Seq Number: 3036624

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	12.21.17 21.56	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	12.21.17 21.56	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	12.21.17 21.56	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	12.21.17 21.56	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	12.21.17 21.56	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	12.21.17 21.56	U	1
Total BTEX		<0.00200	0.00200	mg/kg	12.21.17 21.56	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
1,4-Difluorobenzene	540-36-3	87	%	80-120	12.21.17 21.56		
4-Bromofluorobenzene	460-00-4	83	%	80-120	12.21.17 21.56		



# Certificate of Analytical Results 571793



## COG Operating LLC, Artesia, NM

Gehrig Federal #001

Sample Id: **T-2 1'**  
Lab Sample Id: 571793-006

Matrix: Soil  
Date Collected: 12.13.17 09.32

Date Received: 12.19.17 11.45  
Sample Depth: 1 ft

Analytical Method: Chloride by EPA 300

Tech: OJS

Analyst: OJS

Seq Number: 3036815

Date Prep: 12.22.17 16.14

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	271	5.00	mg/kg	12.22.17 23.19		1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3036672

Date Prep: 12.21.17 07.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	12.21.17 21.42	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	12.21.17 21.42	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	12.21.17 21.42	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	12.21.17 21.42	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	75	%	70-135	12.21.17 21.42	
o-Terphenyl	84-15-1	79	%	70-135	12.21.17 21.42	



# Certificate of Analytical Results 571793



## COG Operating LLC, Artesia, NM

Gehrig Federal #001

Sample Id: **T-2 1'**  
Lab Sample Id: 571793-006

Matrix: Soil  
Date Collected: 12.13.17 09.32

Date Received: 12.19.17 11.45  
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 12.21.17 13.00

Basis: Wet Weight

Seq Number: 3036624

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	12.21.17 22.15	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	12.21.17 22.15	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	12.21.17 22.15	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	12.21.17 22.15	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	12.21.17 22.15	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	12.21.17 22.15	U	1
Total BTEX		<0.00199	0.00199	mg/kg	12.21.17 22.15	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
4-Bromofluorobenzene	460-00-4	83	%	80-120	12.21.17 22.15		
1,4-Difluorobenzene	540-36-3	92	%	80-120	12.21.17 22.15		



## Certificate of Analytical Results 571793



## COG Operating LLC, Artesia, NM

Gehrig Federal #001

Sample Id: T-2 2'

Matrix: Soil

Date Received: 12.19.17 11.45

Lab Sample Id: 571793-007

Date Collected: 12.13.17 09.34

Sample Depth: 2 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: OJS

% Moisture:

Analyst: OJS

Date Prep: 12.22.17 16.14

Basis: Wet Weight

Seq Number: 3036815

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	33.8	5.00	mg/kg	12.22.17 23.25		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 12.21.17 07.00

Basis: Wet Weight

Seq Number: 3036672

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	12.21.17 22.02	U	1
Diesel Range Organics (DRO)	C10C28DRO	<14.9	14.9	mg/kg	12.21.17 22.02	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<14.9	14.9	mg/kg	12.21.17 22.02	U	1
Total TPH	PHC635	<14.9	14.9	mg/kg	12.21.17 22.02	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
1-Chlorooctane	111-85-3	88	%	70-135	12.21.17 22.02		
o-Terphenyl	84-15-1	89	%	70-135	12.21.17 22.02		



# Certificate of Analytical Results 571793



## COG Operating LLC, Artesia, NM

Gehrig Federal #001

Sample Id: **T-2 2'**  
Lab Sample Id: 571793-007

Matrix: Soil  
Date Collected: 12.13.17 09.34

Date Received: 12.19.17 11.45  
Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Tech: ALJ

Analyst: ALJ

Seq Number: 3036624

Date Prep: 12.21.17 13.00

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	12.21.17 22.34	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	12.21.17 22.34	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	12.21.17 22.34	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	12.21.17 22.34	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	12.21.17 22.34	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	12.21.17 22.34	U	1
Total BTEX		<0.00200	0.00200	mg/kg	12.21.17 22.34	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
1,4-Difluorobenzene	540-36-3	93	%	80-120	12.21.17 22.34		
4-Bromofluorobenzene	460-00-4	86	%	80-120	12.21.17 22.34		





# Certificate of Analytical Results 571793

## COG Operating LLC, Artesia, NM

Gehrig Federal #001

Sample Id: **T-2 3'**  
 Lab Sample Id: 571793-008

Matrix: Soil  
 Date Collected: 12.13.17 09.36

Date Received: 12.19.17 11.45  
 Sample Depth: 3 ft

Analytical Method: Chloride by EPA 300

Tech: OJS

Analyst: OJS

Seq Number: 3036815

Date Prep: 12.22.17 16.14

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	120	5.00	mg/kg	12.22.17 23.32		1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3036672

Date Prep: 12.21.17 07.00

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	12.21.17 23.04	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	12.21.17 23.04	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	12.21.17 23.04	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	12.21.17 23.04	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	86	%	70-135	12.21.17 23.04	
o-Terphenyl	84-15-1	86	%	70-135	12.21.17 23.04	



# Certificate of Analytical Results 571793

## COG Operating LLC, Artesia, NM

Gehrig Federal #001

Sample Id: T-2 3'

Matrix: Soil

Date Received: 12.19.17 11.45

Lab Sample Id: 571793-008

Date Collected: 12.13.17 09.36

Sample Depth: 3 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 12.21.17 13.00

Basis: Wet Weight

Seq Number: 3036624

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	12.21.17 22.53	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	12.21.17 22.53	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	12.21.17 22.53	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	12.21.17 22.53	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	12.21.17 22.53	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	12.21.17 22.53	U	1
Total BTEX		<0.00202	0.00202	mg/kg	12.21.17 22.53	U	1
<b>Surrogate</b>	<b>Cas Number</b>	<b>% Recovery</b>	<b>Units</b>	<b>Limits</b>	<b>Analysis Date</b>	<b>Flag</b>	
4-Bromofluorobenzene	460-00-4	87	%	80-120	12.21.17 22.53		
1,4-Difluorobenzene	540-36-3	93	%	80-120	12.21.17 22.53		



## 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      **SQL** 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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 1211 W Florida Ave, Midland, TX 79701  
 2525 W. Huntington Dr. - Suite 102, Tempe AZ 85282

Phone	Fax
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(214) 902 0300	(214) 351-9139
(210) 509-3334	(210) 509-3335
(432) 563-1800	(432) 563-1713
(602) 437-0330	



## COG Operating LLC

Gehrig Federal #001

## Analytical Method: Chloride by EPA 300

Seq Number: 3036815

MB Sample Id: 7636572-1-BLK

Matrix: Solid

LCS Sample Id: 7636572-1-BKS

Prep Method: E300P

Date Prep: 12.22.17

LCSD Sample Id: 7636572-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	274	110	274	110	90-110	0	20	mg/kg	12.22.17 20:10	

## Analytical Method: Chloride by EPA 300

Seq Number: 3036815

Parent Sample Id: 571793-003

Matrix: Soil

MS Sample Id: 571793-003 S

Prep Method: E300P

Date Prep: 12.22.17

MSD Sample Id: 571793-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	24.3	250	308	113	295	108	90-110	4	20	mg/kg	12.22.17 20:31	X

## Analytical Method: Chloride by EPA 300

Seq Number: 3036815

Parent Sample Id: 571793-004

Matrix: Soil

MS Sample Id: 571793-004 S

Prep Method: E300P

Date Prep: 12.22.17

MSD Sample Id: 571793-004 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	74.5	250	344	108	348	109	90-110	1	20	mg/kg	12.22.17 22:09	

## Analytical Method: TPH By SW8015 Mod

Seq Number: 3036672

MB Sample Id: 7636449-1-BLK

Matrix: Solid

LCS Sample Id: 7636449-1-BKS

Prep Method: TX1005P

Date Prep: 12.21.17

LCSD Sample Id: 7636449-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<15.0	1000	881	88	882	88	70-135	0	35	mg/kg	12.21.17 17:33	
Diesel Range Organics (DRO)	<15.0	1000	914	91	919	92	70-135	1	35	mg/kg	12.21.17 17:33	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	83		84		84		70-135	%	12.21.17 17:33
o-Terphenyl	87		91		91		70-135	%	12.21.17 17:33

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

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

LCS = Laboratory Control Sample  
A = Parent Result  
C = MS/LCS Result  
E = MSD/LCSD Result

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



## COG Operating LLC

Gehrig Federal #001

Analytical Method: TPH By SW8015 Mod

Seq Number: 3036672

Parent Sample Id: 571792-001

Matrix: Soil

MS Sample Id: 571792-001 S

Prep Method: TX1005P

Date Prep: 12.21.17

MSD Sample Id: 571792-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<15.0	998	858	86	841	84	70-135	2	35	mg/kg	12.21.17 18:36	
Diesel Range Organics (DRO)	<15.0	998	869	87	857	86	70-135	1	35	mg/kg	12.21.17 18:36	

## Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	83		80		70-135	%	12.21.17 18:36
o-Terphenyl	89		86		70-135	%	12.21.17 18:36

Analytical Method: BTEX by EPA 8021B

Seq Number: 3036624

MB Sample Id: 7636429-1-BLK

Matrix: Solid

LCS Sample Id: 7636429-1-BKS

Prep Method: SW5030B

Date Prep: 12.21.17

LCSD Sample Id: 7636429-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00202	0.101	0.0826	82	0.0851	85	70-130	3	35	mg/kg	12.21.17 13:48	
Toluene	<0.00202	0.101	0.0764	76	0.0786	79	70-130	3	35	mg/kg	12.21.17 13:48	
Ethylbenzene	<0.00202	0.101	0.0828	82	0.0850	85	71-129	3	35	mg/kg	12.21.17 13:48	
m,p-Xylenes	<0.00403	0.202	0.165	82	0.169	84	70-135	2	35	mg/kg	12.21.17 13:48	
o-Xylene	<0.00202	0.101	0.0770	76	0.0785	79	71-133	2	35	mg/kg	12.21.17 13:48	

## Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	93		112		110		80-120	%	12.21.17 13:48
4-Bromofluorobenzene	83		110		119		80-120	%	12.21.17 13:48

Analytical Method: BTEX by EPA 8021B

Seq Number: 3036624

Parent Sample Id: 571522-005

Matrix: Soil

MS Sample Id: 571522-005 S

Prep Method: SW5030B

Date Prep: 12.21.17

MSD Sample Id: 571522-005 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00199	0.0994	0.0734	74	0.0880	88	70-130	18	35	mg/kg	12.21.17 23:31	
Toluene	<0.00199	0.0994	0.0689	69	0.0833	83	70-130	19	35	mg/kg	12.21.17 23:31	X
Ethylbenzene	<0.00199	0.0994	0.0721	73	0.0767	77	71-129	6	35	mg/kg	12.21.17 23:31	
m,p-Xylenes	<0.00398	0.199	0.142	71	0.138	69	70-135	3	35	mg/kg	12.21.17 23:31	X
o-Xylene	<0.00199	0.0994	0.0675	68	0.0685	69	71-133	1	35	mg/kg	12.21.17 23:31	X

## Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	103		89		80-120	%	12.21.17 23:31
4-Bromofluorobenzene	98		92		80-120	%	12.21.17 23:31

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

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

LCS = Laboratory Control Sample  
A = Parent Result  
C = MS/LCS Result  
E = MSD/LCSD Result

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



[illegible]



# XENCO Laboratories

## Prelogin/Nonconformance Report- Sample Log-In



Client: COG Operating LLC

Date/ Time Received: 12/19/2017 11:45:00 AM

Work Order #: 571793

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

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

Analyst:

PH Device/Lot#:

Checklist completed by:

Jessica Kramer

Date: 12/20/2017

Checklist reviewed by:

Kelsey Brooks

Date: 12/26/2017



# Certificate of Analysis Summary 571794

COG Operating LLC, Artesia, NM

Project Name: Gehrig Federal #001



Project Id:

Contact: Sheldon Hitchcock

Project Location: Eddy County NM

Date Received in Lab: Tue Dec-19-17 11:45 am

Report Date: 27-DEC-17

Project Manager: Kelsey Brooks

<i>Analysis Requested</i>	<i>Lab Id:</i>	571794-001	571794-002	571794-003	571794-004		
	<i>Field Id:</i>	N	S	E	W		
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL		
	<i>Sampled:</i>	Dec-13-17 10:00	Dec-13-17 10:05	Dec-13-17 10:10	Dec-13-17 10:15		
Chloride by EPA 300	<i>Extracted:</i>	Dec-26-17 10:30	Dec-26-17 10:30	Dec-26-17 10:30	Dec-26-17 10:30		
	<i>Analyzed:</i>	Dec-26-17 13:26	Dec-26-17 18:55	Dec-26-17 19:01	Dec-26-17 19:08		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Chloride		<4.98 4.98	<4.90 4.90	61.0 4.94	507 4.98		

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: 1.9%

Kelsey Brooks  
Project Manager



# Analytical Report 571794

for  
COG Operating LLC

Project Manager: Sheldon Hitchcock

Gehrig Federal #001

27-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)



27-DEC-17

Project Manager: **Sheldon Hitchcock**

**COG Operating LLC**

2407 Pecos Avenue

Artesia, NM 88210

Reference: XENCO Report No(s): **571794**

**Gehrig Federal #001**

Project Address: Eddy County 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) 571794. 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. 571794 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,

A handwritten signature in black ink that reads 'Kelsey Brooks'.

**Kelsey Brooks**

Project Manager

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**Sample Cross Reference 571794****COG Operating LLC, Artesia, NM**

Gehrig Federal #001

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
N	S	12-13-17 10:00		571794-001
S	S	12-13-17 10:05		571794-002
E	S	12-13-17 10:10		571794-003
W	S	12-13-17 10:15		571794-004



## CASE NARRATIVE

*Client Name: COG Operating LLC*

*Project Name: Gehrig Federal #001*

Project ID:

Work Order Number(s): 571794

Report Date: 27-DEC-17

Date Received: 12/19/2017

---

**Sample receipt non conformances and comments:**

---

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

None



## Certificate of Analytical Results 571794



## COG Operating LLC, Artesia, NM

Gehrig Federal #001

Sample Id: N Matrix: Soil Date Received: 12.19.17 11.45  
Lab Sample Id: 571794-001 Date Collected: 12.13.17 10.00  
Analytical Method: Chloride by EPA 300 Prep Method: E300P  
Tech: LRI % Moisture:  
Analyst: LRI Date Prep: 12.26.17 10.30 Basis: Wet Weight  
Seq Number: 3036899

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.98	4.98	mg/kg	12.26.17 13.26	U	1



## Certificate of Analytical Results 571794



## COG Operating LLC, Artesia, NM

Gehrig Federal #001

Sample Id: S Matrix: Soil Date Received: 12.19.17 11.45  
Lab Sample Id: 571794-002 Date Collected: 12.13.17 10.05  
Analytical Method: Chloride by EPA 300 Prep Method: E300P  
Tech: LRI % Moisture:  
Analyst: LRI Date Prep: 12.26.17 10.30 Basis: Wet Weight  
Seq Number: 3036899

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.90	4.90	mg/kg	12.26.17 18.55	U	1



## Certificate of Analytical Results 571794



## COG Operating LLC, Artesia, NM

Gehrig Federal #001

Sample Id: E Matrix: Soil Date Received: 12.19.17 11.45  
Lab Sample Id: 571794-003 Date Collected: 12.13.17 10.10  
Analytical Method: Chloride by EPA 300 Prep Method: E300P  
Tech: LRI % Moisture:  
Analyst: LRI Date Prep: 12.26.17 10.30 Basis: Wet Weight  
Seq Number: 3036899

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	61.0	4.94	mg/kg	12.26.17 19.01		1



## Certificate of Analytical Results 571794



## COG Operating LLC, Artesia, NM

Gehrig Federal #001

Sample Id: W  
Lab Sample Id: 571794-004

Matrix: Soil  
Date Collected: 12.13.17 10.15

Date Received: 12.19.17 11.45

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: LRI

% Moisture:

Analyst: LRI

Date Prep: 12.26.17 10.30

Basis: Wet Weight

Seq Number: 3036899

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	507	4.98	mg/kg	12.26.17 19.08		1





## Flagging Criteria



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

\*\* Surrogate recovered outside laboratory control limit.

**BRL** Below Reporting Limit.

**RL** Reporting Limit

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

**PQL** Practical Quantitation Limit      **SQL** 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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(210) 509-3334	(210) 509-3335
(432) 563-1800	(432) 563-1713
(602) 437-0330	



## COG Operating LLC

Gehrig Federal #001

**Analytical Method: Chloride by EPA 300**

Seq Number: 3036899

MB Sample Id: 7636590-1-BLK

Matrix: Solid

LCS Sample Id: 7636590-1-BKS

Prep Method: E300P

Date Prep: 12.26.17

LCSD Sample Id: 7636590-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	244	98	241	96	90-110	1	20	mg/kg	12.26.17 10:08	

**Analytical Method: Chloride by EPA 300**

Seq Number: 3036899

Parent Sample Id: 571456-002

Matrix: Soil

MS Sample Id: 571456-002 S

Prep Method: E300P

Date Prep: 12.26.17

MSD Sample Id: 571456-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	1050	245	1210	65	1210	65	90-110	0	20	mg/kg	12.26.17 11:28	X

**Analytical Method: Chloride by EPA 300**

Seq Number: 3036899

Parent Sample Id: 572053-007

Matrix: Soil

MS Sample Id: 572053-007 S

Prep Method: E300P

Date Prep: 12.26.17

MSD Sample Id: 572053-007 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	292	246	551	105	550	105	90-110	0	20	mg/kg	12.26.17 13:05	

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

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

LCS = Laboratory Control Sample  
A = Parent Result  
C = MS/LCS Result  
E = MSD/LCSD Result

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

[illegible]



# XENCO Laboratories

## Prelogin/Nonconformance Report- Sample Log-In



Client: COG Operating LLC

Date/ Time Received: 12/19/2017 11:45:00 AM

Work Order #: 571794

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

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

Analyst:

PH Device/Lot#:

Checklist completed by:

Jessica Kramer

Date: 12/20/2017

Checklist reviewed by:

Kelsey Brooks

Date: 12/26/2017

# APPENDIX V



[Sheldon L. Hitchcock]  
[HSE Coordinator]

December 28, 2017

Crystal Weaver  
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  
Gehrig Federal #001  
API #: 30-015-33600  
RP#: 2RP-4241 & 2RP-4498  
Unit Letter I Section 9, Township 26S, Range 29E  
Eddy County, NM**

Ms. Weaver/Ms. Tucker,

COG Operating, LLC (COG) is pleased to submit for your consideration the following remediation work plan for the Gehrig Federal #001. This plan is in response to two oil and produced water releases that occurred on May 28, 2017 and again on November 18, 2017. A C-141 initial report was submitted to the New Mexico Oil Conservation Division (NMOCD) subsequent to each release.

## **BACKGROUND**

The Gehrig Federal #001 release is located in Unit Letter I, Section 9, Township 26 South, and Range 29 East in Eddy County, New Mexico. More specifically the latitude and longitude for this release are 32.055139 North and -103.980409 West.

On May 28, 2018, a stuffing box leak resulted in the release of approximately one-half (0.5) barrel (bbl) of oil and six (6) bbls of produced water. Approximately four (4) bbls of produced water were recovered. The RP number NMOCD assigned to this release was 2RP-4241.

On November 18, 2017, a stuffing box leak resulted in the release of approximately four (4) bbls of oil and six (6) bbls of produced water. Approximately three (3) bbls of oil and four (4) bbls of produced water were recovered. The RP number NMOCD assigned to this release was 2RP-4498. This release covered the same area of the well pad as the release that occurred on May 28, 2018.



December 28, 2017

On December 12, 2017, a site assessment and soil sampling were conducted in order to vertically and horizontally define the area impacted by the two releases at this site. 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 2005 Chevron Texaco groundwater trend map, groundwater in the project vicinity is approximately one-hundred and twenty (120) 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 zero (0) based on the following:

Depth to groundwater	>100-feet
Distance to surface water body	>1000-feet
Wellhead Protection Area	>1000-feet

## ANALYTICAL RESULTS

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	10700	45.8
T-1	1	<0.002	<0.002	96.6	<15.0
T-1	2	<0.002	<0.002	24.3	<15.0
T-1	3	<0.002	<0.002	74.5	<15.0
T-2	0	<0.002	<0.002	13300	995
T-2	1	<0.002	<0.002	271	<15.0
T-2	2	<0.002	<0.002	33.8	<15.0
T-2	3	<0.002	<0.002	120	<15.0
NORTH	0	--	--	<4.98	--
SOUTH	0	--	--	<4.90	--
EAST	0	--	--	61	--
WEST	0	--	--	507	--

(--) Analysis not requested

December 28, 2017

## PROPOSED REMEDIAL ACTIONS

- The impacted area will be excavated to the depth of one (1) foot BGS.
- All of the excavated material will be hauled to an NMOCD approved solid waste disposal facility.
- The excavation will be backfilled with caliche and contoured to match the surrounding location.

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

Sincerely,



Sheldon L. Hitchcock  
HSE Coordinator  
[slhitchcock@concho.com](mailto: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



**District I**  
1625 N. French Dr., Hobbs, NM 88240  
Phone:(575) 393-6161 Fax:(575) 393-0720  
**District II**  
811 S. First St., Artesia, NM 88210  
Phone:(575) 748-1283 Fax:(575) 748-9720  
**District III**  
1000 Rio Brazos Rd., Aztec, NM 87410  
Phone:(505) 334-6178 Fax:(505) 334-6170  
**District IV**  
1220 S. St Francis Dr., Santa Fe, NM 87505  
Phone:(505) 476-3470 Fax:(505) 476-3462

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

CONDITIONS  
  
Action 162165

CONDITIONS

Operator: COG OPERATING LLC 600 W Illinois Ave Midland, TX 79701	OGRID: 229137
	Action Number: 162165
	Action Type: [IM-SD] Incident File Support Doc (ENV) (IM-BNF)

CONDITIONS

Created By	Condition	Condition Date
amaxwell	None	11/29/2022