



February 11, 2022

Bradford Billings  
Hydrologist/E.Spec.A  
District 2 Artesia  
1220 South St. Francis Drive  
Oil Conservation Division  
Santa Fe, NM 87505

**Re: Release Characterization and Closure Request  
ConocoPhillips  
Heritage Concho  
Loco Hills SWD Main Line Release  
Unit Letter G, Section 24, Township 17 South, Range 30 East  
Eddy County, New Mexico  
Incident ID# nAB1514733807**

Mr. Billings:

Tetra Tech, Inc. (Tetra Tech) was contacted by ConocoPhillips to assess a Heritage Concho release and subsequent remedial actions taken at the Loco Hills SWD. The release footprint is located in Public Land Survey System (PLSS) Unit Letter G, Section 24, Township 17 South, Range 30 East, in Eddy County, New Mexico (Site). The approximate release point occurred at coordinates 32.822728°, -103.923387°, as shown on Figures 1 and 2.

## BACKGROUND

According to the State of New Mexico Oil Conservation Division (NMOCD) C-141 Initial Report, the release was discovered on May 7, 2015. The C-141 reports that the release was caused while a power line construction crew striking and damaging a produced waterline while intending to install a pole. Approximately 190 barrels (bbls) of produced water, of which approximately 175 bbls of produced water. The impacted area was located in pastureland, and approximately 160 feet by 130 feet in area. The New Mexico Oil Conservation District (NMOCD) approved the initial C-141 on May 22, 2015 and subsequently assigned the release the Incident ID NAB1514733807. The initial C-141 form is included in Appendix A.

A second Incident ID (nAB1514727487) has also been identified as associated with this release. A review of the incident information and associated files available on the NMOCD Online Imaging system suggest that the second Incident ID is a duplicate made in error, and both Incident IDs are associated with the same release.

## SITE CHARACTERIZATION

A site characterization was performed and no sinkholes, residences, schools, hospitals, institutions, churches, springs, private domestic water wells, playa lakes, stream bodies, wetlands, incorporated municipal boundaries, subsurface mines, or floodplains are located within the distances specified in 19.15.29 New Mexico Administrative Code (NMAC). The Site is in an area of low karst potential.

There are no water wells listed in the New Mexico Office of the State Engineer (NMOSE database located within approximately ½ mile (800 meters) of the site. According to data from two (2) water wells listed in the

Tetra Tech

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Tel 432.682.4559 Fax 432.682.3946 www.tetrattech.com

NMOSE database within approximately 4.66 miles (7,500 meters) of the site, the minimum depth to groundwater is 80 feet below ground surface (bgs). The site characterization data are presented in Appendix B.

## REGULATORY FRAMEWORK

Based upon the release footprint and in accordance with Subsection E of 19.15.29.12 NMAC, per 19.15.29.11 NMAC, the site characterization data was used to determine recommended remedial action levels (RRALs) for benzene, toluene, ethylbenzene, and xylene (collectively referred to as BTEX), total petroleum hydrocarbons (TPH), and chlorides in soil.

Based on the site characterization, established depth to groundwater, and in accordance with Table I of 19.15.29.12 NMAC, the RRALs for the Site are as follows:

Constituent	Site RRALs
Chloride	10,000 mg/kg
TPH	2,500 mg/kg
BTEX	50 mg/kg

Additionally, in accordance with the NMOCD guidance *Procedures for Implementation of the Spill Rule (19.15.29 NMAC)* (September 6, 2019), the following reclamation requirements for surface soils (0-4 ft bgs) outside of active oil and gas operations are as follows:

Constituent	Reclamation Requirements
Chloride	600 mg/kg
TPH	100 mg/kg
BTEX	50 mg/kg

## INITIAL RESPONSE ACTIVITIES AND WORK PLAN

Following the release, Concho utilized a hydrovac truck to uncover four additional lines, as well as the 8-inch SWD line that had been damaged. Three of the lines were owned by Frontier, which did not allow excavation within 15 feet of a buried pipeline.

Initial soil samples were collected on June 4, 2015 in order to assess the release extent. The results of the assessment and proposed remedial actions are documented in a Work Plan dated May 20, 2016. Due to the 'no-dig' requirements surrounding the Frontier lines and the release extent being in low-lying area with scarce vegetation, Concho requested that no excavation take place. Instead, Concho requested that long-term monitoring of the site be performed for the flushing of chlorides while also observing for revegetation of the site after seeding. Concho proposed seeding the Site in 2016 and perform monitoring activities in September 2016, May 2017, and June 2017. A copy of the May 20, 2016 Work Plan is included as Appendix C.

The NMOCD approved the Work Plan in an email dated July 22, 2016, with the following comments:

*"Once chlorides have been flushed and plant growth reestablished, the OCD will request a second delineation at S1 and S2 for closure. If at the end of your monitoring phase, plant growth is not established and chlorides are still present at the surface, the OCD will require further remediation efforts."*

The NMOCD correspondence is included as Appendix E.

## ADDITIONAL SITE ASSESSMENT AND SAMPLING RESULTS

On March 19, 2019, following the end of the approved monitoring phase, Concho installed two hand auger borings (AH-1 and AH-2) in the initial sampling locations S1 and S2 to complete the second delineation per

the conditions of the approved Work Plan. A total of twelve (12) soil samples were sent to Xenco Laboratories in Midland, Texas to be analyzed for chlorides via EPA Method 300.0. A copy of the laboratory analytical report and chain-of-custody documentation are included in Appendix E.

The analytical results from the 2019 assessment activities are summarized in Table 1. The results associated with all analyzed samples were below the applicable Site reclamation requirements and remediation RRALs.

### **VISUAL SITE INSPECTION**

Tetra Tech conducted a visual Site inspection on December 28, 2021 to observe the status of revegetation and obtain photographic documentation of current Site conditions. Based on observations made by Tetra Tech's field personnel and photographic evidence acquired during the site monitoring, vegetation has established in the former release Site. Figure 3 is attached as a reference to depict the area observed during Tetra Tech's site monitoring in December 2021.

Moderate asphaltic staining was observed during the December 2021 site visit, as shown in the photographic documentation presented in Appendix F. Considering that the May 2015 Concho release being addressed in this report was a produced water release, the asphaltic staining is considered unrelated. A NMOCD file search was conducted, along with an aerial imagery review, to identify the source of the observed asphaltic staining. Firstly, a review of aerial imagery from February 2014 revealed evidence of an apparent hydrocarbon release in the pasture immediately northwest of the May 2015 release extent. Imagery from February 2017 revealed further evidence of possible remedial actions taken at that Site. The historical aerial imagery is presented in Appendix G.

In a search of the NMOCD online file system for a reported incident that matches the observed hydrocarbon release, Tetra Tech identified an incident that occurred on November 21, 2015 from the Loco Hills SWD facility attributed to Apache Corporation (nAB1535242436; 2RP-3460). According to information included in a corrective action plan dated August 1, 2016, the Apache incident involved the release of 1,895 bbls of produced water and 25 bbls of oil into the same release area as the May 2015 Concho release. According to the NMOCD online files for the Apache release, remedial actions were taken at the Site in December 2016, though it remains an open incident.

Based on the site characterization, the impacted surface area of the release within pastureland meets the remediation standards of Table I of 19.15.29.12 NMAC. Laboratory analytical data indicates final chloride levels are below site reclamation limits and meet the requirements for 19.15.29.12 and 19.15.29.13 NMAC. Therefore, reclamation of the soils located at the release site associated with the May 2015 Loco Hills SWD Mainline Release are not required at this time.

### **CONCLUSION**

Based on the results of the additional site assessment performed in accordance with NMOCD directives, ConocoPhillips considers the former release Site to meet the remediation standards of Table I of 19.15.29.12 NMAC. Laboratory analytical data indicates final chloride levels are below site reclamation limits and meet the requirements for 19.15.29.12 and 19.15.29.13 NMAC; therefore, no further action is necessary.

Release Characterization and Closure Request  
February 11, 2022

ConocoPhillips

Based on the above, ConocoPhillips respectfully requests closure for this release. The final C-141 forms are enclosed in Appendix A. If you have any questions concerning the soil assessment activities for the Site, please call me at (512) 217-7254.

Sincerely,  
**Tetra Tech, Inc.**

A handwritten signature in blue ink, appearing to read 'SAB', is positioned above the printed name of the sender.

Samantha K. Abbott, P.G.  
Project Manager

cc:  
Mr. Ike Tavarez, RMR – ConocoPhillips  
Mr. Charles Beauvais, BU – ConocoPhillips

Release Characterization and Closure Request  
February 11, 2022

ConocoPhillips

## LIST OF ATTACHMENTS

### Figures:

- Figure 1 – Overview Map
- Figure 2 – Topographic Map
- Figure 3 – Visual Assessment Area

### Tables:

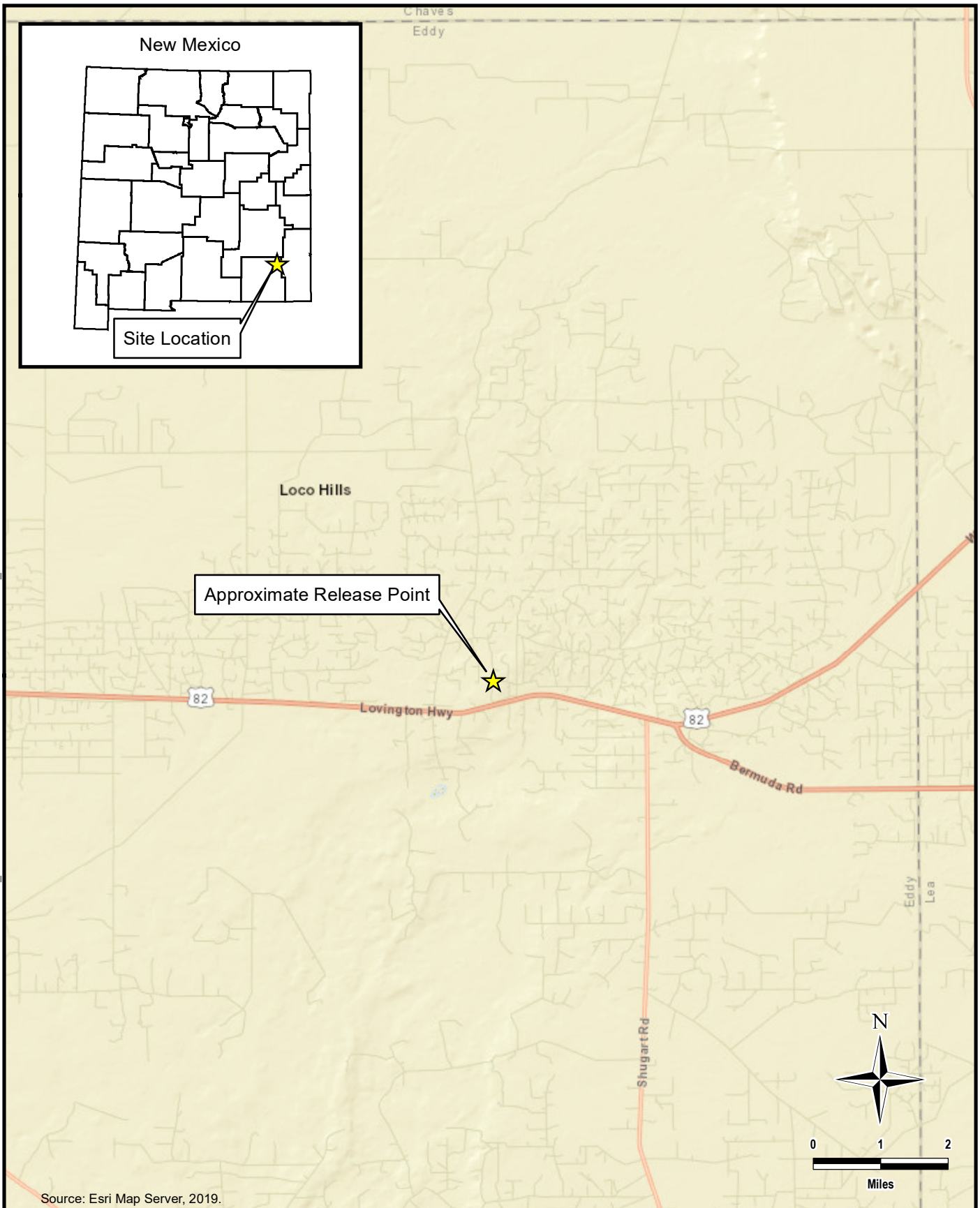
- Table 1 – Summary of Analytical Results – Additional Soil Assessment

### Appendices:

- Appendix A – C-141 Forms
- Appendix B – Site Characterization Data
- Appendix C – Work Plan (May 20, 2016)
- Appendix D – NMOCD Correspondence
- Appendix E – Laboratory Analytical Data
- Appendix F – Photographic Documentation
- Appendix G – Historical Aerial Imagery

## **FIGURES**

DOCUMENT PATH: C:\USERS\ISABEL.MARMOLEJO\DESKTOP\GIS\COPI2\2C-MD-02621 LOCO HILLS SWD MAINLINE\FIGURE 1 OVERVIEW MAP LOCO HILLS SWD MAINLINE.MXD



**TETRA TECH**

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Midland, Texas 79701  
Phone: (432) 682-4559  
Fax: (432) 682-3946

**CONOCOPHILLIPS**

NAB1514733807  
(32.822967°, -103.922597°)  
EDDY COUNTY, NEW MEXICO

**LOCO HILLS SWD MAINLINE  
OVERVIEW MAP**

PROJECT NO.: 212C-MD-02621

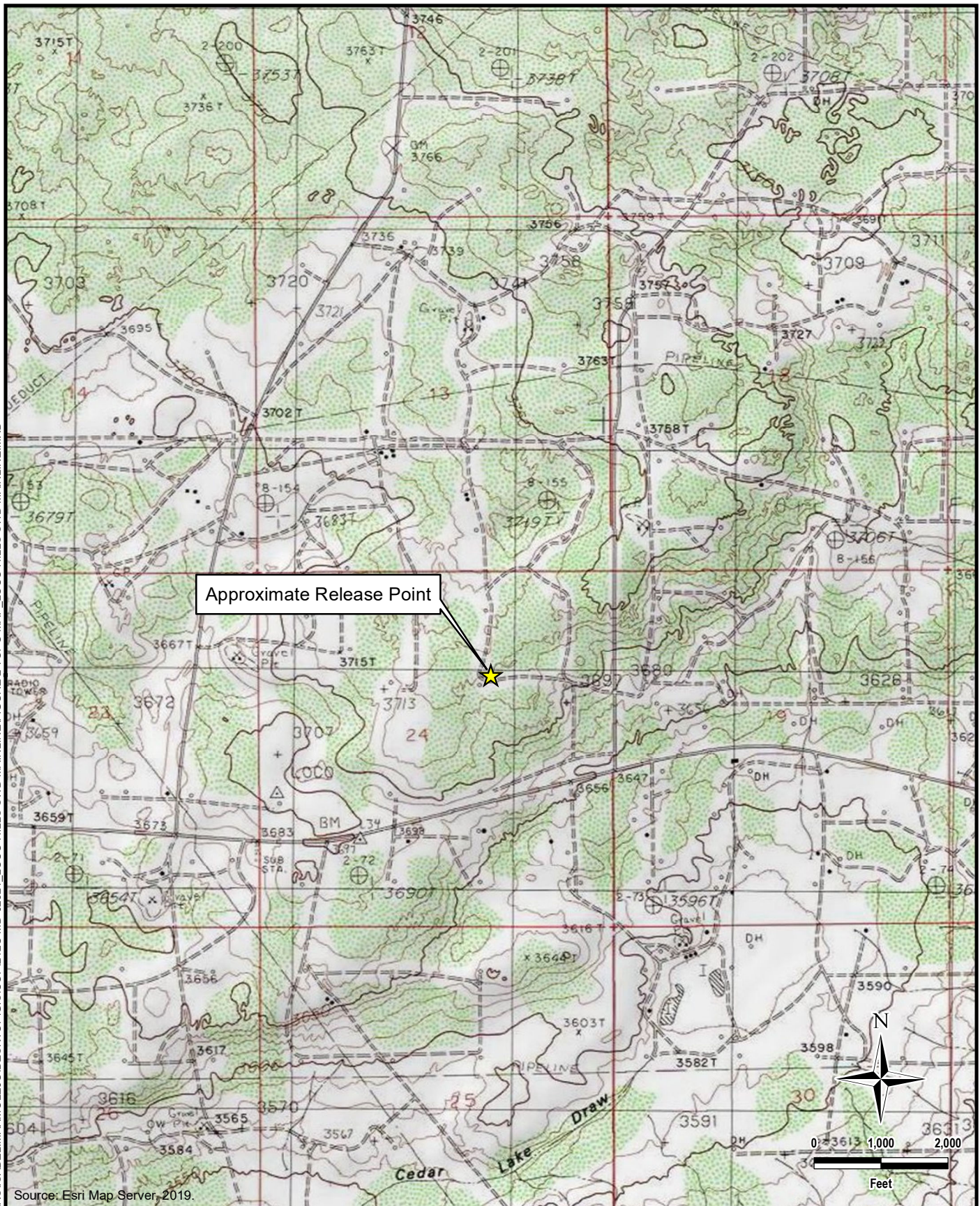
DATE: JANUARY 04, 2022

DESIGNED BY: IM

Figure No.

**1**

DOCUMENT PATH: C:\USERS\ISABEL.MARMOLEJO\DESKTOP\GIS\COPIES\212C-MD-02621 LOCO HILLS SWD MAINLINE\FIGURE 2 TOPO MAP LOCO HILLS SWD MAINLINE.MXD

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**CONOCOPHILLIPS**

NAB1514733807  
(32.822967°, -103.922597°)  
EDDY COUNTY, NEW MEXICO

**LOCO HILLS SWD MAINLINE  
TOPOGRAPHIC MAP**

PROJECT NO.: 212C-MD-02621

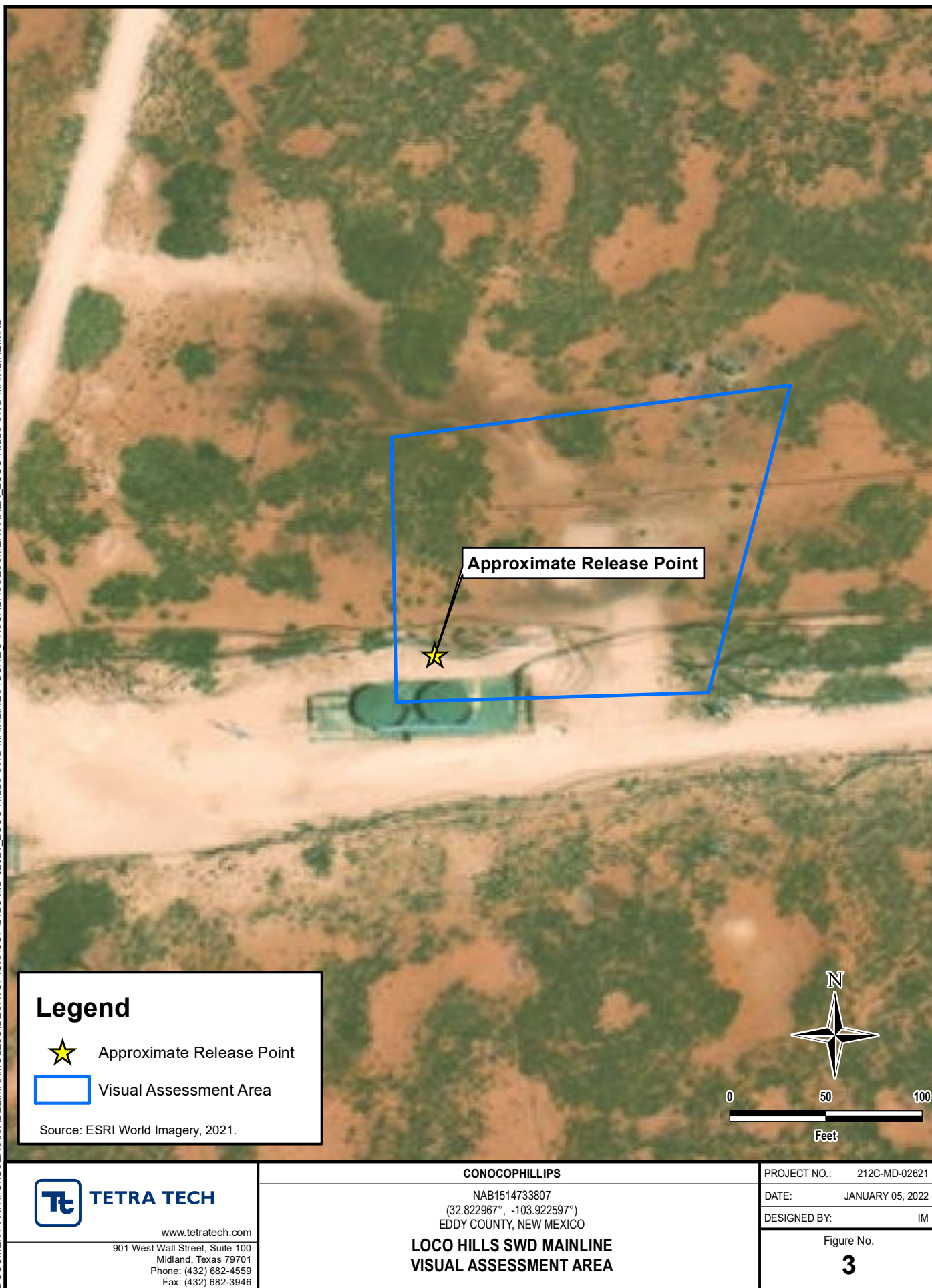
DATE: JANUARY 04, 2022

DESIGNED BY: IM

Figure No.

**2**

DOCUMENT PATH: C:\USERS\ISABEL.MARMOLEJO\DESKTOP\GIS\COP\212C-MD-02621\_LOCO HILLS SWD MAINLINE\FIGURE 3 VISUAL ASSESSMENT AREA\_LOCO HILLS SWD MAINLINE.MXD



## **TABLE**

TABLE 1  
SUMMARY OF ANALYTICAL RESULTS  
ADDITIONAL SOIL ASSESSMENT - 2RP-3010  
HERITAGE CONCHO  
LOCO HILLS SWD MAIN LINE RELEASE  
EDDY COUNTY, NM

Sample ID	Sample Date	Sample Depth	Chloride <sup>1</sup>	
		ft. bgs	mg/kg	Q
AH-1	3/19/2019	0-1	17.9	
		1-1.5	116	
		2-2.5	175	
		3-3.5	293	
		4-4.5	171	
		5-5.5	157	
AH-2	3/19/2019	0-1	<5.01	
		1-1.5	<5.00	
		2-2.5	<4.98	
		3-3.5	16.9	
		4-4.5	323	
		5-5.5	1,540	

NOTES:

ft. Feet

bgs Below ground surface

mg/kg Milligrams per kilogram

1 EPA Method 300.0

## **APPENDIX A**

### **C-141 Forms**

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

## NM OIL CONSERVATION

ARTESIA DISTRICT

Form C-141

Revised August 8, 2011

MAY 21 2015

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

RECEIVED

## Release Notification and Corrective Action

FAB1514733316  
NAB1514733807

## OPERATOR

☒ Initial Report ☐ Final Report

Name of Company: COG Operating LLC 229137	Contact: Robert McNeill
Address: 600 West Illinois Avenue, Midland TX 79701	Telephone No. 432-230-0077
Facility Name: Loco Hills SWD Mainline	Facility Type: SWD system

Surface Owner: Federal	Mineral Owner:	API No.
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## LOCATION OF RELEASE

Unit Letter G	Section 24	Township 17S	Range 30E	Feet from the	North/South Line	Feet from the	East/West Line	County Eddy
------------------	---------------	-----------------	--------------	---------------	------------------	---------------	----------------	----------------

Latitude 32.8227282671883 Longitude 32.8227282671883 \*103.423386846725  
(e-mail)

## NATURE OF RELEASE

Type of Release: Produced Water	Volume of Release: 190 bbls PW	Volume Recovered: 175 bbls PW
Source of Release: Pipeline	Date and Hour of Occurrence: 4:00 pm 5/7/2015	Date and Hour of Discovery: 4:00 pm 5/7/2015
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? Mike Bratcher - NMOCD / Jim Amos - BLM	
By Whom? Amanda Trujillo	Date and Hour: 5/14/2015 6:12 pm *5/8/15 4:30pm	
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 while a power line construction crew was installing a line. The augered in to produced waterline while trying to set a pole. Vacuum trucks were called to recover all standing fluid.

Describe Area Affected and Cleanup Action Taken.\*

The impacted area is approximately 160' x 130' in the pasture. Concho will have the spill site sampled to delineate any possible contamination from the release and we will present a remediation work plan to the NMOCD for approval prior to any significant remediation work.

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: 	OIL CONSERVATION DIVISION	
Printed Name: Amanda Trujillo	Approved by Environmental Specialist: 	
Title: Senior Environmental Coordinator	Approval Date: 5/22/15	Expiration Date: N/A
E-mail Address: atrujillo@concho.com	Conditions of Approval: Remediation per O.C.D. Rules & Guidelines Attached <input type="checkbox"/>	
Date: May 21, 2015 Phone: 575-748-6940	SUBMIT REMEDIATION PROPOSAL NO. 5/28/15	

\* Attach Additional Sheets If Necessary

LATER THAN: 5/28/15

2RP-3010

Incident ID	
District RP	
Facility ID	
Application ID	

## Site Assessment/Characterization

*This information must be provided to the appropriate district office no later than 90 days after the release discovery date.*

What is the shallowest depth to groundwater beneath the area affected by the release?	_____ (ft bgs)
Did this release impact groundwater or surface water?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a wetland?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release overlying a subsurface mine?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release overlying an unstable area such as karst geology?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within a 100-year floodplain?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Did the release impact areas <b>not</b> on an exploration, development, production, or storage site?	<input type="checkbox"/> Yes <input type="checkbox"/> No

Attach a comprehensive report (electronic submittals in .pdf format are preferred) demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined. Refer to 19.15.29.11 NMAC for specifics.

### **Characterization Report Checklist:** *Each of the following items must be included in the report.*

- ☐ Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
- ☐ Field data
- ☐ Data table of soil contaminant concentration data
- ☐ Depth to water determination
- ☐ Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release
- ☐ Boring or excavation logs
- ☐ Photographs including date and GIS information
- ☐ Topographic/Aerial maps
- ☐ Laboratory data including chain of custody

If the site characterization report does not include completed efforts at remediation of the release, the report must include a proposed remediation plan. That plan must include the estimated volume of material to be remediated, the proposed remediation technique, proposed sampling plan and methods, anticipated timelines for beginning and completing the remediation. The closure criteria for a release are contained in Table 1 of 19.15.29.12 NMAC, however, use of the table is modified by site- and release-specific parameters.

State of New Mexico  
Oil Conservation Division

Page 4

Incident ID	
District RP	
Facility ID	
Application ID	

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD 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 OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD 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.

Printed Name: \_\_\_\_\_ Title: \_\_\_\_\_

Signature:  \_\_\_\_\_ Date: \_\_\_\_\_

email: \_\_\_\_\_ Telephone: \_\_\_\_\_

**OCD Only**

Received by: \_\_\_\_\_ Date: \_\_\_\_\_

Incident ID	
District RP	
Facility ID	
Application ID	

## Closure

The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.

**Closure Report Attachment Checklist:** *Each of the following items must be included in the closure report.*

- ☐ A scaled site and sampling diagram as described in 19.15.29.11 NMAC
- ☐ Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)
- ☐ Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)
- ☐ Description of 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 OCD 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 OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD 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. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: \_\_\_\_\_ Title: \_\_\_\_\_

Signature:  Date: \_\_\_\_\_

email: \_\_\_\_\_ Telephone: \_\_\_\_\_

### OCD Only

Received by: \_\_\_\_\_ Date: \_\_\_\_\_

Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance with any other federal, state, or local laws and/or regulations.

Closure Approved by: Ashley Maxwell Date: \_\_\_\_\_

Printed Name: \_\_\_\_\_ Title: \_\_\_\_\_

## **APPENDIX B**

### **Site Characterization Data**



# 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-Code	basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
<a href="#">RA 11590 POD4</a>	RA	ED		4	1	1	32	17S	31E	603308	3629253	3845	55		
<a href="#">RA 11590 POD3</a>	RA	ED		3	1	2	32	17S	31E	603932	3629260	4277	60		
<a href="#">RA 11590 POD1</a>	RA	ED		2	1	3	32	17S	31E	603315	3628545	4407	158		
<a href="#">RA 11914 POD1</a>	RA	ED		2	4	2	20	17S	30E	594801	3632002	5976	85	80	5
<a href="#">L 14207 POD3</a>	L	LE		2	3	3	31	16S	37E	606117	3636977	7200	240	96	144

Average Depth to Water: **88 feet**

Minimum Depth: **80 feet**

Maximum Depth: **96 feet**

Record Count: 5

**UTMNA83 Radius Search (in meters):**

**Easting (X):** 600775.82

**Northing (Y):** 3632148.11

**Radius:** 7500

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

11/30/21 10:28 AM

Page 1 of 1

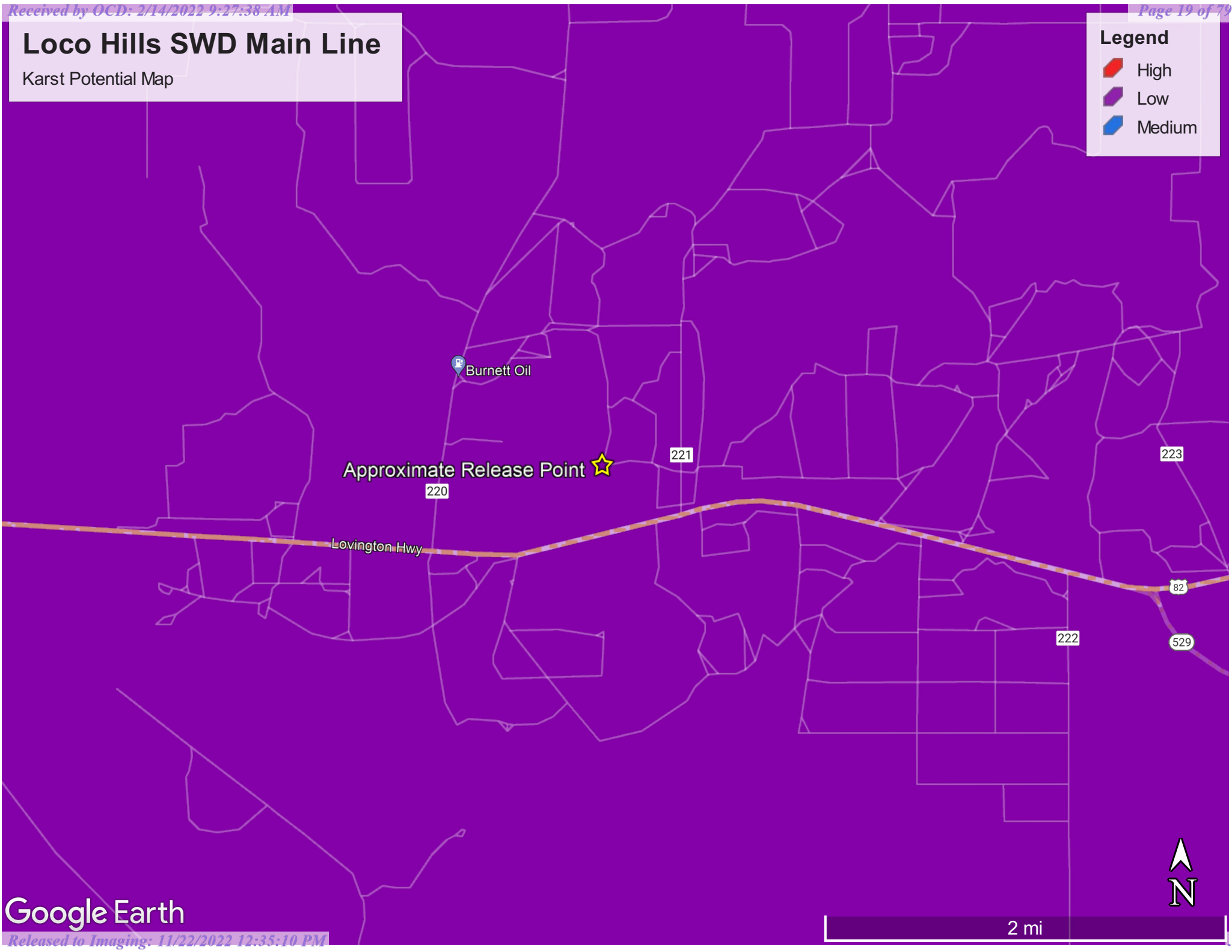
WATER COLUMN/ AVERAGE  
DEPTH TO WATER

# Loco Hills SWD Main Line

Karst Potential Map

**Legend**

- High
- Low
- Medium



Google Earth

2 mi

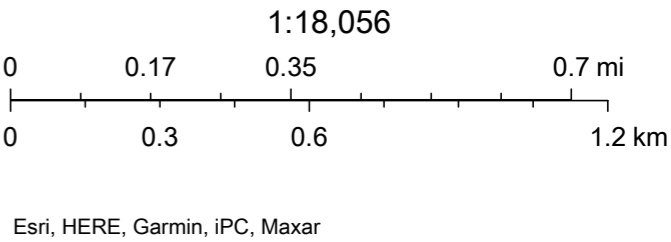
N

# OCD Waterbodies



11/30/2021, 11:37:36 AM

- OSE Water-bodies
- PLJV Probable Playas
- OSE Streams



**APPENDIX C  
Work Plan  
(May 20, 2016)**



**Amanda Trujillo**  
Senior Environmental Coordinator

May 20, 2016

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

**Re: Loco Hills SWD Mainline  
Sec. 24, T17S-R30E  
Eddy County, NM**

Mr. Mike Bratcher,

COG Operating LLC would like to submit for your consideration the enclosed work plan for the above captioned well. The plan is in response to the C-141 Initial report dated May 21, 2015.

### **Background**

The release was caused when A.R.C. Power-Line Construction drilled into COG's Loco Hills SWD Mainline while setting a power pole for an Apache Corporation Facility. An area measuring approximately 9340 square feet was impacted to the north of the Apache facility. A hydrovac crew was called into daylight buried lines. In addition to the 8" COG SWD line, 4 other lines belonging to Frontier and Burnett were discovered. Frontier will not allow excavation within 15' of a buried pipeline.

### **Groundwater**

Based on the Chevron Trend Maps, the release area would be classified at a site ranking of Zero due to the depth of groundwater at approximately 350'. No well information could be found for Section 24.

### **Soil Assessment and Analytical Results**

Initial soil samples were taken on 6/4/2015. Soil texture is classified as fine sand per NRCS Soil Survey. Samples indicated TPH and BTEX were within RRALs for site ranking zero. Chloride concentrations are within tolerable limits for surface reclamation. (see attached site diagram)

**CORPORATE ADDRESS**  
One Concho Center | 600 West Illinois Avenue | Midland, Texas 79701  
PHONE 432.683.7443 | FAX 432.683.7441

**LOCAL ADDRESS**  
Concho West | 2208 Main Street | Artesia, New Mexico 88210  
PHONE 575.748.6940 | FAX 575.746.2096

NMOCD  
May 20, 2016  
Page 2

**Site Ranking: Zero**

**Depth to GW per Trend Map: 350'**

S1	DRO	GRO	TPH	BTEX	Cl-
1'	< 10.0	< 10.0	< 10.0	<0.300	<16.0
3'	< 10.0	< 10.0	< 10.0	<0.300	4240
4'	< 10.0	< 10.0	< 10.0	<0.300	5200
5'					1200
6'					768
7'					1090
8'					656
S2	DRO	GRO	TPH	BTEX	Cl-
1'	142	< 10.0	142	<0.300	1300
2'	101	< 10.0	101	<0.300	368
3'	81.9	< 10.0	81.9	<0.300	976
4'					3680
6'					1720
7'					2200
8'					544
<b>Bold values exceed RRLs per NMOCD Guidelines (1993)</b>					

## Work Plan

This location has 5 buried lines in a low lying area amongst scarce vegetation consistent with the surrounding dunal complex. Ground water is at a depth greater than 350' per the Chevron Trend Maps. COG proposes that no excavation take place, but monitor the area in an effort to achieve long term vegetative growth. Seeding would be completed in June of 2016 with BLM Seed Mixture #4 and LPC. If weed free organic matter is available it will be added to the soil and a stabilizing amendment. The site will be inspected in September 2016, May 2017 and June 2017 monitoring of vegetative growth.

If there are no objections or further stipulations, COG Operating LLC would like to begin the remediation process based on approval of this work plan. Please feel free to contact my with any questions or concerns at (505) 350-1336

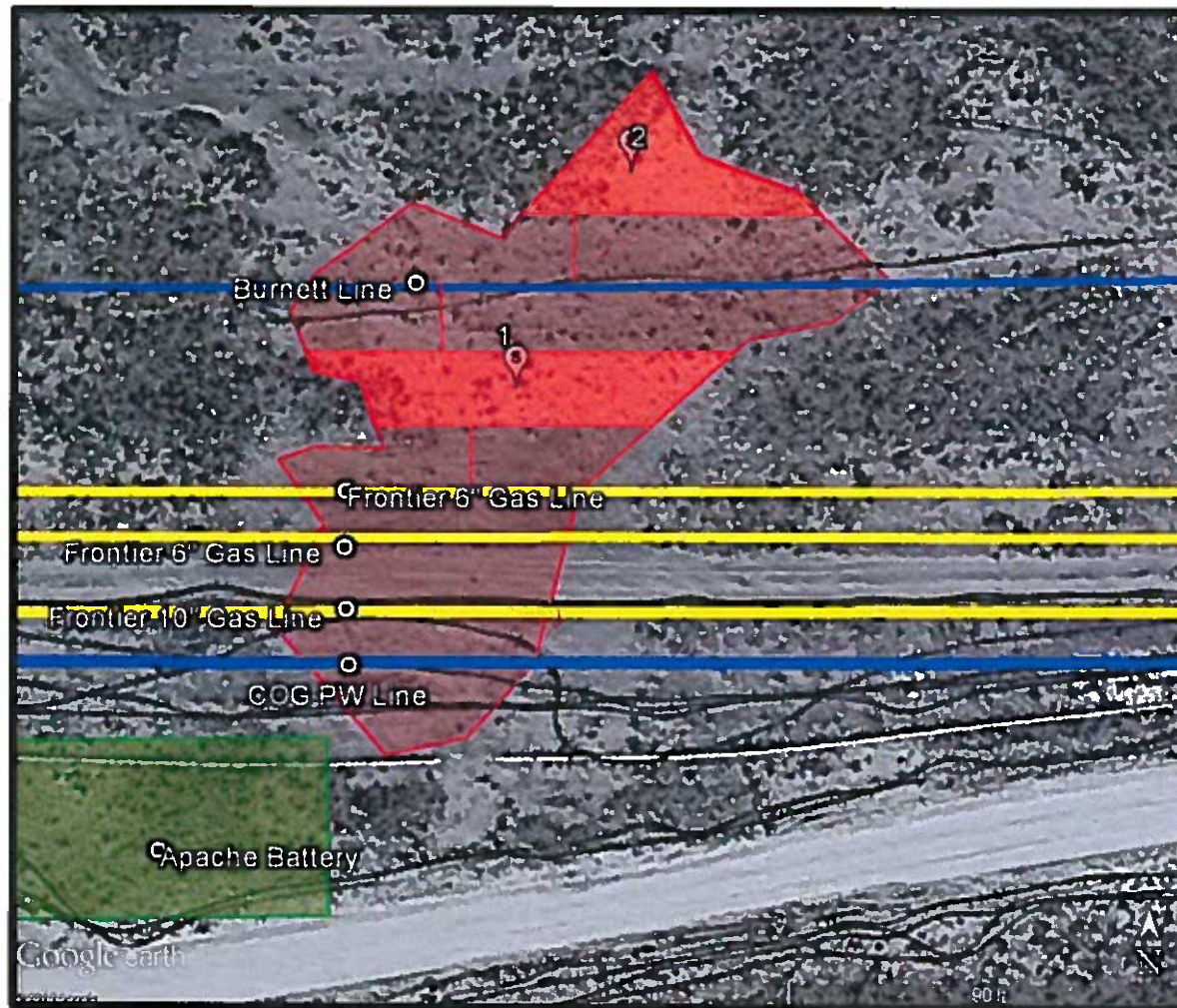
Sincerely,



Amanda Trujillo Davis  
Senior Environmental Coordinator

Enclosed:

Site Diagram and Summary Table  
Laboratory Analysis



Site Ranking: Zero

Depth to GW per Trend Map: 350'

S1	DRO	GRO	TPH	BTEX	CI-
1'	< 10.0	< 10.0	< 10.0	<0.300	<16.0
3'	< 10.0	< 10.0	< 10.0	<0.300	4240
4'	< 10.0	< 10.0	< 10.0	<0.300	5200
5'					1200
6'					768
7'					1090
8'					656
S2	DRO	GRO	TPH	BTEX	CI-
1'	142	< 10.0	142	<0.300	1300
2'	101	< 10.0	101	<0.300	368
3'	81.9	< 10.0	81.9	<0.300	976
4'					3680
6'					1720
7'					2200
8'					544

Bold values exceed RRALs per NMOCD Guidelines (1993)



PHONE (575) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

June 12, 2015

AMANDA TRUJILLO

COG OPERATING

P. O. BOX 1630

ARTESIA, NM 88210

RE: LOCO HILLS SWD MAINLINE

Enclosed are the results of analyses for samples received by the laboratory on 06/08/15 10:30.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Lab Director/Quality Manager



PHONE (575) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

**Analytical Results For:**

COG OPERATING  
 AMANDA TRUJILLO  
 P. O. BOX 1630  
 ARTESIA NM, 88210  
 Fax To: NONE

Received: 06/08/2015  
 Reported: 06/12/2015  
 Project Name: LOCO HILLS SWD MAINLINE  
 Project Number: NONE GIVEN  
 Project Location: NOT GIVEN

Sampling Date: 06/04/2015  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: S2 4' (H501464-01)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	3680	16.0	06/11/2015	ND	416	104	400	3.92	

**Sample ID: S2 6' (H501464-02)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1720	16.0	06/11/2015	ND	416	104	400	3.92	

**Sample ID: S2 7' (H501464-03)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2200	16.0	06/11/2015	ND	416	104	400	3.92	

**Sample ID: S2 8' (H501464-04)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	544	16.0	06/11/2015	ND	416	104	400	3.92	

**Cardinal Laboratories**

\* = Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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### Notes and Definitions

- ND Analyte NOT DETECTED at or above the reporting limit
- RPD Relative Percent Difference
- \*\* Samples not received at proper temperature of 6°C or below.
- \*\*\* Insufficient time to reach temperature.
- Chloride by SM4500Cl-B does not require samples be received at or below 6°C
- Samples reported on an as received basis (wet) unless otherwise noted on report

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Celey D. Keene, Lab Director/Quality Manager



# CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page 28 of 79



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June 12, 2015

AMANDA TRUJILLO

COG OPERATING

P. O. BOX 1630

ARTESIA, NM 88210

RE: LOCO HILLS SWD MAINLINE

Enclosed are the results of analyses for samples received by the laboratory on 06/08/15 10:30.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

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Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

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Sincerely,

Celey D. Keene

Lab Director/Quality Manager



PHONE (575) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

**Analytical Results For:**

COG OPERATING  
AMANDA TRUJILLO  
P. O. BOX 1630  
ARTESIA NM, 88210  
Fax To: NONE

Received: 06/08/2015  
Reported: 06/12/2015  
Project Name: LOCO HILLS SWD MAINLINE  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 06/04/2015  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: S1 5' (H501463-01)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1200	16.0	06/11/2015	ND	416	104	400	3.92	

**Sample ID: S1 6' (H501463-02)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	768	16.0	06/11/2015	ND	416	104	400	3.92	

**Sample ID: S1 7' (H501463-03)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1090	16.0	06/11/2015	ND	416	104	400	3.92	

**Sample ID: S1 8' (H501463-04)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	656	16.0	06/11/2015	ND	416	104	400	3.92	

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Celey D. Keene, Lab Director/Quality Manager



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- \*\*\* Insufficient time to reach temperature.
- Chloride by SM4500Cl-B does not require samples be received at or below 6°C
- Samples reported on an as received basis (wet) unless otherwise noted on report

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Celey D. Keene, Lab Director/Quality Manager



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Page 4 of 4

Received by *OCD*: 2/14/2022 9:27:38 AM



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June 09, 2015

AMANDA TRUJILLO

COG OPERATING

P. O. BOX 1630

ARTESIA, NM 88210

RE: LOCO HILLS SWD MAINLINE

Enclosed are the results of analyses for samples received by the laboratory on 06/08/15 10:30.

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Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads 'Celey D. Keene'.

Celey D. Keene

Lab Director/Quality Manager



PHONE (575) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

**Analytical Results For:**

COG OPERATING  
AMANDA TRUJILLO  
P. O. BOX 1630  
ARTESIA NM, 88210  
Fax To: NONE

Received: 06/08/2015  
Reported: 06/09/2015  
Project Name: LOCO HILLS SWD MAINLINE  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 06/04/2015  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: S1 1' (H501462-01)****BTEX 8021B mg/kg Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/08/2015	ND	2.37	119	2.00	0.939	
Toluene*	<0.050	0.050	06/08/2015	ND	2.15	107	2.00	1.69	
Ethylbenzene*	<0.050	0.050	06/08/2015	ND	2.04	102	2.00	1.16	
Total Xylenes*	<0.150	0.150	06/08/2015	ND	5.97	99.4	6.00	1.66	
Total BTEX	<0.300	0.300	06/08/2015	ND					

*Surrogate 4-Bromofluorobenzene (PIB) 110 % 61-154***Chloride, SM4500Cl-B mg/kg Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	06/09/2015	ND	416	104	400	3.77	

**TPH 8015M mg/kg Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	06/08/2015	ND	184	92.1	200	1.44	
DRO >C10-C28	<10.0	10.0	06/08/2015	ND	182	91.2	200	1.62	

*Surrogate 1-Chlorooctane 89.8 % 47.2-157**Surrogate 1-Chlorooctadecane 96.3 % 52.1-176***Cardinal Laboratories**

\* = Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

COG OPERATING  
AMANDA TRUJILLO  
P. O. BOX 1630  
ARTESIA NM, 88210  
Fax To: NONE

Received: 06/08/2015  
Reported: 06/09/2015  
Project Name: LOCO HILLS SWD MAINLINE  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 06/04/2015  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: S1 3' (H501462-02)****BTEX 8021B****mg/kg****Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/08/2015	ND	2.37	119	2.00	0.939	
Toluene*	<0.050	0.050	06/08/2015	ND	2.15	107	2.00	1.69	
Ethylbenzene*	<0.050	0.050	06/08/2015	ND	2.04	102	2.00	1.16	
Total Xylenes*	<0.150	0.150	06/08/2015	ND	5.97	99.4	6.00	1.66	
Total BTEX	<0.300	0.300	06/08/2015	ND					

*Surrogate: 4-Bromofluorobenzene (PIC**110 %**61-154***Chloride, SM4500Cl-B****mg/kg****Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	4240	16.0	06/09/2015	ND	416	104	400	3.77	

**TPH 8015M****mg/kg****Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	06/08/2015	ND	184	92.1	200	1.44	
DRO >C10-C28	<10.0	10.0	06/08/2015	ND	182	91.2	200	1.62	

*Surrogate: 1-Chlorooctane**86.5 %**47.2-157**Surrogate: 1-Chlorooctadecane**91.9 %**52.1-176***Cardinal Laboratories**

\* = Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

COG OPERATING  
AMANDA TRUJILLO  
P. O. BOX 1630  
ARTESIA NM, 88210  
Fax To: NONE

Received: 06/08/2015  
Reported: 06/09/2015  
Project Name: LOCO HILLS SWD MAINLINE  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 06/04/2015  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: S1 4' (H501462-03)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/08/2015	ND	2.37	119	2.00	0.939	
Toluene*	<0.050	0.050	06/08/2015	ND	2.15	107	2.00	1.69	
Ethylbenzene*	<0.050	0.050	06/08/2015	ND	2.04	102	2.00	1.16	
Total Xylenes*	<0.150	0.150	06/08/2015	ND	5.97	99.4	6.00	1.66	
Total BTEX	<0.300	0.300	06/08/2015	ND					

Surrogate 4-Bromofluorobenzene (PIL) 111 % 61-154

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	5200	16.0	06/09/2015	ND	416	104	400	3.77	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	06/08/2015	ND	184	92.1	200	1.44	
DRO >C10-C28	<10.0	10.0	06/08/2015	ND	182	91.2	200	1.62	

Surrogate 1-Chlorooctane 84.3 % 47.2-157

Surrogate 1-Chlorooctadecane 87.8 % 52.1-176

**Cardinal Laboratories**

\* = Accredited Analyt

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

COG OPERATING  
AMANDA TRUJILLO  
P. O. BOX 1630  
ARTESIA NM, 88210  
Fax To: NONE

Received: 06/08/2015  
Reported: 06/09/2015  
Project Name: LOCO HILLS SWD MAINLINE  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 06/04/2015  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: S2 1' (H501462-04)**

BTEX 80218			mg/kg		Analyzed By: MS				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/09/2015	ND	2.37	119	2.00	0.939	
Toluene*	<0.050	0.050	06/09/2015	ND	2.15	107	2.00	1.69	
Ethylbenzene*	<0.050	0.050	06/09/2015	ND	2.04	102	2.00	1.16	
Total Xylenes*	<0.150	0.150	06/09/2015	ND	5.97	99.4	6.00	1.66	
Total BTEX	<0.300	0.300	06/09/2015	ND					

Surrogate: 4-Bromofluorobenzene (PIL) 106 % 61-154

Chloride, SM4500CI-B			mg/kg		Analyzed By: AP				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1300	16.0	06/09/2015	ND	416	104	400	3.77	

TPH 8015M			mg/kg		Analyzed By: MS				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	06/08/2015	ND	184	92.1	200	1.44	
DRO >C10-C28	142	10.0	06/08/2015	ND	182	91.2	200	1.62	

Surrogate: 1-Chlorooctane 84.4 % 47.2-157

Surrogate: 1-Chlorooctadecane 104 % 52.1-176

**Cardinal Laboratories**

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

COG OPERATING  
AMANDA TRUJILLO  
P. O. BOX 1630  
ARTESIA NM, 88210  
Fax To: NONE

Received: 06/08/2015  
Reported: 06/09/2015  
Project Name: LOCO HILLS SWD MAINLINE  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 06/04/2015  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: S2 2' (H501462-05)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/09/2015	ND	2.37	119	2.00	0.939	
Toluene*	<0.050	0.050	06/09/2015	ND	2.15	107	2.00	1.69	
Ethylbenzene*	<0.050	0.050	06/09/2015	ND	2.04	102	2.00	1.16	
Total Xylenes*	<0.150	0.150	06/09/2015	ND	5.97	99.4	6.00	1.66	
Total BTEX	<0.300	0.300	06/09/2015	ND					

Surrogate: 4-Bromofluorobenzene (PIC) 107 % 61-154

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	368	16.0	06/09/2015	ND	416	104	400	3.77	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	06/08/2015	ND	184	92.1	200	1.44	
DRO >C10-C28	101	10.0	06/08/2015	ND	182	91.2	200	1.62	

Surrogate: 1-Chlorooctane 89.0 % 47.2-157

Surrogate: 1-Chlorooctadecane 106 % 52.1-176

**Cardinal Laboratories**

\* = Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

**Analytical Results For:**

COG OPERATING  
AMANDA TRUJILLO  
P. O. BOX 1630  
ARTESIA NM, 88210  
Fax To: NONE

Received: 06/08/2015  
Reported: 06/09/2015  
Project Name: LOCO HILLS SWD MAINLINE  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 06/04/2015  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: S2 3' (H501462-06)**

BTX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/09/2015	ND	2.37	119	2.00	0.939	
Toluene*	<0.050	0.050	06/09/2015	ND	2.15	107	2.00	1.69	
Ethylbenzene*	<0.050	0.050	06/09/2015	ND	2.04	102	2.00	1.16	
Total Xylenes*	<0.150	0.150	06/09/2015	ND	5.97	99.4	6.00	1.66	
Total BTX	<0.300	0.300	06/09/2015	ND					

Surrogate: 4-Bromofluorobenzene (PIC) 106 % 61-154

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	976	16.0	06/09/2015	ND	416	104	400	3.77	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	06/08/2015	ND	184	92.1	200	1.44	
DRO >C10-C28	81.9	10.0	06/08/2015	ND	182	91.2	200	1.62	

Surrogate: 1-Chlorooctane 81.8 % 47.2-157

Surrogate: 1-Chlorooctadecane 94.2 % 52.1-176

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Celey D. Keene, Lab Director/Quality Manager



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### Notes and Definitions

- ND Analyte NOT DETECTED at or above the reporting limit
- RPD Relative Percent Difference
- \*\* Samples not received at proper temperature of 6°C or below.
- \*\*\* Insufficient time to reach temperature.
- Chloride by SM4500Cl-B does not require samples be received at or below 6°C
- Samples reported on an as received basis (wet) unless otherwise noted on report

### Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240

(575) 393-2326 FAX (575) 393-2476

<b>Company Name:</b> COG Operating LLC <b>Project Manager:</b> Amanda Taylor <b>Address:</b> <b>City:</b> <b>State:</b> <b>Zip:</b> <b>Phone #:</b> <b>Fax #:</b> <b>Project #:</b> <b>Project Owner:</b> <b>Project Name:</b> 4000 Hills Good Mainline <b>Project Location:</b> <b>Sampler Name:</b> Amanda Taylor <b>FOR LAB USE ONLY</b>				<b>P.O. #:</b> <b>Company:</b> COG <b>Attn:</b> Robert Gubb <b>Address:</b> <b>City:</b> <b>State:</b> <b>Zip:</b> <b>Phone #:</b> <b>Fax #:</b>				<b>BILL TO</b>												<b>ANALYSIS REQUEST</b>											
<b>Lab I.D.</b> H501462		<b>Sample I.D.</b> 1 2 3 4 5 6 7 8 9 10 11 12		(G)RAB OR (C)OMP # CONTAINERS GROUNDWATER WASTEWATER SOIL OIL SLUDGE OTHER:		MATRIX PRESERV SAMPLING		DATE TIME		TPH BTEX CI-																					
<b>Relinquished By:</b> [Signature] <b>Date:</b> 6/15/15 <b>Time:</b> 10:30 <b>Received By:</b> [Signature] <b>Date:</b> 6/15/15 <b>Time:</b>		<b>Relinquished By:</b> [Signature] <b>Date:</b> 6/15/15 <b>Time:</b>		<b>Relinquished By:</b> [Signature] <b>Date:</b> 6/15/15 <b>Time:</b>		<b>Relinquished By:</b> [Signature] <b>Date:</b> 6/15/15 <b>Time:</b>		<b>Relinquished By:</b> [Signature] <b>Date:</b> 6/15/15 <b>Time:</b>		<b>Relinquished By:</b> [Signature] <b>Date:</b> 6/15/15 <b>Time:</b>																					
<b>Delivered By: (Circle One)</b> Sampler - UPS - Bus - Other: 1c		<b>Sample Condition</b> Cool <input checked="" type="checkbox"/> Intact <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		<b>CHECKED BY:</b> [Signature]																											

**Phone Result:** ☐ Yes ☐ No    **Add'l Phone #:**  
**Fax Result:** ☐ Yes ☐ No    **Add'l Fax #:**

REMARKS:  
 245411

## **APPENDIX D**

### **NMOCD Correspondence**

**From:** Patterson, Heather, EMNRD  
**To:** ["Tucker, Shelly"; Amanda Trujillo Davis](#)  
**Cc:** [Robert McNeill](#); [Bratcher, Mike, EMNRD](#); [Bayliss, Randolph, EMNRD](#)  
**Subject:** RE: (Work Plan) Loco Hills SWD Mainline System  
**Date:** Friday, July 22, 2016 10:07:00 AM  
**Attachments:** image001.png

---

RE: COG \* Loco Hills SWD Mainline \* fAB1514733316 \* 2RP-3010

Amanda,

The OCD concurs with BLM approval of this work plan. Once chlorides have been flushed and plant growth reestablished, the OCD will request a second delineation at S1 and S2 for closure. If at the end of your monitoring phase, plant growth is not established and chlorides are still present at the surface, the OCD will require further remediation efforts.

OCD approval does not relieve the operator of liability should their operations fail to adequately investigate and remediate contamination that may pose a threat to ground water, surface water, human health or the environment. In addition, OCD approval does not relieve the operator of responsibility for compliance with any other federal, state, local laws and/or regulations.

If you have any questions or concerns, and for notification, please contact me.

Heather Patterson  
Environmental Specialist  
NMOCD District II  
Office (575)748-1283 ext.101  
Cell (575)703-0228

**From:** Tucker, Shelly [mailto:[stucker@blm.gov](mailto:stucker@blm.gov)]  
**Sent:** Wednesday, July 13, 2016 10:16 AM  
**To:** Amanda Trujillo Davis  
**Cc:** Patterson, Heather, EMNRD; Robert McNeill  
**Subject:** Re: (Work Plan) Loco Hills SWD Mainline System

BLM accepts/approves your submitted work plan.

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

Sincerely,

*Shelly J Tucker*  
Environmental Protection Specialist  
Bureau of Land Management

620 E. Greene St  
Carlsbad, NM 88220

575.234.5905 - Direct  
575.361.0084 - Cellular

[stucker@blm.gov](mailto:stucker@blm.gov)



The **BLM acceptance/approval does not** relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that may pose a threat to groundwater, surface water, human health or the environment or if the location fails to reclaim properly. In such an event that the location does not revegetate, or future issues with contaminants are encountered, the operator will be asked to address the issues until the contaminant issues are fully mitigated and the location is successfully reclaimed. In addition, BLM approval does not relieve the operator of responsibility for compliance with any other federal, state or local laws/regulations.

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On Mon, May 23, 2016 at 4:04 PM, Amanda Trujillo Davis <[ATrujillo@concho.com](mailto:ATrujillo@concho.com)> wrote:

Ms. Patterson/Ms. Tucker,

Attached is a work plan for your consideration. Please let me know if there are any changes you would like to make.

Thank you,

**Amanda Trujillo Davis**  
Senior Environmental Coordinator  
COG Operating LLC  
Cell: 505.350.1336  
Office: 575.748.6930  
[atrujillo@concho.com](mailto:atrujillo@concho.com)

1401 Commerce Drive  
Carlsbad, NM 88220



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---

**From:** Amanda Trujillo  
**Sent:** Thursday, May 21, 2015 11:28 AM  
**To:** 'Mike Bratcher'; 'Patterson, Heather, EMNRD'; 'James Amos'; 'Jeff Robertson'  
**Subject:** (C-141 Initial) Loco Hills SWD Mainline System

Mr. Bratcher/Mr. Amos,

Attached is a C-141 for your consideration. Please feel free to call me if you have any questions or concerns.

Thank you,

**Amanda Trujillo**  
Senior Environmental Coordinator  
COG Operating LLC  
Cell: 505.350.1336  
Office: 575.748.6930  
[atrujillo@concho.com](mailto:atrujillo@concho.com)

2407 Pecos Ave.  
Artesia , NM 88210



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---

**From:** Amanda Trujillo  
**Sent:** Friday, May 08, 2015 4:30 PM  
**To:** 'Mike Bratcher'; 'Patterson, Heather, EMNRD'; 'James Amos'; 'Jeff Robertson'  
**Subject:** (Notification) Loco Hills SWD Mainline System

Mr. Bratcher/Mr. Amos,

COG Operating LLC is reporting a release on the Apache Crow Pump Station  
Unit G Section 24, Township 17S Range 30E  
Lat/Long: 32.8227282671883,-103.923386846725  
The release occurred at 4:00 pm on 5/7/2015  
Released: 190 bbls Produced Water  
Recovered: 175 bbls Produced Water

The release was caused when a power line construction crew bore into waterline. The area is being evaluated and a C-141 will be submitted. If you have any additional questions please

feel free to contact me.

Thank you,

**Amanda Trujillo**

Senior Environmental Coordinator

COG Operating LLC

Cell: 505.350.1336

Office: 575.748.6930

[atrujillo@concho.com](mailto:atrujillo@concho.com)

2208 W. Main St.

Artesia , NM 88210



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## **APPENDIX E**

### **Laboratory Analytical Data**



# Certificate of Analysis Summary 618652

COG Operating LLC, Artesia, NM

Project Name: Loco Hills SWD Mainline (5-7-15) 2RP-3010



Project Id:

Contact: Ike Tavarez

Project Location: Eddy County, NM

Date Received in Lab: Fri Mar-22-19 03:12 pm

Report Date: 26-MAR-19

Project Manager: Brandi Ritcherson

<i>Analysis Requested</i>	<i>Lab Id:</i>	618652-001	618652-002	618652-003	618652-004	618652-005	618652-006
	<i>Field Id:</i>	AH-1 0-1'	AH-1 1.5'	AH-1 2.5'	AH-1 3.5'	AH-1 4.5'	AH-1 5.5'
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Mar-19-19 00:00	Mar-19-19 00:00	Mar-19-19 00:00	Mar-19-19 00:00	Mar-19-19 00:00	Mar-19-19 00:00
<b>Chloride by EPA 300</b>	<i>Extracted:</i>	Mar-23-19 19:35	Mar-23-19 19:35	Mar-23-19 19:35	Mar-23-19 19:35	Mar-23-19 19:35	Mar-23-19 19:35
	<i>Analyzed:</i>	Mar-24-19 01:34	Mar-24-19 01:41	Mar-24-19 02:01	Mar-24-19 02:07	Mar-24-19 02:28	Mar-24-19 02:34
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		17.9 5.02	116 5.00	175 5.03	293 5.04	171 5.04	157 5.04

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 - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

Brandi Ritcherson  
Project Manager



# Certificate of Analysis Summary 618652

COG Operating LLC, Artesia, NM

Project Name: Loco Hills SWD Mainline (5-7-15) 2RP-3010



Project Id:

Contact: Ike Tavarez

Project Location: Eddy County, NM

Date Received in Lab: Fri Mar-22-19 03:12 pm

Report Date: 26-MAR-19

Project Manager: Brandi Ritcherson

<i>Analysis Requested</i>	<i>Lab Id:</i>	618652-007	618652-008	618652-009	618652-010	618652-011	618652-012
	<i>Field Id:</i>	AH-2 0-1'	AH-2 1.5'	AH-2 2.5'	AH-2 3.5'	AH-2 4.5'	AH-2 5.5'
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Mar-19-19 00:00	Mar-19-19 00:00	Mar-19-19 00:00	Mar-19-19 00:00	Mar-19-19 00:00	Mar-19-19 00:00
Chloride by EPA 300	<i>Extracted:</i>	Mar-23-19 19:35	Mar-23-19 19:35	Mar-23-19 19:35	Mar-23-19 19:35	Mar-23-19 19:35	Mar-23-19 17:00
	<i>Analyzed:</i>	Mar-24-19 02:41	Mar-24-19 02:48	Mar-24-19 02:54	Mar-24-19 03:01	Mar-24-19 03:07	Mar-23-19 22:48
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		<5.01 5.01	<5.00 5.00	<4.98 4.98	16.9 5.04	323 5.04	1540 25.0

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

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Brandi Ritcherson  
Project Manager

# **Analytical Report 618652**

**for**  
**COG Operating LLC**

**Project Manager: Ike Tavaréz**  
**Loco Hills SWD Mainline (5-7-15) 2RP-3010**

**26-MAR-19**

Collected By: Client



**1211 W. Florida Ave**  
**Midland TX 79701**

Xenco-Houston (EPA Lab Code: TX00122):  
Texas (T104704215-18-28), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)  
Oklahoma (2017-142)

Xenco-Dallas (EPA Lab Code: TX01468):  
Texas (T104704295-18-17), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-18-14)  
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-18-18)  
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-18-18)  
Xenco-San Antonio (EPA Lab Code: TNi02385): Texas (T104704534-18-4)  
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)  
Xenco-Phoenix Mobile (EPA Lab Code: AZ00901): Arizona (AZM757)  
Xenco-Atlanta (LELAP Lab ID #04176)  
Xenco-Tampa: Florida (E87429), North Carolina (483)  
Xenco-Lakeland: Florida (E84098)



26-MAR-19

Project Manager: **Ike Tavaréz**

**COG Operating LLC**

2407 Pecos Avenue

Artesia, NM 88210

Reference: XENCO Report No(s): **618652**

**Loco Hills SWD Mainline (5-7-15) 2RP-3010**

Project Address: Eddy County, NM

**Ike Tavaréz:**

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) 618652. 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. 618652 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 'Brandi Ritcherson'.

---

**Brandi Ritcherson**

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 618652



## COG Operating LLC, Artesia, NM

Loco Hills SWD Mainline (5-7-15) 2RP-3010

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
AH-1 0-1'	S	03-19-19 00:00		618652-001
AH-1 1.5'	S	03-19-19 00:00		618652-002
AH-1 2.5'	S	03-19-19 00:00		618652-003
AH-1 3.5'	S	03-19-19 00:00		618652-004
AH-1 4.5'	S	03-19-19 00:00		618652-005
AH-1 5.5'	S	03-19-19 00:00		618652-006
AH-2 0-1'	S	03-19-19 00:00		618652-007
AH-2 1.5'	S	03-19-19 00:00		618652-008
AH-2 2.5'	S	03-19-19 00:00		618652-009
AH-2 3.5'	S	03-19-19 00:00		618652-010
AH-2 4.5'	S	03-19-19 00:00		618652-011
AH-2 5.5'	S	03-19-19 00:00		618652-012

**CASE NARRATIVE****Client Name: COG Operating LLC****Project Name: Loco Hills SWD Mainline (5-7-15) 2RP-3010**

Project ID:

Report Date: 26-MAR-19

Work Order Number(s): 618652

Date Received: 03/22/2019

---

**Sample receipt non conformances and comments:**None

---

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

None

**Analytical non conformances and comments:**

Batch: LBA-3083135 Inorganic Anions by EPA 300

Lab Sample ID 618652-002 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride recovered below QC limits in the Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 618652-001, -002, -003, -004, -005, -006, -007, -008, -009, -010, -011.

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

Chloride Relative Percent Difference (RPD) between matrix spike and duplicate was above quality control limits.

Samples in the analytical batch are: 618652-001, -002, -003, -004, -005, -006, -007, -008, -009, -010, -011



## Certificate of Analytical Results 618652



**COG Operating LLC, Artesia, NM**  
Loco Hills SWD Mainline (5-7-15) 2RP-3010

Sample Id: **AH-1 0-1'**  
Lab Sample Id: 618652-001

Matrix: Soil  
Date Collected: 03.19.19 00.00

Date Received: 03.22.19 15.12

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 03.23.19 19.35

Basis: Wet Weight

Seq Number: 3083135

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	17.9	5.02	mg/kg	03.24.19 01.34		1



## Certificate of Analytical Results 618652



**COG Operating LLC, Artesia, NM**  
Loco Hills SWD Mainline (5-7-15) 2RP-3010

Sample Id: **AH-1 1.5'**

Matrix: Soil

Date Received: 03.22.19 15.12

Lab Sample Id: 618652-002

Date Collected: 03.19.19 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 03.23.19 19.35

Basis: Wet Weight

Seq Number: 3083135

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	116	5.00	mg/kg	03.24.19 01.41		1



## Certificate of Analytical Results 618652



**COG Operating LLC, Artesia, NM**  
Loco Hills SWD Mainline (5-7-15) 2RP-3010

Sample Id: **AH-1 2.5'**

Matrix: Soil

Date Received: 03.22.19 15.12

Lab Sample Id: 618652-003

Date Collected: 03.19.19 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 03.23.19 19.35

Basis: Wet Weight

Seq Number: 3083135

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	175	5.03	mg/kg	03.24.19 02.01		1



## Certificate of Analytical Results 618652



**COG Operating LLC, Artesia, NM**  
Loco Hills SWD Mainline (5-7-15) 2RP-3010

Sample Id: **AH-1 3.5'**

Matrix: Soil

Date Received: 03.22.19 15.12

Lab Sample Id: 618652-004

Date Collected: 03.19.19 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 03.23.19 19.35

Basis: Wet Weight

Seq Number: 3083135

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	293	5.04	mg/kg	03.24.19 02.07		1



## Certificate of Analytical Results 618652



**COG Operating LLC, Artesia, NM**  
Loco Hills SWD Mainline (5-7-15) 2RP-3010

Sample Id: **AH-1 4.5'**

Matrix: Soil

Date Received: 03.22.19 15.12

Lab Sample Id: 618652-005

Date Collected: 03.19.19 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 03.23.19 19.35

Basis: Wet Weight

Seq Number: 3083135

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	171	5.04	mg/kg	03.24.19 02.28		1



## Certificate of Analytical Results 618652



**COG Operating LLC, Artesia, NM**  
Loco Hills SWD Mainline (5-7-15) 2RP-3010

Sample Id: **AH-1 5.5'**

Matrix: Soil

Date Received: 03.22.19 15.12

Lab Sample Id: 618652-006

Date Collected: 03.19.19 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 03.23.19 19.35

Basis: Wet Weight

Seq Number: 3083135

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	157	5.04	mg/kg	03.24.19 02.34		1



## Certificate of Analytical Results 618652



**COG Operating LLC, Artesia, NM**  
Loco Hills SWD Mainline (5-7-15) 2RP-3010

Sample Id: **AH-2 0-1'**  
Lab Sample Id: 618652-007

Matrix: Soil  
Date Collected: 03.19.19 00.00

Date Received: 03.22.19 15.12

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 03.23.19 19.35

Basis: Wet Weight

Seq Number: 3083135

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<5.01	5.01	mg/kg	03.24.19 02.41	U	1



## Certificate of Analytical Results 618652



**COG Operating LLC, Artesia, NM**  
Loco Hills SWD Mainline (5-7-15) 2RP-3010

Sample Id: **AH-2 1.5'**

Matrix: Soil

Date Received: 03.22.19 15.12

Lab Sample Id: 618652-008

Date Collected: 03.19.19 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 03.23.19 19.35

Basis: Wet Weight

Seq Number: 3083135

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<5.00	5.00	mg/kg	03.24.19 02.48	U	1



## Certificate of Analytical Results 618652



**COG Operating LLC, Artesia, NM**  
Loco Hills SWD Mainline (5-7-15) 2RP-3010

Sample Id: **AH-2 2.5'**

Matrix: Soil

Date Received: 03.22.19 15.12

Lab Sample Id: 618652-009

Date Collected: 03.19.19 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 03.23.19 19.35

Basis: Wet Weight

Seq Number: 3083135

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.98	4.98	mg/kg	03.24.19 02.54	U	1



## Certificate of Analytical Results 618652



**COG Operating LLC, Artesia, NM**  
Loco Hills SWD Mainline (5-7-15) 2RP-3010

Sample Id: **AH-2 3.5'**

Matrix: Soil

Date Received: 03.22.19 15.12

Lab Sample Id: 618652-010

Date Collected: 03.19.19 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 03.23.19 19.35

Basis: Wet Weight

Seq Number: 3083135

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	16.9	5.04	mg/kg	03.24.19 03.01		1



## Certificate of Analytical Results 618652



**COG Operating LLC, Artesia, NM**  
Loco Hills SWD Mainline (5-7-15) 2RP-3010

Sample Id: **AH-2 4.5'**

Matrix: Soil

Date Received: 03.22.19 15.12

Lab Sample Id: 618652-011

Date Collected: 03.19.19 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 03.23.19 19.35

Basis: Wet Weight

Seq Number: 3083135

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	323	5.04	mg/kg	03.24.19 03.07		1



## Certificate of Analytical Results 618652



**COG Operating LLC, Artesia, NM**  
Loco Hills SWD Mainline (5-7-15) 2RP-3010

Sample Id: **AH-2 5.5'**

Matrix: Soil

Date Received: 03.22.19 15.12

Lab Sample Id: 618652-012

Date Collected: 03.19.19 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 03.23.19 17.00

Basis: Wet Weight

Seq Number: 3083129

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1540	25.0	mg/kg	03.23.19 22.48		5



## Flagging Criteria



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

\*\* Surrogate recovered outside laboratory control limit.

**BRL** Below Reporting Limit.

**RL** Reporting Limit

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

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

**DL** Method Detection Limit

**NC** Non-Calculable

**SMP** Client Sample      **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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



**COG Operating LLC**  
**Loco Hills SWD Mainline (5-7-15) 2RP-3010**

**Analytical Method: Chloride by EPA 300**

Seq Number: 3083129

MB Sample Id: 7674202-1-BLK

Matrix: Solid

LCS Sample Id: 7674202-1-BKS

Prep Method: E300P

Date Prep: 03.23.19

LCSD Sample Id: 7674202-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.858	250	249	100	254	102	90-110	2	20	mg/kg	03.23.19 20:42	

**Analytical Method: Chloride by EPA 300**

Seq Number: 3083135

MB Sample Id: 7674206-1-BLK

Matrix: Solid

LCS Sample Id: 7674206-1-BKS

Prep Method: E300P

Date Prep: 03.23.19

LCSD Sample Id: 7674206-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.858	250	273	109	255	102	90-110	7	20	mg/kg	03.23.19 23:54	

**Analytical Method: Chloride by EPA 300**

Seq Number: 3083129

Parent Sample Id: 618648-009

Matrix: Soil

MS Sample Id: 618648-009 S

Prep Method: E300P

Date Prep: 03.23.19

MSD Sample Id: 618648-009 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	21.3	252	291	107	294	108	90-110	1	20	mg/kg	03.23.19 21:02	

**Analytical Method: Chloride by EPA 300**

Seq Number: 3083129

Parent Sample Id: 618648-010

Matrix: Soil

MS Sample Id: 618648-010 S

Prep Method: E300P

Date Prep: 03.23.19

MSD Sample Id: 618648-010 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	32.0	251	290	103	289	102	90-110	0	20	mg/kg	03.23.19 22:35	

**Analytical Method: Chloride by EPA 300**

Seq Number: 3083135

Parent Sample Id: 618582-010

Matrix: Soil

MS Sample Id: 618582-010 S

Prep Method: E300P

Date Prep: 03.23.19

MSD Sample Id: 618582-010 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	67.4	248	322	103	325	104	90-110	1	20	mg/kg	03.24.19 00:15	

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

$[D] = 100 * (C - A) / B$   
 $RPD = 200 * |(C - E) / (C + E)|$   
 $[D] = 100 * (C) / [B]$   
 Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

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**  
 Loco Hills SWD Mainline (5-7-15) 2RP-3010

**Analytical Method:** Chloride by EPA 300

Seq Number: 3083135

Parent Sample Id: 618652-002

Matrix: Soil

MS Sample Id: 618652-002 S

Prep Method: E300P

Date Prep: 03.23.19

MSD Sample Id: 618652-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	116	250	386	108	<5.00	0	90-110	200	20	mg/kg	03.24.19 01:48	XF

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

$[D] = 100 * (C - A) / B$   
 $RPD = 200 * |(C - E) / (C + E)|$   
 $[D] = 100 * (C) / [B]$   
 Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

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



One Concho  
Center/600 Illinois  
Avenue/Midland, Texas  
Tel (432) 683-7443

12181652

Client Name: COG		Site Manager: Ike Tavaréz itavaréz@concho.com												
Project Name: Loco Hills SWD Mainline (5-7-15) ZRP-3010														
Project Location: Eddy County, NM		Project #:												
Invoice to:		COG												
Receiving Laboratory: Xenco		Sampler Signature: Robert Grubbs Jr												
Comments:														
LAB # (LAB USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING		MATRIX				PRESERVATIVE METHOD				# CONTAINERS	FILTERED (Y/N)	ANALYSIS REQUEST (Circle or Specify Method No.)
		YEAR: 2019		WATER	SOIL	HCL	HNO <sub>3</sub>	ICE						
		DATE	TIME											
AH-1 0-1'		3/19/2019		X				X				1		BTEX 8021B
AH-1 1.5'		3/19/2019		X				X				1		TPH TX1005 (Ext to C35)
AH-1 2.5'		3/19/2019		X				X				1		TPH 8015M ( GRO - DRO - MRO)
AH-1 3.5'		3/19/2019		X				X				1		PAH 8270C
AH-1 4.5'		3/19/2019		X				X				1		Total Metals Ag As Ba Cd Cr Pb Se Hg
AH-1 5.5'		3/19/2019		X				X				1		TCLP Metals Ag As Ba Cd Cr Pb Se Hg
AH-2 0-1'		3/19/2019		X				X				1		TCLP Volatiles
AH-2 1.5'		3/19/2019		X				X				1		TCLP Semi Volatiles
AH-2 2.5'		3/19/2019		X				X				1		RCI
AH-2 3.5'		3/19/2019		X				X				1		GC/MS Vol. 8260B / 624
														GC/MS Semi. Vol. 8270C/625
														PCB's 8082 / 608
														NORM
														PLM (Asbestos)
														Chloride
														Chloride Sulfate TDS
														General Water Chemistry (see attached list)
														Anion/Cation Balance
														Hold
Relinquished by:		Date:	Time:	Received by:		Date:	Time:	LAB USE ONLY		REMARKS:				
Relinquished by: [Signature]		3-22-15	15:11	Received by: [Signature]		3/22/19	15:12	Sample Temperature		<input checked="" type="checkbox"/> RUSH: Same Day 24 hr 48 hr 72 hr <input type="checkbox"/> Rush Charges Authorized <input type="checkbox"/> Special Report Limits or TRRP Report				
Relinquished by:		Date:	Time:	Received by:		Date:	Time:	LAB USE ONLY		REMARKS:				
Relinquished by:		Date:	Time:	Received by:		Date:	Time:	Sample Temperature		<input type="checkbox"/> RUSH: Same Day 24 hr 48 hr 72 hr <input type="checkbox"/> Rush Charges Authorized <input type="checkbox"/> Special Report Limits or TRRP Report				

ORIGINAL COPY

(Circle) HAND DELIVERED FEDEX UPS Tracking #:



One Concho  
Center/600 Illinois  
Avenue/Midland, Texas  
Tel (432) 683-7443

Client Name:

COG

Site Manager:

Ike Tavaréz itavaréz@concho.com

Project Name:

Loco Hills SWD Mainline (5-7-15) ZRP-3010

Project Location:  
(county, state) Eddy County, NM

Project #:

Invoice to:

COG

Receiving Laboratory:

Xenco

Sampler Signature:

Robert Grubbs Jr

Comments:

LAB #  
(LAB USE ONLY)

SAMPLE IDENTIFICATION

SAMPLING

YEAR: 2019

DATE TIME

MATRIX

PRESERVATIVE METHOD

WATER SOIL HCL HNO<sub>3</sub> ICE

# CONTAINERS

FILTERED (Y/N)

BTX 8021B

TPH TX1005 (Ext to C35)

TPH 8015M (GRO - DRO - MRO)

PAH 8270C

Total Metals Ag As Ba Cd Cr Pb Se Hg

TCLP Metals Ag As Ba Cd Cr Pb Se Hg

TCLP Volatiles

TCLP Semi Volatiles

RCI

GC/MS Vol. 8260B / 624

GC/MS Semi. Vol. 8270C/625

PCB's 8082 / 608

NORM

PLM (Asbestos)

Chloride

Chloride Sulfate TDS

General Water Chemistry (see attached list)

Anion/Cation Balance

Hold

ANALYSIS REQUEST

(Circle or Specify Method No.)

1018653

Relinquished by:

Date: Time:

Received by:

Date: Time:

Relinquished by:

Date: Time:

Received by:

Date: Time:

Relinquished by:

Date: Time:

Received by:

Date: Time:

LAB USE ONLY

Sample Temperature

REMARKS:

☒

RUSH: Same Day 24 hr 48 hr 72 hr

☐

Rush Charges Authorized

☐

Special Report Limits or TRRP Report

ORIGINAL COPY

(Circle) HAND DELIVERED FEDEX UPS Tracking #:

3.2013.0



# XENCO Laboratories

## Prelogin/Nonconformance Report- Sample Log-In



Client: COG Operating LLC

Date/ Time Received: 03/22/2019 03:12:00 PM

Work Order #: 618652

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)?	3.1
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	N/A
#5 Custody Seals intact on sample bottles?	N/A
#6 *Custody Seals Signed and dated?	N/A
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	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:

Brianna Teel

Date: 03/22/2019

Checklist reviewed by:

Jessica Kramer

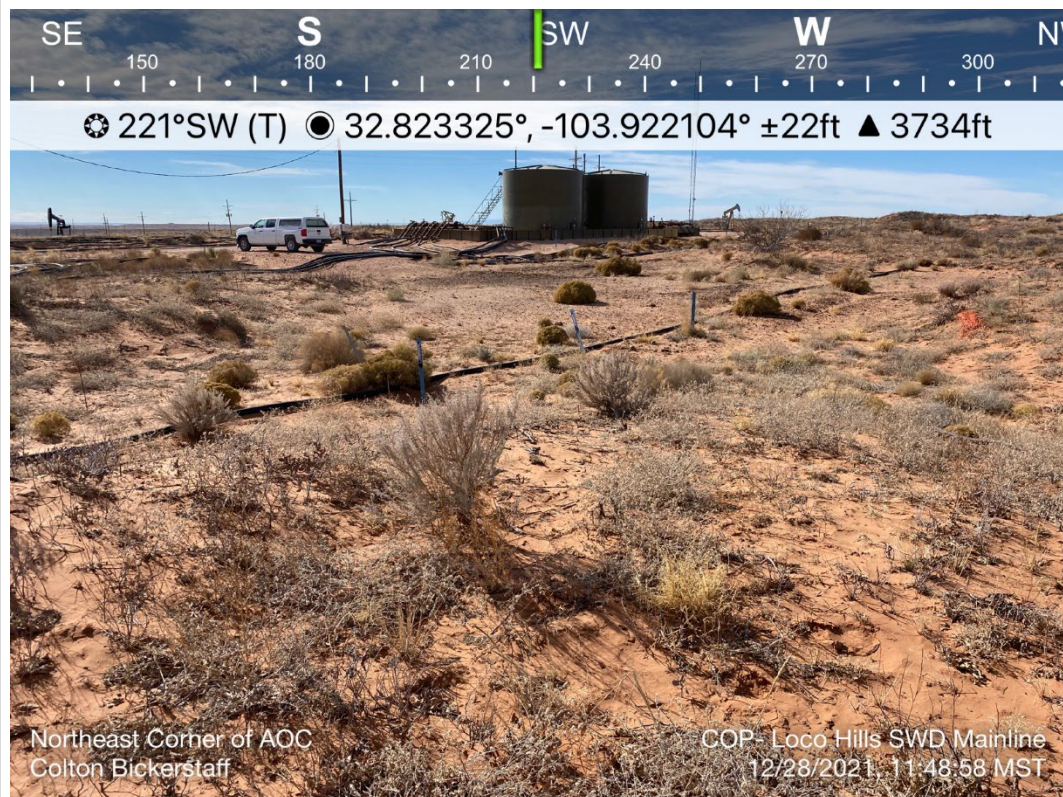
Date: 03/22/2019

## **APPENDIX F**

# **Photographic Documentation**



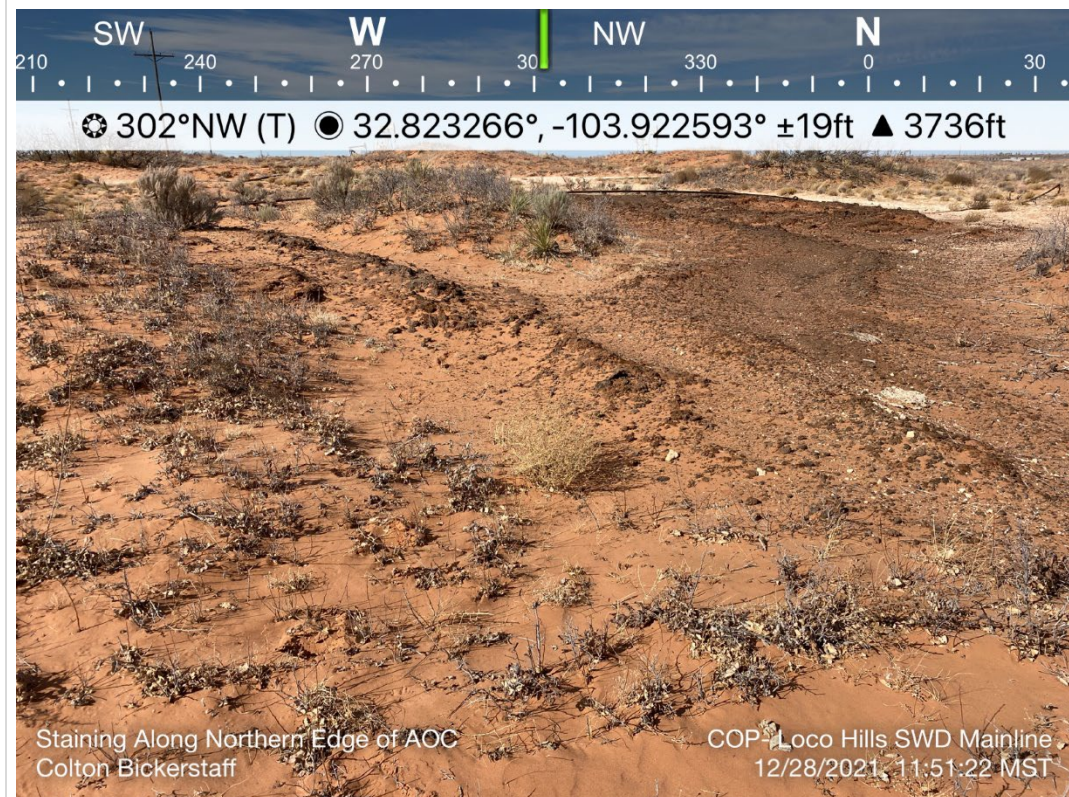
TETRA TECH, INC. PROJECT NO. 212C-MD-02621	DESCRIPTION	View northeast. Southeast corner of visually assessed area.	1
	SITE NAME	Loco Hills SWD Main Line	12/28/2021



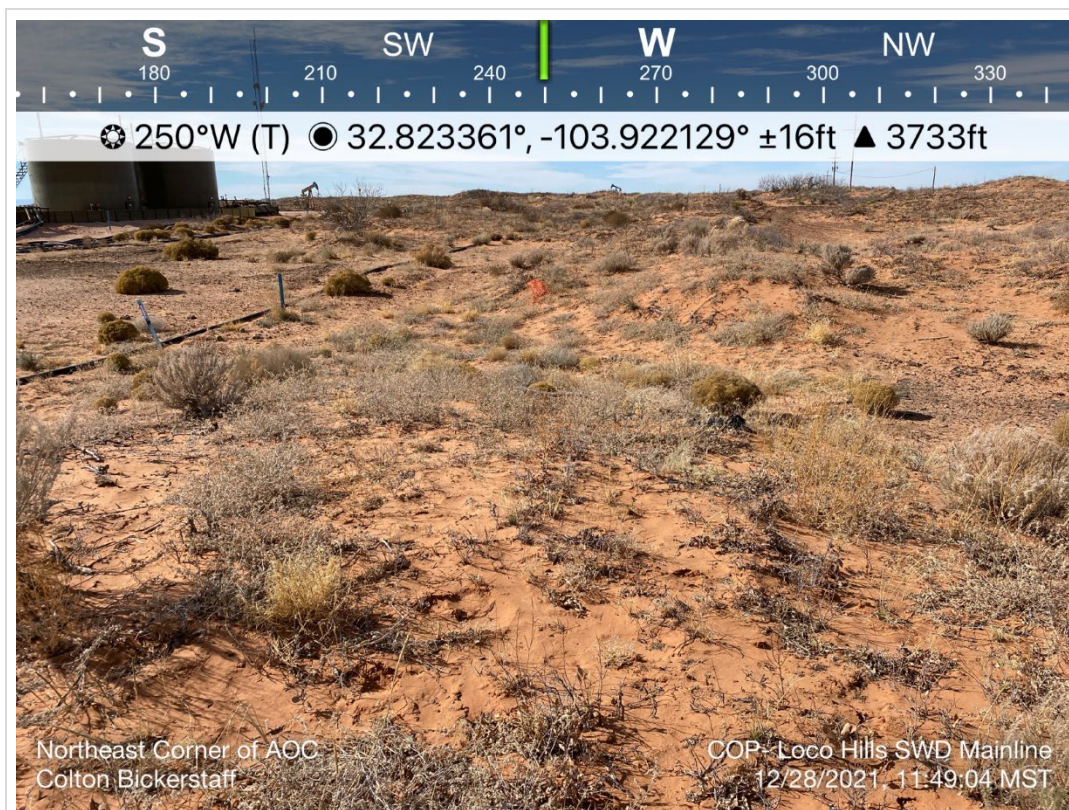
TETRA TECH, INC. PROJECT NO. 212C-MD-02621	DESCRIPTION	View southwest. Northeast of tank battery.	2
	SITE NAME	Loco Hills SWD Main Line	12/28/2021



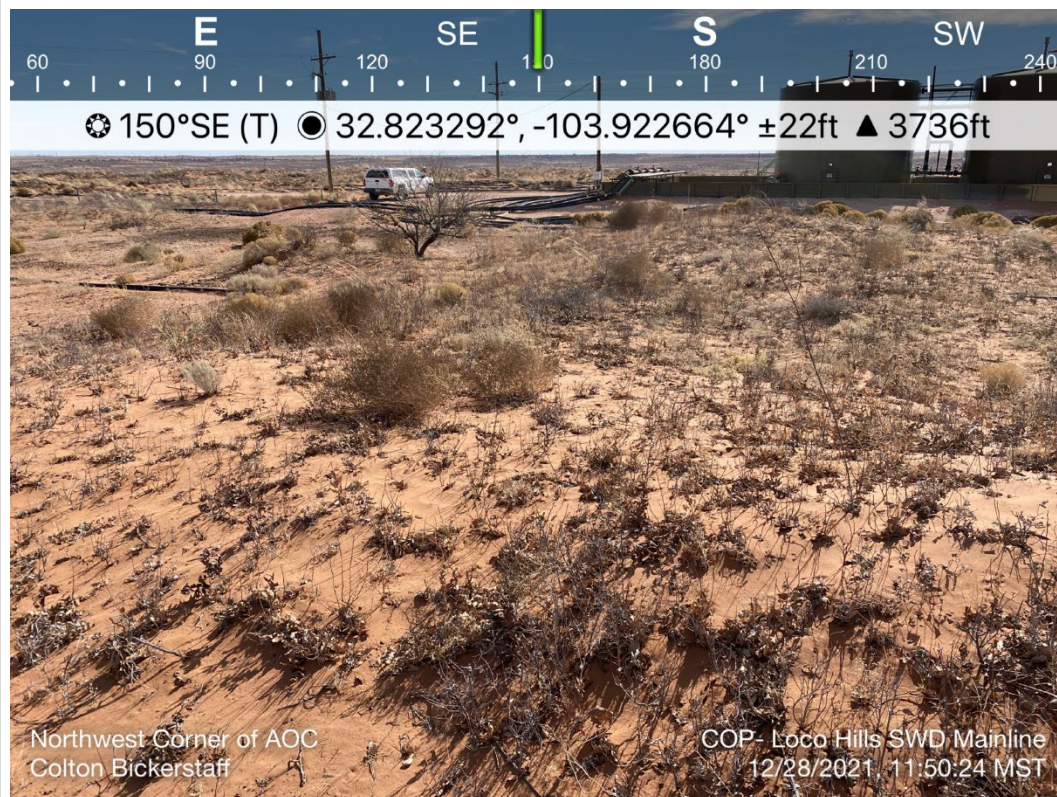
TETRA TECH, INC. PROJECT NO. 212C-MD-02621	DESCRIPTION	View south. North of tank battery.	3
	SITE NAME	Loco Hills SWD Main Line	12/28/2021



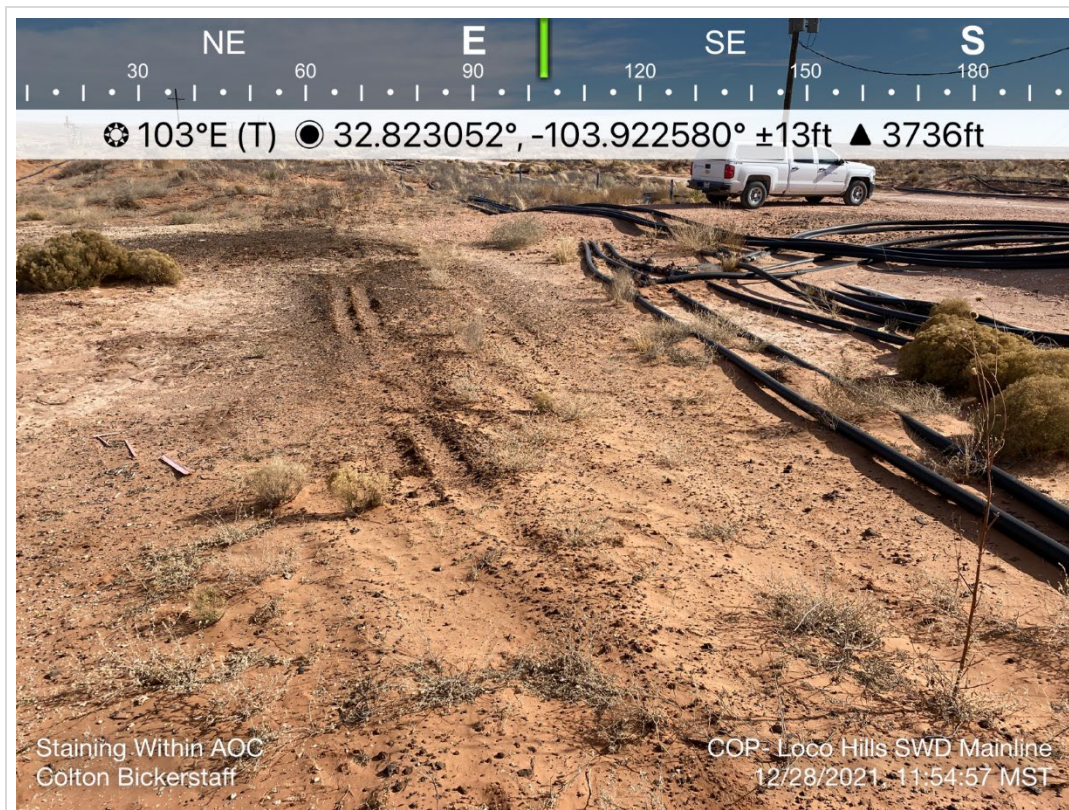
TETRA TECH, INC. PROJECT NO. 212C-MD-02621	DESCRIPTION	View west-northwest. Northwest corner of visually assessed area. Surface staining visible.	4
	SITE NAME	Loco Hills SWD Main Line	12/28/2021



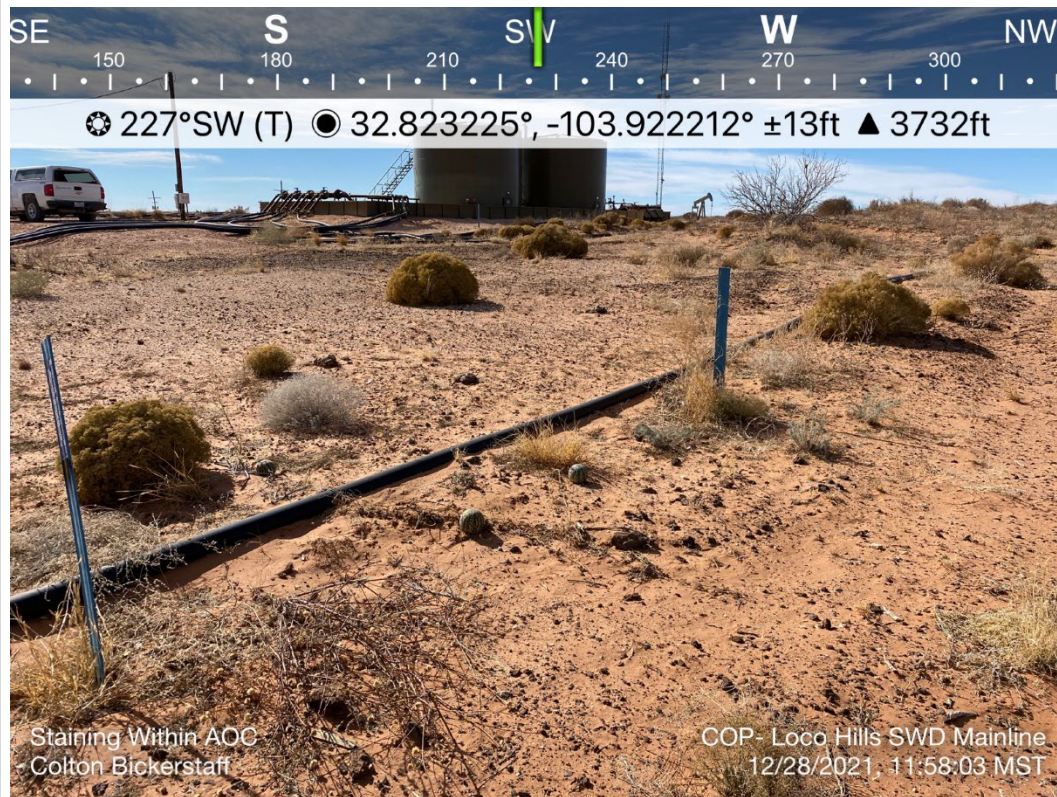
TETRA TECH, INC. PROJECT NO. 212C-MD-02621	DESCRIPTION	View west-southwest. Northeast corner of former release area.	5
	SITE NAME	Loco Hills SWD Main Line	12/28/2021



TETRA TECH, INC. PROJECT NO. 212C-MD-02621	DESCRIPTION	View southeast. North of visually assessed area.	6
	SITE NAME	Loco Hills SWD Main Line	12/28/2021



TETRA TECH, INC. PROJECT NO. 212C-MD-02621	DESCRIPTION	View east. Eastern portion of visually assessed area. Surface staining visible.	7
	SITE NAME	Loco Hills SWD Main Line	12/28/2021



TETRA TECH, INC. PROJECT NO. 212C-MD-02621	DESCRIPTION	View southwest. Northeast of tanks. Surface staining visible.	8
	SITE NAME	Loco Hills SWD Main Line	12/28/2021

## **APPENDIX G**

### **Historical Aerial Imagery**



February 2014



February 2017

**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 81251

CONDITIONS

Operator: COG OPERATING LLC 600 W Illinois Ave Midland, TX 79701	OGRID: 229137
	Action Number: 81251
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
amaxwell	None	11/22/2022