

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

Form C-141  
Revised August 24, 2018  
Submit to appropriate OCD District office

Incident ID	NRM1935157445
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: Ike Tavaréz Title: Staff Program Manager  
Signature: *Ike Tavaréz* Date: 8.17.22  
email: Ike.Tavaréz@conocophillips.com Telephone: 432-685-2573

State of New Mexico  
Oil Conservation Division

Incident ID	NRM1935157445
District RP	
Facility ID	
Application ID	

**OCD Only**

Received by: Robert Hamlet Date: 1/20/2023

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: Robert Hamlet Date: 1/20/2023

Printed Name: Robert Hamlet Title: Environmental Specialist - Advanced



# Remediation Summary and Site Closure Request

August 17, 2022

*Patrick Shin*

---

Prepared by:  
Patrick Shin  
Environmental Engineer

## Willow A State #003

NMOCD Reference Number:  
NRM1935157445

### Prepared For:

COG Operating, LLC.  
600 W Illinois Avenue  
Midland, TX 79701

### Prepared By:

TRC Environmental Corporation  
10 Desta Drive, Suite 150E  
Midland, TX 79705

*Jared E. Stoffel*

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Reviewed and Approved by:  
Jared E. Stoffel, PG  
Project Manager



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Appendix D: Photographic Documentation

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Appendix F: Laboratory Analytical Reports



## 1.0 Introduction and Background Information

TRC Environmental Corporation (TRC), on behalf of COG Operating, LLC (COG), has prepared this *Remediation Summary and Site Closure Request* for the Release Site known as the Willow A State #003 (the Site). The legal description of the Site is Unit Letter "J", Section 03, Township 25 South, Range 28 East, in Eddy County, New Mexico. The subject property is owned by the State of New Mexico and administered by New Mexico State Land Office (NMSLO). The GPS coordinates for the Site are N 32.15890° W 104.07183°. A topographic map is provided as **Figure 1**. Photographs are provided in the photolog as **Appendix D**.

On October 17, 2019, COG discovered a produced water release had occurred at the Site. The Release was attributed to a third-party contractor line-strike. On the discovery date, COG notified the New Mexico Oil Conservation Division (NMOCD) and New Mexico State Land Office (NMSLO) of the Release. The Release was assigned an NMOCD Reference number of NRM1935157445. During initial response activities, a vacuum truck was dispatched to recover all freestanding fluids. On October 28, 2019, the initial Release Notification and Corrective Action (Form C-141) was submitted to the NMOCD. The Form C-141 indicated twenty (20) barrels (bbls) of produced water was released and eighteen (18) bbls of produced water was recovered during initial response activities. The Release affected an area measuring approximately 2,200 square feet (sq. ft.). The affected area to the east is characterized as a right-of-way for above-ground poly flowlines. The flowlines turn to the west and run down into an approximately eight (8) foot road bore excavation. At the base of the western terminus of the excavation begins a road bore in which the flowlines run underneath the US 285 highway (US 285). The terminus of the road bore excavation is located at the lease-US 285 right-of-way boundary. The C-141 indicated the impacted area was located in pastureland. The NMOCD Approved Work Plan is provide in **Appendix A**. A copy of the submitted Form C-141 for the Release is provided in **Appendix B**. The site location is depicted in **Figure 1** and **Figure 2**.

Two (2) produced water releases, 2RP-1541 (2013) and 2RP-3105 (2015), previously closed with concurrence from the NMOCD, are located in the immediate vicinity of affected area. The northern and eastern boundaries of the Release area are immediately adjacent to and overlapping with the closed Release Sites. 2RP-1541 appears to overlap with the easternmost extent of the affected area. The southern extent of the remediation associated with 2RP-3105 appears to be immediately adjacent to the northern boundary of the affected area. Both produced water releases were remediated by removing the top approximately four (4) feet of contaminated soil and installation of a synthetic liner over deeper impacted soils, and soils below four (4) feet bgs in the underlying areas are expected to have elevated chloride concentrations. The approximate locations of the synthetic liners from the previous releases are depicted in **Figure 4**.

A groundwater database maintained by the New Mexico Office of the State Engineer (NMOSE) did not identify any registered water wells in Section 03, Township 25 South, Range 28 East. The nearest well recorded in the NMOSE groundwater database is located approximately 0.65 miles west of the Site and has a depth to groundwater of approximately fifty (50) feet below ground surface (bgs). No water wells were observed within on-thousand (1,000) feet of the Site. No surface water was observed within one-thousand (1,000) feet of the Release. The groundwater



database results are provided as **Appendix C**. One (1) soil boring (BH-3) was advanced to approximately thirty (30) feet bgs as part of the soil investigation activities. The boring log is provided as **Appendix E**. Water was not encountered before the termination of the boring. In addition, one (1) soil boring was advanced by COG approximately 60 feet to the northwest of BH-3 in 2015, in association with 2RP-3105, and one (1) soil boring in association with 2RP-1541 was advanced approximately 25 feet to the northwest of BH-3, each to a depth of approximately forty (40) feet bgs. Water was not encountered prior to termination of either boring.

## 2.0 Site Characterization

Based on the inferred depth to groundwater at the Site, the NMOCD *Closure Criteria for Soils Impacted by a Release* may not warrant the most stringent closure criteria listed, due to the lack of definitive depth to groundwater data. However, the Willow A State #003 is located in the 'high karst' area as outlined in Bureau of Land Management (BLM) publicly available Karst Potential Map. The Karst Potential Map is provided as **Figure 3**. The NMOCD stance on the regulation of releases in 'high karst' area is unclear, consequently COG will utilize the most stringent NMOCD Closure Criteria for Soils Impacted by a Release for the Willow A State #003 as follows:

- Benzene: 10 mg/kg
- Total Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX): 50 mg/kg
- Total Petroleum Hydrocarbons (TPH): 100 mg/kg
- Chlorides: 600 mg/kg

## 3.0 Approved Work Plan

On July 2020, a remediation workplan was submitted to the New Mexico Oil Conservation Division (NMOCD) by TRC, on behalf of COG. Based on the laboratory analytical results from the soil samples collected in December 2019 and May 2020, the Release Site does not appear to be impacted above NMOCD regulatory guidelines by TPH or BTEX constituents. In addition, based on laboratory analytical results of soil samples collected in December 2019 and May 2020, chloride impact above NMOCD regulatory guidelines appear to have been vertically and horizontally delineated.

The approved workplan includes:

- Excavation of impacted soil approximately two (2) to four (4) foot below the current grade of the road bore excavation represented by soil sample locations AH-1 and TT-2.
- Excavation of approximately nine (9) foot below the current grade of the area outside the road bore excavation represented by soil sample locations AH-2 and BH-3.
- Excavation activities will not be advanced further north or east if either of the liners associated with releases 2RP-1541 or 2RP-3105 are encountered in order to preserve the integrity of those liners.



- Confirmation soil sample collection from each cardinal direction sidewall.
- Omission of north and/or east sidewall samples if the liners associated with former releases (2RP-1541 and 2RP-3105) with known elevated chloride concentrations are encountered.
- Omission of floor confirmation soil samples, as the liner will be installed over the entire footprint of the Release area.
- Backfill the area outside the road bore excavation to four (4) feet below the current grade with locally sourced, non-impacted 'like' material prior to liner installation.
- Installation of two (2) 20 mil polyvinyl liners, one in each excavation, below any flowlines crossing the Release area.
- Backfill of the excavations to initial grade, which will maintain the current infrastructure of surface flowlines running to a lower elevation and entering the road bore at the current location.
- Disposal of affected soil at a licensed disposal facility.

The NMOCD approved the workplan with no additional stipulations. The approved workplan is provided as **Appendix A**. The Release Notification and Corrective Action (Form C-141) is provided as **Appendix B**.

## 4.0 Summary of Soil Remediation Activities

On April 2022, soil remediation activities commenced at the Site. An onsite geologist field screened for chloride concentrations to guide the excavation activities in accordance with the NMOCD approved workplan. The Release footprint, as indicated by COG, was excavated to a depth of approximately four (4) to nine (9) ft bgs, and the footprint was laterally extended until chloride field screen results indicated soils were below NMOCD closure criteria. COG excavated approximately four (4) feet below the current grade of the existing excavation represented by previous soil sample locations AH-1 and TT-2. COG excavated approximately nine (9) feet below the current grade of the area outside the existing excavation represented by previous soil sample locations AH-2 and BH-3. The nine (9) foot excavation area was backfilled to four (4) feet below the current grade with locally sourced, non-impacted 'like' material prior to liner installation. At the base of each excavation, two (2) 20 mil polyethylene liners were installed approximately four (4) feet below flowlines crossing the Release area to the east, and approximately one (1) to two and a half (2.5) feet below flowlines entering the road bore. After the liners were installed, the excavated areas were backfilled to the initial grade to maintain the current infrastructure of surface flowlines running to a lower elevation and entering the road bore. No floor confirmation soil samples were collected, as the liners were installed over the entire footprint of the Release area. All soil was staged on polyvinyl sheeting adjacent to the excavation until it was transported to the R360 Red Bluff facility.

Confirmation soil samples Confirmation-North, Confirmation-South, Confirmation-East, and Confirmation-West were collected from the sidewalls of the excavation area. Each soil sample was submitted to Xenco Eurofins in Midland, TX for TPH analysis by Method 8015M, BTEX



analysis by EPA 8021B, and chloride analysis by Method 300.0. **Figure 4** depicts the excavation footprint and the associated soil sample locations. Photographic documentation of the remediation activities is provided as **Appendix D** and the laboratory analytical package from the confirmation sampling event is provided as **Appendix F**.

The analytical results indicated each soil sample exhibited TPH, BTEX, and chloride concentrations below NMOCD regulatory guidelines. Analytical results are summarized in **Table 1**.

After review of all the analytical results, the excavation was backfilled to grade with commercially sourced backfill material. The site was contoured to near original grade. All excavated soils were transported offsite to the R360 Red Bluff facility.

## 5.0 Site Closure Request

Remediation activities were conducted in accordance with NMOCD regulatory guidelines. Laboratory analytical results from excavation confirmation soil samples indicated chloride concentrations were below the NMOCD regulatory guidelines in the submitted confirmation sidewall soil samples. Polyvinyl liners were installed at the base of the excavation to prevent vertical migration of elevated chloride concentrations underlying the Site, in accordance with the NMOCD approved workplan. The affected soil was transported to the R360 Red Bluff facility, and the Site was returned to near original grade with locally sourced backfill material. Based on laboratory analytical results and field activities conducted to date, TRC recommends COG provide copies of this Remediation Summary and Site Closure Request to the NMOCD and request closure status to the Willow A State #003 Release Site.

## 6.0 Limitation

TRC has prepared this Remediation Summary and Site Closure Request to the best of its ability. No other warranty, expressed or implied, is made or intended.

TRC has examined and relied upon documents referenced in the report and has relied on oral statements made by certain individuals. TRC has not conducted an independent examination of the facts contained in referenced materials and statements. We have presumed the genuineness of the documents and that the information provided in documents or statements is true and accurate. TRC has prepared this report, in a professional manner, using the degree of skill and care exercised by similar environmental consultants. TRC also notes that the facts and conditions referenced in this report may change over time and the conclusions and recommendations set forth herein are applicable only to the facts and conditions as described at the time of this report.

This report has been prepared for the benefit of COG Operating, LLC. The information contained in this report, including all exhibits and attachments, may not be used by any other party without the express consent of TRC and/or COG Operating, LLC.



## 7.0 Distribution

- Copy 1: Mike Bratcher  
New Mexico Energy, Minerals and Natural Resources Department  
Oil Conservation Division, District 2  
811 S. First Street  
Artesia, NM 88210
- Copy 2: Ryan Mann  
New Mexico State Land Office  
914 N. Liman Street  
Hobbs, NM 88240
- Copy 3: Ike Tavaréz  
COG Operating, LLC  
600 W. Illinois Avenue  
Midland, TX 79701
- Copy 4: TRC Environmental Corporation  
10 Desta Dr STE 130E  
Midland, TX 79705



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## Table

Willow A State #003

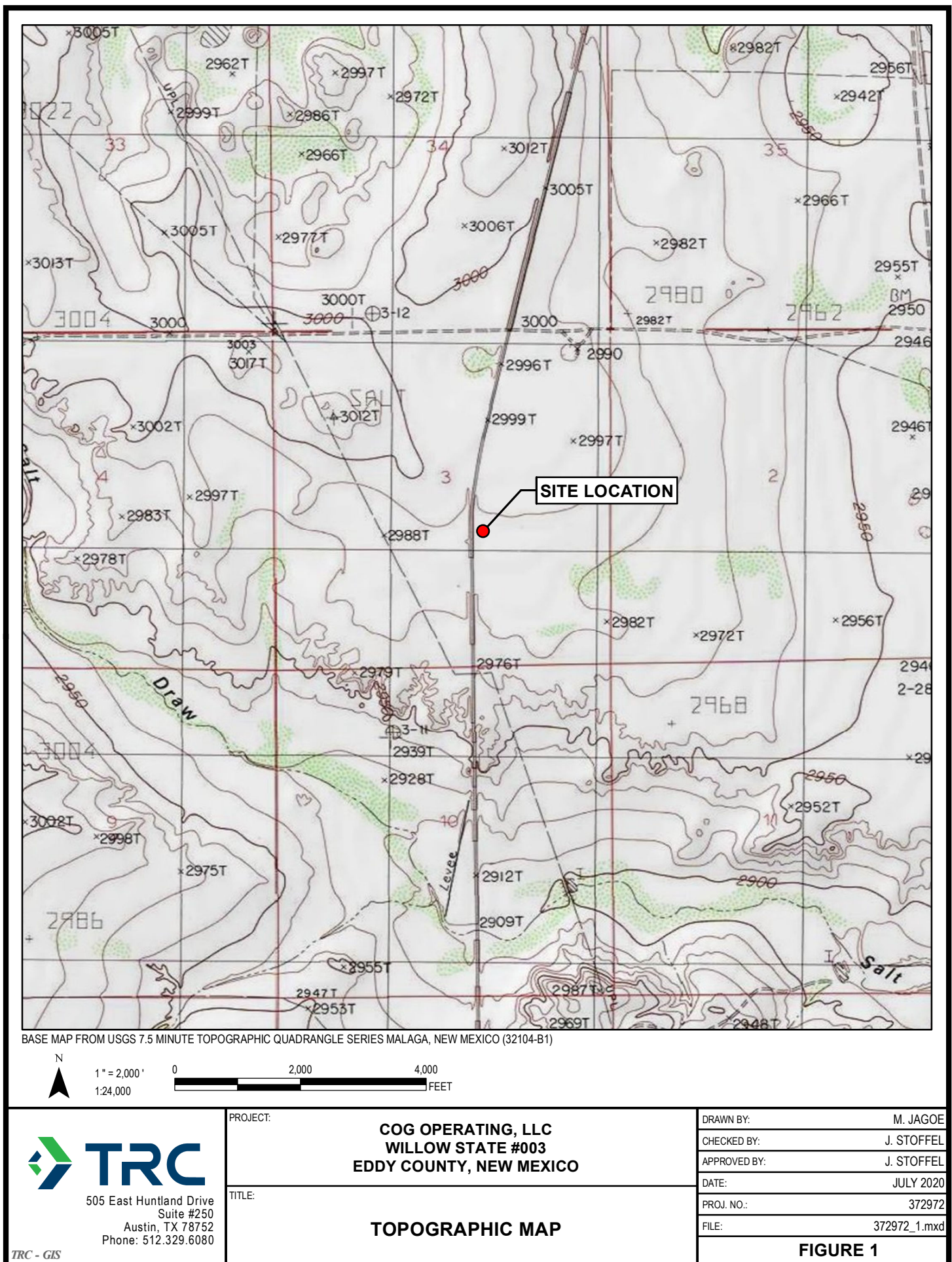
TABLE 1 Confirmation Sample Analytical Results Concentrations of BTEX, TPH, and/or Chloride in Soil										
Sample ID	Date	Soil Status	SW 846 8021B		SW 846 8015M Ext.					E 300
			Benzene (mg/kg)	BTEX (mg/kg)	GRO C <sub>6</sub> -C <sub>10</sub> (mg/kg)	DRO C <sub>10</sub> -C <sub>28</sub> (mg/kg)	GRO + DRO C <sub>6</sub> -C <sub>28</sub> (mg/kg)	ORO C <sub>28</sub> -C <sub>35</sub> (mg/kg)	TPH C <sub>6</sub> -C <sub>35</sub> (mg/kg)	Chloride (mg/kg)
Road Bore Excavation Samples										
Confirmation-North	4/20/22	In-Situ	<0.00199	<0.00398	<49.9	<49.9	<49.9	<49.9	<49.9	343
Confirmation-South	4/20/22	In-Situ	<0.00201	<0.00402	<50.0	<50.0	<50.0	<50.0	<50.0	280
Confirmation-East	4/20/22	In-Situ	<0.00200	<0.00401	<49.9	<49.9	<49.9	<49.9	<49.9	278
Confirmation-West	4/21/22	In-Situ	<0.00202	<0.00404	<50.0	<50.0	<50.0	<50.0	<50.0	284
NMOCD Closure Criteria			10	50	-	-	-	-	100	600

Table 1 - Confirmation Sample Analytical Results





## Figures



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LEGEND

-  WATER WELL
-  WETLANDS
-  HALF MILE RADIUS
-  AREA INSIDE 100 YEAR FLOODPLAIN

SOURCE: FLOODPLAIN - FEMA FLOOD MAP SERVICE CENTER (MSC); AERIAL IMAGERY - ESRI WORLD IMAGERY (11/4/2018)



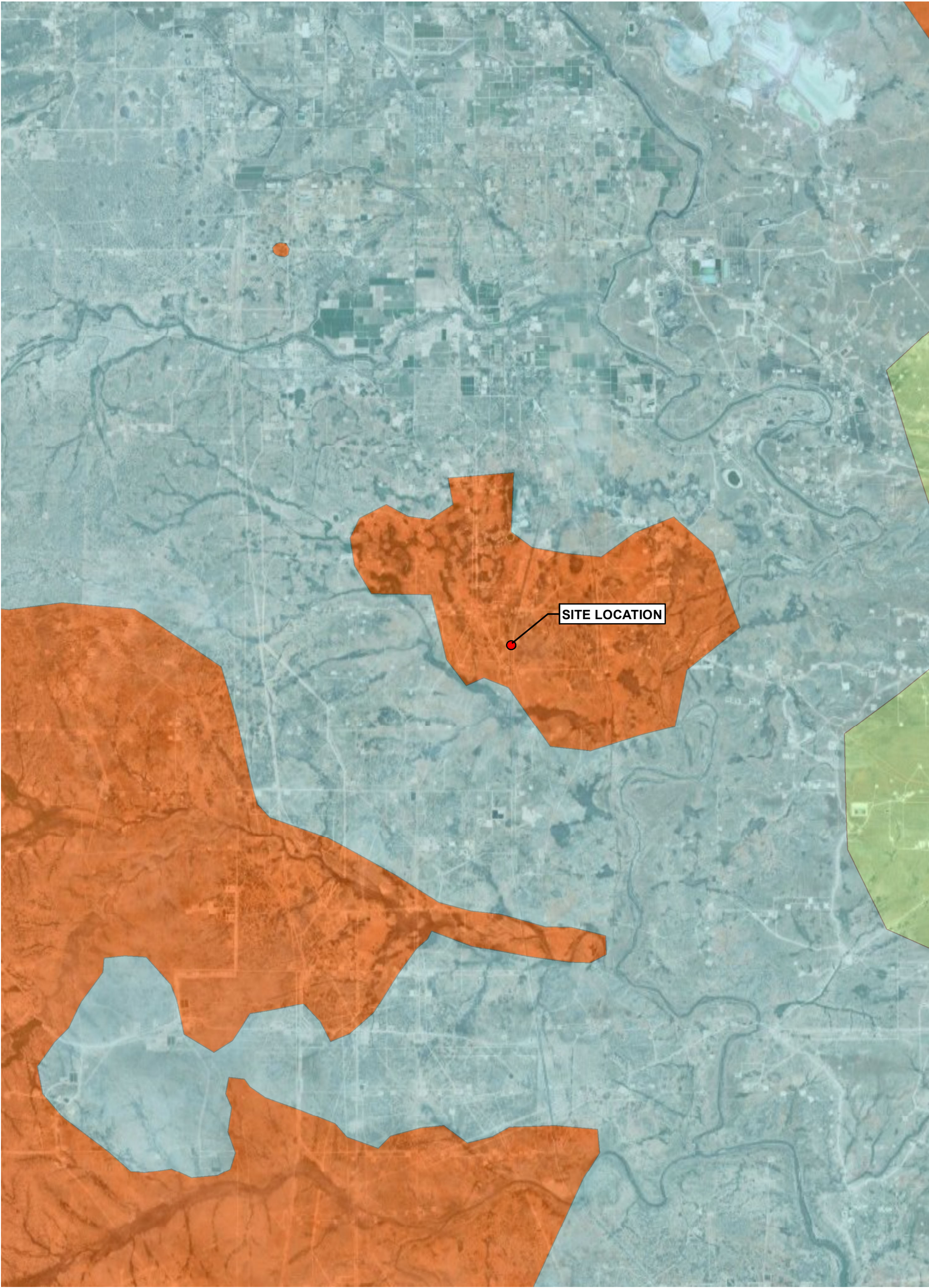


505 East Huntland Drive  
Suite #250  
Austin, TX 78752  
Phone: 512.329.6080

PROJECT:	COG OPERATING, LLC WILLOW STATE #003 EDDY COUNTY, NEW MEXICO
TITLE:	AERIAL MAP

DRAWN BY:	M. JAGOE
CHECKED BY:	J. STOFFEL
APPROVED BY:	J. STOFFEL
DATE:	JULY 2020
PROJ. NO.:	372972
FILE:	372972_2.mxd
FIGURE 2	

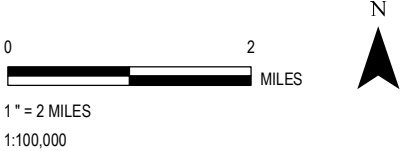





LEGEND

- Points
- MEDIUM KARST POTENTIAL
- LOW KARST POTENTIAL
- HIGH KARST POTENTIAL

SOURCE: KARST DATA FROM NEW MEXICO BUREAU OF LAND MANAGEMENT; AERIAL IMAGERY - ESRI WORLD IMAGERY (11/4/2018)



<div><div>505 East Huntland Drive Suite #250 Austin, TX 78752 Phone: 512.329.6080</div></div>	PROJECT:	COG OPERATING, LLC WILLOW STATE #003 EDDY COUNTY, NEW MEXICO	DRAWN BY:	M. JAGOE
	TITLE:	KARST POTENTIAL MAP	CHECKED BY:	J. STOFFEL
			APPROVED BY:	J. STOFFEL
			DATE:	JULY 2020
			PROJ. NO.:	372972
			FILE:	372972_3.mxd
			FIGURE 3	



TRC - GIS

Coordinate System: NAD 1983 2011 StatePlane New Mexico East FIPS 3001 Ft US (Foot US)  
Map Rotation: 0

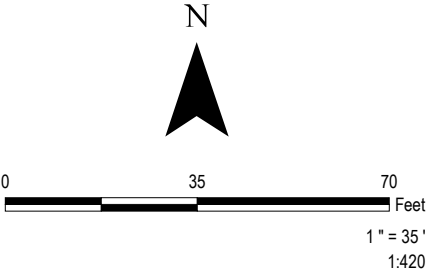
Plot Date: 6/28/2022 11:11:18 AM by MJAGOE - LAYOUT: ANSI B(11"x17")  
Path: S:\1-PROJECTS\CondoResources\438373\_Willow\_State\mxd\438373\_1.mxd



**LEGEND**

- CONFIRMATION SAMPLE
- EXCAVATION (4 FEET) AND LINER 1
- EXCAVATION (9 FEET) AND LINER 2
- APPROXIMATE LINER LOCATION 2RP-1541
- APPROXIMATE LINER LOCATION 2RP-3105

SOURCE: AERIAL IMAGERY - ESRI WORLD IMAGERY (CLARITY)



PROJECT:		COG OPERATING, LLC WILLOW STATE #003 EDDY COUNTY, NEW MEXICO	
TITLE:		EXCAVATION AND CONFIRMATION SAMPLE LOCATION MAP	
DRAWN BY:	M. JAGOE	PROJ NO.:	438373
CHECKED BY:	J. STOFFEL	FIGURE 4	
APPROVED BY:	J. STOFFEL		
DATE:	JUNE 2022		
		505 East Huntland Drive, Suite 250 Austin, TX 78752 Phone: 512.329.6080 www.trcsolutions.com	
		FILE NO.: 438373_1.mxd	



---

## **Appendix A: NMOCD Approved Workplan – Appendix Removed**





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Midland, TX 79705

T 432.520.7720  
TRCcompanies.com

**SITE ASSESSMENT SUMMARY  
AND  
PROPOSED VARIANCE AND REMEDIATION WORK PLAN**

**COG Operating, LLC  
Willow A State #003  
Eddy County, New Mexico  
Unit Letter "J", Section 03, Township 25 South, Range 28 East  
Latitude 32.15890° North, Longitude 104.07183° West  
NMOCD Reference No. NRM1935157445**


Prepared For:

**COG Operating, LLC  
600 W Illinois Avenue  
Midland, Texas 79701**

Prepared By:

**TRC Environmental Corporation  
10 Desta Drive, Suite 150E  
Midland, Texas 79705**

**July 2020**

  
Jared E. Stoffel, PG  
Project Manager

  
Curt Stanley  
Senior Project Manager



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Figure 3 – Karst Potential Map

Figure 4 – Sample Location, Proposed Excavation and Proposed Liner Map

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Table 1 – Summary of Sampling Analytical Results (Delineation)

## APPENDICES

Appendix A – Release Notification and Corrective Action (Form C-141)

Appendix B – Groundwater Database Results

Appendix C – General Photographs

Appendix D – Boring Log

Appendix E – Laboratory Analytical Reports





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## INTRODUCTION & BACKGROUND INFORMATION

TRC Environmental Corporation (TRC), on behalf of COG Operating, LLC (COG), has prepared this *Site Assessment Summary and Proposed Variance and Remediation Work Plan* for the Release Site known as the Willow A State #003 (the Site). The legal description of the Site is Unit Letter "J", Section 03, Township 25 South, Range 28 East, in Eddy County, New Mexico. The subject property is owned by the State of New Mexico and administered by New Mexico State Land Office (NMSLO). The GPS coordinates for the Site are N 32.15890°, W 104.07183°. A topographic map is provided as **Figure 1**. Photographs are provided in the photolog as **Appendix C**.

On October 17, 2019, COG discovered a produced water release had occurred at the Site. The Release was attributed to a third-party contractor line-strike. On the discovery date, COG notified the New Mexico Oil Conservation Division (NMOCD) and New Mexico State Land Office (NMSLO) of the Release. The Release was assigned an NMOCD Reference number of NRM1935157445. During initial response activities, a vacuum truck was dispatched to recover all freestanding fluids. On October 28, 2019, the initial Release Notification and Corrective Action (Form C-141) was submitted to the NMOCD. The Form C-141 indicated twenty (20) barrels (bbls) of produced water was released and eighteen (18) bbls of produced water was recovered during initial response activities. The Release affected an area measuring approximately 2,200 square feet (sq. ft.). The affected area to the east is characterized as a right-of-way for above-ground poly flowlines. The flowlines turn to the west, and run down into an approximately eight (8) foot excavation. At the base of the western terminus of the excavation begins a road bore in which the flowlines run underneath the US 285 highway (US 285). The C-141 indicated the impacted area was located in pastureland. A copy of the submitted Form C-141 for the Release is provided in **Appendix A**. The site location is depicted in **Figure 1** and **Figure 2**. The affected area is depicted in **Figure 4**.

A groundwater database maintained by The New Mexico Office of the State Engineer (NMOSE) did not identify any registered water wells in Section 03, Township 25 South, Range 28 East. The nearest well recorded in the NMOSE groundwater database is located approximately 0.65 miles west of the Site and has a depth to groundwater of approximately fifty (50) feet below ground surface (bgs). No water wells were observed within one-thousand (1,000) feet of the Site. No surface water was observed within one-thousand (1,000) feet of the Release. One (1) soil boring (BH-3) was advanced to approximately thirty (30) feet bgs as part of the soil investigation activities. Water was not encountered before the termination of the boring. The boring log is provided as **Appendix D**.

Based on the inferred depth to groundwater at the Willow A State #003 Release Site, the NMOCD *Closure Criteria for Soils Impacted by a Release* may not warrant the most stringent closure criteria listed, due to the lack of definitive depth to groundwater data. However, the Willow A State #003 is located in the 'high karst' area as outlined in Bureau of Land Management (BLM) publicly available Karst Potential Map, and is provided as **Figure 3**. The NMOCD stance on the regulation of releases in 'high karst' areas is unclear, consequently COG will utilize the most stringent NMOCD Closure Criteria for Soils Impacted by a Release for the Willow A State #003 as follows:

- Benzene – 10 mg/kg
- Benzene, toluene, ethylbenzene, and xylenes (BTEX) – 50 mg/kg



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- Total Petroleum Hydrocarbons (TPH) –100 mg/kg
- Chloride – 600 mg/kg

## SOIL INVESTIGATION SUMMARY

On December 3, 2019, an initial soil investigation was conducted at the Release Site. During the investigation, two (2) investigation augerholes (AH-1 and AH-2) were advanced within the Release area, utilizing a hand auger to characterize the vertical extent of the impacted area. In addition, one (1) horizontal boring (Wall) was advanced into the terminal sidewall of the existing excavation utilizing a hand auger to characterize the lateral extent of the Release area parallel to the road boring under US 285. Five (5) soil samples (AH-1 @ 0-0.5', AH-1 @ 1', AH-1 @ 2', AH-1 @ 3', AH-1 @ 4', and AH-1 @ 5') were collected from soil sample location AH-1, which was advanced at the base of the existing excavation. Four (4) soil samples (AH-2 @ 0-0.5', AH-2 @ 1', AH-2 @ 2', AH-2 @ 3', and AH-2 @ 4') were collected from soil sample location AH-2, which was advanced near the release point, located outside the existing excavation. Six (6) soil samples (Wall, Wall @ 1', Wall @ 2', Wall @ 3', Wall @ 4', and Wall @ 5') were collected from horizontal boring location "Wall". Collected soil samples were submitted to Xenco Laboratories for chloride and/or TPH and BTEX analyses by EPA E300, EPA 8015B, and EPA 8021B, respectively. A review of the analytical data indicated each soil sample submitted for TPH and BTEX analyses exhibited concentrations below the laboratory reporting limit (RL). The analytical data indicated each soil sample submitted for chloride analysis exhibited chloride concentrations above the NMOCD regulatory guidelines.

On May 7 and 8, 2020, a secondary soil investigation was conducted at the Release site. The existing excavation was benched to accommodate delineation utilizing a backhoe. Two (2) trenches (TT-1 and TT-2) were advanced within the existing excavation. Trench TT-1 was advanced laterally into the west sidewall to determine the lateral extent of the Release area parallel to the road boring under US 285. Trench TT-2 was advanced vertically at the base of the excavation to determine the vertical extent of the impacted area within the existing excavation. Six (6) soil samples (TT-1 @ 0-0.5', TT-1 @ 1', TT-1 @ 2', TT-1 @ 3', TT-1 @ 4', and TT-1 @ 5') were collected from trench TT-1. Seven (7) soil samples (TT-2 @ 0-0.5', TT-2 @ 1', TT-2 @ 2', TT-2 @ 3', TT-2 @ 4', TT-2 @ 5', and TT-2 @ 6') were collected from trench TT-2. Additionally, three (3) soil samples (NSW, SSW, and ESW) from outside the impacted area were collected to determine the lateral extent of the impact outside the existing excavation. Collected soil samples were submitted to the laboratory for chloride and/or TPH and BTEX analyses. A review of the analytical data indicated each soil sample submitted for TPH and BTEX analyses exhibited concentrations below the laboratory RL. The analytical data indicated each soil sample submitted for chloride analysis exhibited chloride concentrations above NMOCD regulatory guidelines with the exception of soil samples TT-1 @ 1', TT-1 @ 4', TT-1 @ 5', TT-2 @ 6', NSW, SSW, and ESW.

On May 28, 2020, a final soil investigation was conducted at the Release site. One (1) soil boring (BH-3) was advanced in the middle of the Release Site, outside the existing excavation, to determine vertical delineation of the Release area outside the existing excavation. The soil boring was advanced to approximately thirty (30) feet bgs. Groundwater was not encountered prior to terminating the boring at approximately thirty (30) feet bgs. Nine (9) soil samples (BH-3 @ 0-1', BH-3 @ 2-3', BH-3 @ 4-5', BH-3 @ 6-7', BH-3 @ 8-9', BH-3 @ 14-15', BH-3 @ 19-20', BH-3



10 Desta Dr., Suite 150E  
Midland, TX 79705

T 432.520.7720  
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@ 24-25', and BH-3 @ 29-30') were collected from the soil boring and were submitted to the laboratory for chloride and/or TPH and BTEX analyses. A review of the analytical data indicated each soil sample submitted for TPH and BTEX analyses exhibited concentrations below the laboratory RL. The analytical data indicated each soil sample submitted for chloride analysis exhibited chloride concentrations above NMOCD regulatory guidelines with the exception of soil samples BH-3 @ 24-25' and BH-3 @ 29-30'. The sample locations are presented as **Figure 4**. The analytical data is summarized in **Table 1**. The laboratory analytical packets are presented as **Appendix E**.

## PROPOSED VARIANCE AND REMEDIATION PLAN

Based on the laboratory analytical results from the soil samples collected in December 2019 and May 2020, the Release Site does not appear to be impacted above NMOCD regulatory guidelines by TPH or BTEX constituents. In addition, based on laboratory analytical results of soil samples collected in December 2019 and March 2020, chloride impact above NMOCD regulatory guidelines appear to have been vertically and horizontally delineated. Full excavation and removal of the impacted soils would pose potential safety risks to onsite personnel and environmental risks to the flowlines located within the footprint of the Release area, due to the depth of impact. COG proposes an approximately four (4) foot excavation below the current grade of the existing excavation represented by soil sample locations AH-1 and TT-2 to remove the majority of the impacted area and allow for installation of a liner below the flowlines. COG proposes an approximately nine (9) foot excavation below the current grade of the area outside the existing excavation represented by soil sample locations AH-2 and BH-3. This area will be backfilled to four (4) feet below the current grade with locally sourced, non-impacted 'like' material. At the base of each excavation, COG proposes the installation of two (2) 20 mil polyethylene liners, which will be at least four (4) feet below any flowlines crossing the Release area. The excavated areas will then be backfilled to the initial grade, which will maintain the current infrastructure of surface flowlines running to a lower elevation and entering the road bore at the current location. Four (4) sidewall confirmation soil samples will be collected, one (1) soil sample in each cardinal direction. No floor confirmation soil samples will be collected, as the liner will be installed over the entire footprint of the Release area. The proposed area of excavation and liner location are depicted in **Figure 4**.

COG is prepared to begin the activities outlined in this *Site Assessment Summary and Proposed Variance and Remediation Work Plan* following NMOCD and NMSLO approval. On completion of remediation activities, a Remediation Summary and Closure Report will be prepared detailing field activities and laboratory analytical results from confirmation soil samples.

If you have any questions, or need any additional information, please feel free to contact myself or Ike Tavaréz by phone or email.

## LIMITATION

TRC has prepared this Site Assessment Summary and Proposed Variance and Remediation Work Plan to the best of its ability. No other warranty, expressed or implied, is made or intended.



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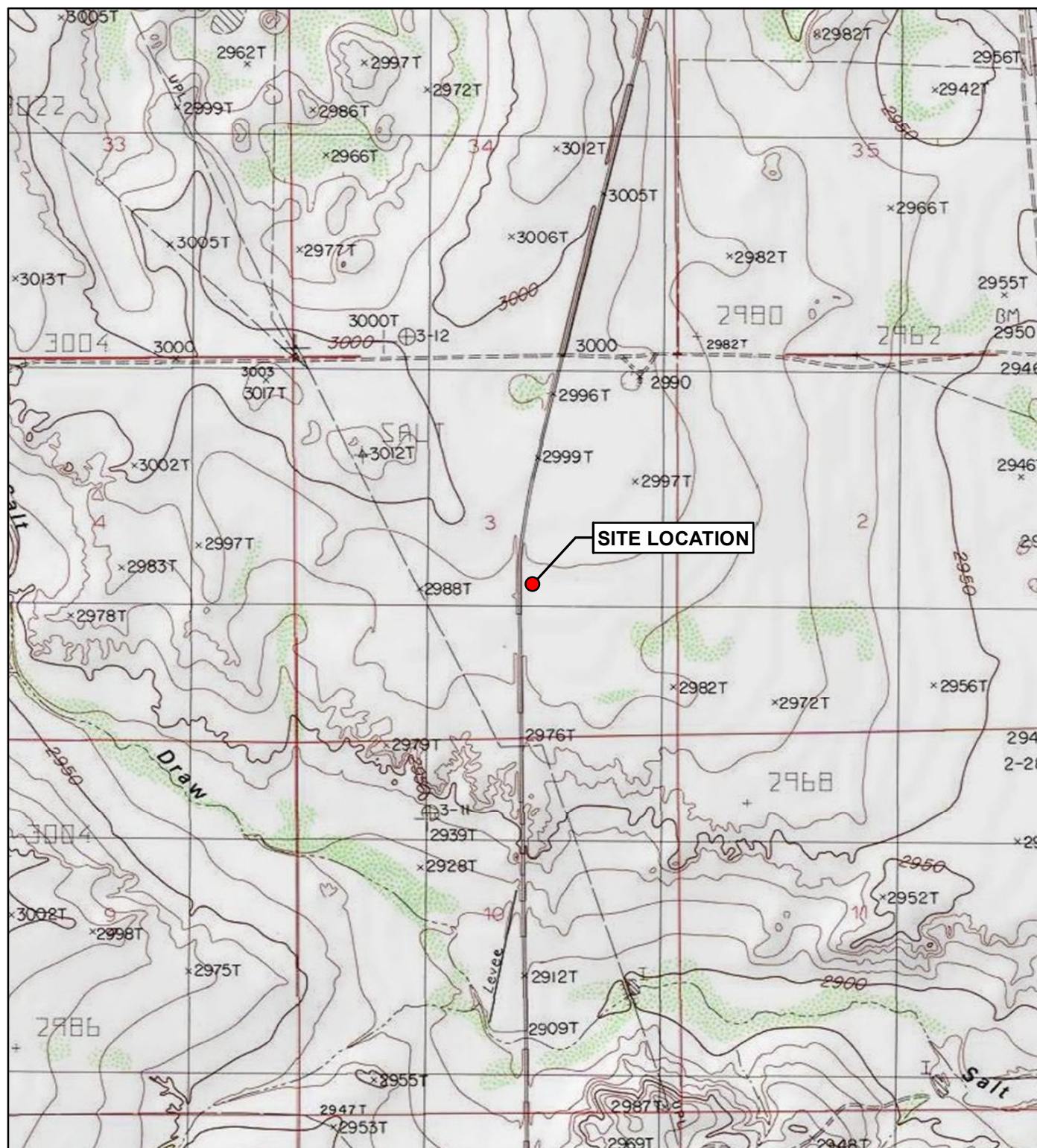
TRC has examined and relied upon documents referenced in the report and has relied on oral statements made by certain individuals. TRC has not conducted an independent examination of the facts contained in referenced materials and statements. We have presumed the genuineness of the documents and that the information provided in documents or statements is true and accurate. TRC has prepared this report, in a professional manner, using the degree of skill and care exercised by similar environmental consultants. TRC also notes that the facts and conditions referenced in this report may change over time and the conclusions and recommendations set forth herein are applicable only to the facts and conditions as described at the time of this report.

This report has been prepared for the benefit of COG Operating, LLC. The information contained in this report, including all exhibits and attachments, may not be used by any other party without the express consent of TRC and/or COG Operating, LLC.

## **DISTRIBUTION**

- Copy 1: Mike Bratcher  
New Mexico Energy, Minerals and Natural Resources Department  
Oil Conservation Division, District 2  
811 S. First Street  
Artesia, NM 88210
- Copy 2: Ryan Mann  
New Mexico State Land Office  
914 N. Liman Street  
Hobbs, NM 88240
- Copy 3: Ike Tavarez  
COG Operating, LLC  
600 W. Illinois Avenue  
Midland, Texas 79701
- Copy4: TRC Environmental Corporation  
10 Desta Dr STE 150E  
Midland, TX 79705





BASE MAP FROM USGS 7.5 MINUTE TOPOGRAPHIC QUADRANGLE SERIES MALAGA, NEW MEXICO (32104-B1)



505 East Huntland Drive  
Suite #250  
Austin, TX 78752  
Phone: 512.329.6080

TRC - GIS

PROJECT:

**COG OPERATING, LLC  
WILLOW STATE #003  
EDDY COUNTY, NEW MEXICO**

TITLE:

**TOPOGRAPHIC MAP**

DRAWN BY: M. JAGOE

CHECKED BY:

APPROVED BY:

DATE: JUNE 2020

PROJ. NO.: 372972

FILE: 372972\_1.mxd

**FIGURE 1**

S:\1-PROJECTS\ConchoResources\372972\MXD\372972\_1.mxd -- Saved By: MJAGOE on 6/18/2020, 15:54:19 PM





LEGEND

-  WATER WELL
-  WETLANDS
-  HALF MILE RADIUS
-  AREA INSIDE 100 YEAR FLOODPLAIN

SOURCE: FLOODPLAIN - FEMA FLOOD MAP SERVICE CENTER (MSC); AERIAL IMAGERY - ESRI WORLD IMAGERY (11/4/2018)

0 1,500  
FEET  
1" = 1,500'  
1:18,000





505 East Huntland Drive  
Suite #250  
Austin, TX 78752  
Phone: 512.329.6080

PROJECT:	COG OPERATING, LLC WILLOW STATE #003 EDDY COUNTY, NEW MEXICO
TITLE:	AERIAL MAP

DRAWN BY:	M. JAGOE
CHECKED BY:	
APPROVED BY:	
DATE:	JUNE 2020
PROJ. NO.:	372972
FILE:	372972_2.mxd
FIGURE 2	






LEGEND

- Site Location
- MEDIUM KARST POTENTIAL
- LOW KARST POTENTIAL
- HIGH KARST POTENTIAL

SOURCE: KARST DATA FROM NEW MEXICO BUREAU OF LAND MANAGEMENT; AERIAL IMAGERY - ESRI WORLD IMAGERY (11/4/2018)

0 2  
1" = 2 MILES  
1:100,000

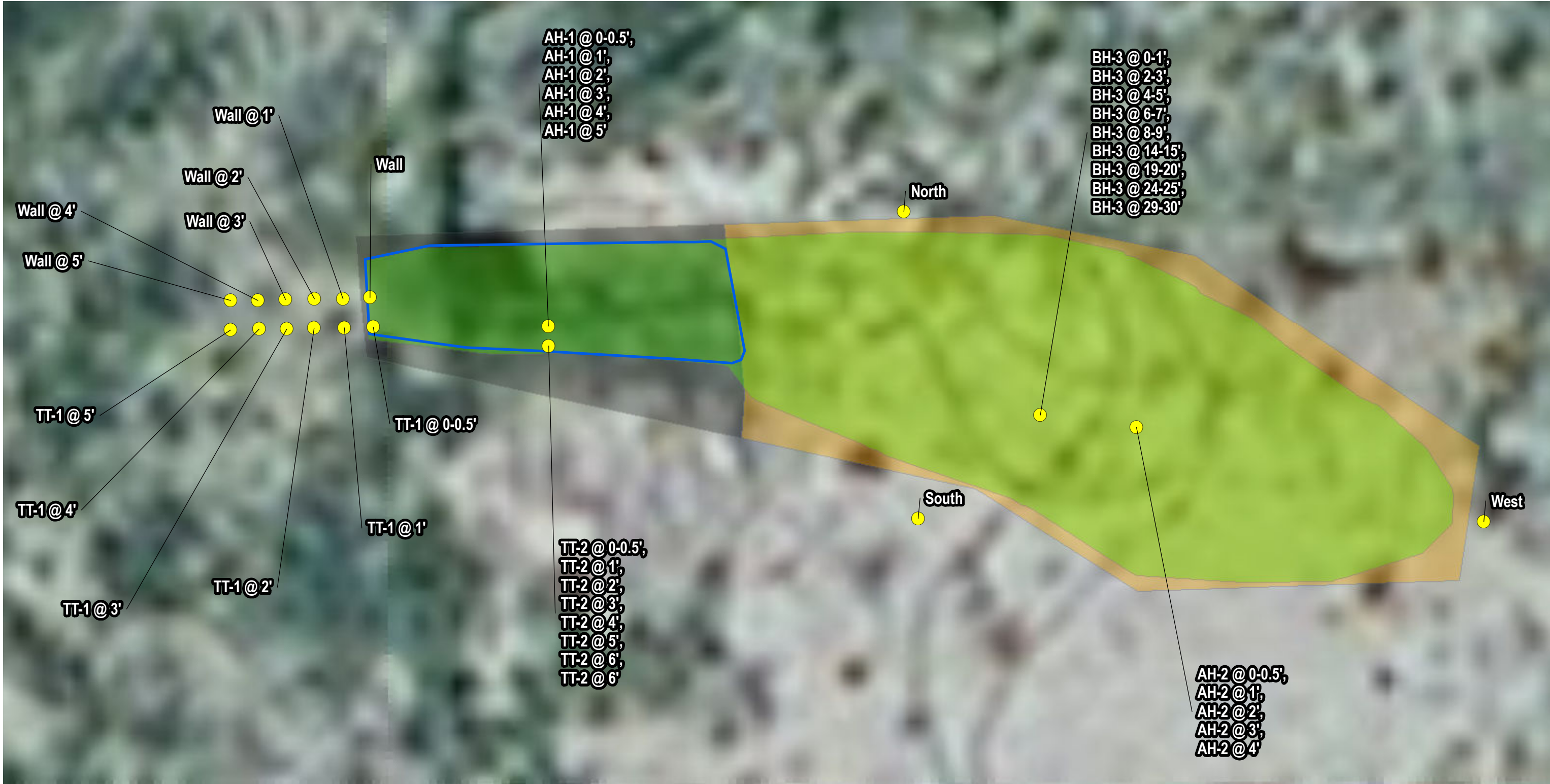


<div>  505 East Huntland Drive Suite #250 Austin, TX 78752 Phone: 512.329.6080</div>	PROJECT:	COG OPERATING, LLC WILLOW STATE #003 EDDY COUNTY, NEW MEXICO	DRAWN BY:	M. JAGOE
	TITLE:	KARST POTENTIAL MAP	CHECKED BY:	
			APPROVED BY:	
			DATE:	JUNE 2020
			PROJ. NO.:	372972
			FILE:	372972_3.mxd
			FIGURE 3	



Coordinate System: NAD 1983 2011 StatePlane New Mexico East FIPS 3001 Ft US (Foot US)  
Map Rotation: 0

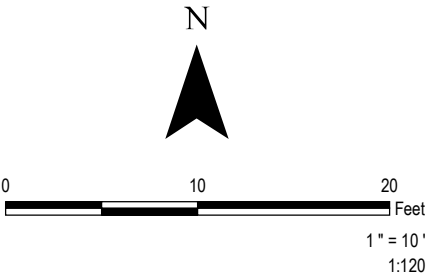
Plot Date: 7/14/2020 11:09:55 AM by MJAGOE - LAYOUT: ANSI B (11"x17")  
Path: S:\1-PROJECTS\ConductResources\372972\MXD\372972\_4.mxd



SOURCE: AERIAL IMAGERY - ESRI WORLD IMAGERY (CLARITY)

**LEGEND**

- DELINEATION SAMPLE
- RELEASE AREA
- PROPOSED SHALLOWER LINER LOCATION
- PROPOSED DEEPER LINER LOCATION
- CURRENT EXCAVATION





PROJECT:		COG OPERATING, LLC WILLOW STATE #003 EDDY COUNTY, NEW MEXICO	
SAMPLE LOCATION, PROPOSED EXCAVATION AND PROPOSED LINER MAP			
DRAWN BY: M. JAGOE		PROJ NO.: 372972	
CHECKED BY:		FIGURE 4	
APPROVED BY:			
DATE: JULY 2020			
		505 East Huntland Drive, Suite 250 Austin, TX 78752 Phone: 512.329.6080 www.trcsolutions.com	
		FILE NO.: 372972_4.mxd	



TABLE 1 Summary of Sampling Analytical Results (Delineation Samples) Concentrations of BTEX, TPH, and/or Chloride in Soil											
Sample ID	Date	Depth	Proposed Soil Status	SW 846 8021B		SW 846 8015M Ext.					E 300
				Benzene (mg/kg)	BTEX (mg/kg)	GRO C <sub>6</sub> -C <sub>10</sub> (mg/kg)	DRO C <sub>10</sub> -C <sub>28</sub> (mg/kg)	GRO + DRO C <sub>6</sub> -C <sub>28</sub> (mg/kg)	ORO C <sub>28</sub> -C <sub>35</sub> (mg/kg)	TPH C <sub>6</sub> -C <sub>35</sub> (mg/kg)	Chloride (mg/kg)
Vertical Delineation											
AH-1 @ 0-0.5'	12/3/19	0-0.5'	Excavate	<0.00199	<0.00199	<49.8	<49.8	<49.8	<49.8	<49.8	6,920
AH-1 @ 1'	12/3/19	1'	Excavate	–	–	–	–	–	–	–	14,600
AH-1 @ 2'	12/3/19	2'	Excavate	–	–	–	–	–	–	–	13,100
AH-1 @ 3'	12/3/19	3'	Excavate	–	–	–	–	–	–	–	7,270
AH-1 @ 4'	12/3/19	4'	Excavate	–	–	–	–	–	–	–	10,100
AH-1 @ 5'	12/3/19	5'	Under Liner	–	–	–	–	–	–	–	3,330
TT-2 @ 0-0.5'	5/8/20	0-0.5'	Excavate	<0.00200	<0.002	<50.0	<50.0	<50.0	<50.0	<50	2,780
TT-2 @ 1'	5/8/20	1'	Excavate	–	–	–	–	–	–	–	3,660
TT-2 @ 2'	5/8/20	2'	Excavate	–	–	–	–	–	–	–	4,020
TT-2 @ 3'	5/8/20	3'	Excavate	–	–	–	–	–	–	–	5,410
TT-2 @ 4'	5/8/20	4'	Excavate	–	–	–	–	–	–	–	2,200
TT-2 @ 5'	5/8/20	5'	Under Liner	–	–	–	–	–	–	–	607
TT-2 @ 6'	5/8/20	6'	Under Liner	–	–	–	–	–	–	–	199
AH-2 @ 0-0.5'	12/3/19	0-0.5'	Excavate	<0.00199	<0.00199	<49.9	<49.9	<49.9	<49.9	<49.9	8,460
AH-2 @ 1'	12/3/19	1'	Excavate	–	–	–	–	–	–	–	6,450
AH-2 @ 2'	12/3/19	2'	Excavate	–	–	–	–	–	–	–	7,150
AH-2 @ 3'	12/3/19	3'	Excavate	–	–	–	–	–	–	–	7,230
AH-2 @ 4'	12/3/19	4'	Excavate	–	–	–	–	–	–	–	7,730
BH-3 @ 0-1'	5/28/20	0-1'	Excavate	<0.00202	<0.00202	<50.2	<50.2	<50.2	<50.2	<50.2	14,600
BH-3 @ 2-3'	5/28/20	2-3'	Excavate	–	–	–	–	–	–	–	16,800
BH-3 @ 4-5'	5/28/20	4-5'	Excavate	–	–	–	–	–	–	–	13,200
BH-3 @ 6-7'	5/28/20	6-7'	Excavate	–	–	–	–	–	–	–	13,400
BH-3 @ 8-9'	5/28/20	8-9'	Excavate	–	–	–	–	–	–	–	9,420
BH-3 @ 14-15'	5/28/20	14-15'	Under Liner	–	–	–	–	–	–	–	2,650
BH-3 @ 19-20'	5/28/20	19-20'	Under Liner	–	–	–	–	–	–	–	1,190
BH-3 @ 24-25'	5/28/20	24-25'	Under Liner	–	–	–	–	–	–	–	302
BH-3 @ 29-30'	5/28/20	29-30'	Under Liner	–	–	–	–	–	–	–	77.7

TABLE 1 Summary of Sampling Analytical Results (Delineation Samples)											
Concentrations of BTEX, TPH, and/or Chloride in Soil											
Sample ID	Date	Depth	Proposed Soil Status	SW 846 8021B		SW 846 8015M Ext.					E 300
				Benzene (mg/kg)	BTEX (mg/kg)	GRO C <sub>6</sub> -C <sub>10</sub> (mg/kg)	DRO C <sub>10</sub> -C <sub>28</sub> (mg/kg)	GRO + DRO C <sub>6</sub> -C <sub>28</sub> (mg/kg)	ORO C <sub>28</sub> -C <sub>35</sub> (mg/kg)	TPH C <sub>6</sub> -C <sub>35</sub> (mg/kg)	Chloride (mg/kg)
Horizontal Delineation											
Wall	12/3/19	–	Excavate	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	<49.9	11,300
Wall @ 1'	12/3/19	-	Excavate	–	–	–	–	–	–	–	10,900
Wall @ 2'	12/3/19	-	Excavate	–	–	–	–	–	–	–	9,060
Wall @ 3'	12/3/19	-	Excavate	–	–	–	–	–	–	–	8,360
Wall @ 4'	12/3/19	-	Excavate	–	–	–	–	–	–	–	9,650
Wall @ 5'	12/3/19	-	Excavate	–	–	–	–	–	–	–	12,400
TT-1 @ 0-0.5'	5/7/20	-	Excavate	<0.00199	<0.00199	<49.9	<49.9	<49.9	<49.9	<49.9	4,510
TT-1 @ 1'	5/7/20	-	Excavate	–	–	–	–	–	–	–	449
TT-1 @ 2'	5/7/20	-	Excavate	–	–	–	–	–	–	–	1,050
TT-1 @ 3'	5/7/20	-	Excavate	–	–	–	–	–	–	–	1,780
TT-1 @ 4'	5/7/20	-	In-Situ	–	–	–	–	–	–	–	17.3
TT-1 @ 5'	5/7/20	-	In-Situ	–	–	–	–	–	–	–	70.3
NSW	5/8/20	-	In-Situ	<0.00198	<0.00198	<49.9	<49.9	<49.9	<49.9	<49.9	299
SSW	5/8/20	-	In-Situ	<0.00200	<0.002	<49.9	<49.9	<49.9	<49.9	<49.9	28.1
ESW	5/8/20	-	In-Situ	<0.00200	<0.002	<50.0	<50.0	<50.0	<50.0	<50	13.9
NMOCD Closure Criteria				10	50	-	-	-	-	100	600

 Proposed Soil Status - Excavate  
 Proposed Soil Status - Under Liner





---

## **Appendix B: Release Notification and Corrective Action (Form C-141)**

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

Form C-141  
Revised August 24, 2018  
Submit to appropriate OCD District office

Incident ID	NRM1935157445
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: Ike Tavaréz Title: Staff Program Manager  
Signature: *Ike Tavaréz* Date: 8.17.22  
email: Ike.Tavaréz@conocophillips.com Telephone: 432-685-2573



Incident ID	
District RP	
Facility ID	
Application ID	

**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: \_\_\_\_\_ Date: \_\_\_\_\_

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



---

## Appendix C: Groundwater Database Results





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

---

No records found.

**PLSS Search:**

**Section(s):** 3

**Township:** 25S

**Range:** 28E

---

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.

---

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Page 1 of 1

WATER COLUMN/ AVERAGE  
DEPTH TO WATER



# 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="#">C 01411 POD2</a>	C		ED	4	2	4	04	25S	28E	586374	3558036	1211	90	50	40
<a href="#">C 01411</a>	R	C	ED	4	4	2	04	25S	28E	586289	3558522*	1235	69	35	34

Average Depth to Water: **42 feet**

Minimum Depth: **35 feet**

Maximum Depth: **50 feet**

Record Count: 2

### UTMNAD83 Radius Search (in meters):

**Easting (X):** 587520.75

**Northing (Y):** 3558426.13

**Radius:** 1610

\*UTM location was derived from PLSS - see Help

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

6/18/20 1:57 PM

Page 1 of 1

WATER COLUMN/ AVERAGE  
DEPTH TO WATER

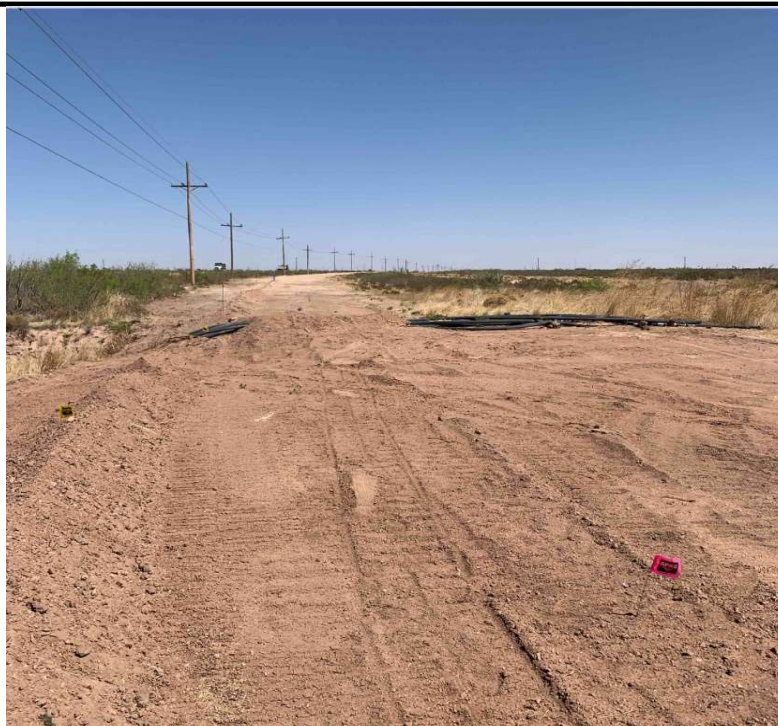




## Appendix D: Photographic Documentation

COG- Willow A State #003

Date: 6/28/2022

**Photographic Documentation****Photograph No. 1****Date:****4/13/2022****Direction:****Southwest****Description:****View of the site  
and excavated  
soil stockpile.****Photograph No. 2****Date:****4/13/2022****Direction:****North****Description:****View of the site  
prior to  
excavation.**

COG- Willow A State #003

Date: 6/28/2022

**Photographic Documentation****Photograph No. 3****Date:****4/19/2022****Direction:****East****Description:****View of the  
excavation.****Photograph No. 4****Date:****4/22/2022****Direction:****Northwest****Description:****View of the site  
after completion  
of excavating.**



COG- Willow State #003

Date: 6/28/2022

**Photographic Documentation****Photograph No. 5****Date:****4/24/2022****Direction:****Northwest****Description:****View of synthetic  
liner installation  
at floor of the  
excavation area.****Photograph No. 6****Date:****4/25/2022****Direction:****Northwest****Description:****View of pipes  
placed on top of  
the synthetic  
liner and  
backfilled  
sidewalls.**



COG- Willow State #003

Date: 6/28/2022

**Photographic Documentation****Photograph No. 7****Date:****4/25/2022****Direction:****North****Description:****View of the  
synthetic liner  
and backfilling  
the excavation.****Photograph No. 8****Date:****4/26/2022****Direction:****Northeast****Description:****View of the site  
after backfill.**



## Appendix E: Boring Log





# LOG OF SOIL BORING

PROJECT NAME: <u>COG: Willow State #3</u>		SOIL BORING ID: <u>BH-3</u>	
PROJECT NUMBER: <u>372972</u>		LOCATION:	SHEET <u>1</u> OF <u>2</u>
LOGGED BY: <u>Tania Babu / Mishi Teinert</u>		SURFACE ELEV.: _____	
PROJECT LOCATION: <u>Eddy County, NM</u>		N: <u>321577320</u> E: <u>104.6732201</u>	DATE STARTED: <u>5/28/2020</u>
DRILLED BY: <u>Scharborough Drilling</u>		DRILLER NAME: <u>Lane Scharborough</u>	DATE COMPLETED: <u>5/28/2020</u>

NO.	TYPE	%	BLOWS	PID	DEPTH	VISUAL CLASSIFICATION AND OBSERVATIONS	COMMENT
						Dark brown, medium to well sorted sand no staining, slight odor	14,160 ppm
					2.5		15,624 ppm
					5.0		10,788 ppm
					7.5		11,776 ppm
							6,388 ppm
					10.0	Samples not collected	
					12.5		
					15.0	Red clay, low to medium moisture content no staining, no odor, ~10% gypsum	1940 ppm
					17.5		
					20.0		970 ppm

DRILLING METHOD <u>Air rotary</u>
DRILL RIG
BORING DIAMETER

WATER LEVEL OBSERVATIONS			
FIRST OCCURRENCE:			
DATE	TIME	DEPTH TO WATER	DEPTH TO BOTTOM

SIGNED Mishi Teinert DATE 5/28/20

CHECKED \_\_\_\_\_

DATE \_\_\_\_\_

REVISED 06/2011



## LOG OF SOIL BORING

PROJECT NAME: <u>061: Willow State #3</u>		SOIL BORING ID: <u>BH-3</u>	
PROJECT NUMBER: <u>372972</u>		LOCATION:	SHEET <u>2</u> OF <u>2</u>
LOGGED BY: <u>Tania Balu / Misti Teichert</u>		SURFACE ELEV.:	
PROJECT LOCATION: <u>Eddy County TX</u>		N: <u>32.1577320</u> E: <u>-104.0732201</u>	DATE STARTED: <u>5/28/2020</u>
DRILLED BY: <u>Scharborough Drilling</u>		DRILLER NAME: <u>Lane Scharborough</u>	DATE COMPLETED: <u>5/28/2020</u>

NO.	TYPE	%	BLOWS	PID	DEPTH	VISUAL CLASSIFICATION AND OBSERVATIONS	COMMENT
					20		276 ppm
					22.5	Red Silty clay, low moisture well sorted no staining or odor	
					25.0		168 ppm
					27.5		
					30.0	Medium to fine grained sand, light brown no staining or odor Two consecutive clean samples, drilling terminated.	74 ppm
					32.5		
					35.0		
					37.5		
					40.0		
					42.5		
					45.0		
					47.5		
					50.0		

DRILLING METHOD
DRILL RIG
BORING DIAMETER

WATER LEVEL OBSERVATIONS			
FIRST OCCURRENCE:			
DATE	TIME	DEPTH TO WATER	DEPTH TO BOTTOM

SIGNED Misti Teichert DATE 5/28/20

CHECKED \_\_\_\_\_ DATE \_\_\_\_\_

REVISED 06/2011



## Appendix F: Laboratory Analytical Reports





## Environment Testing America

### ANALYTICAL REPORT

Eurofins Carlsbad  
1089 N Canal St.  
Carlsbad, NM 88220  
Tel: (575)988-3199

Laboratory Job ID: 890-2223-1

Laboratory Sample Delivery Group: 438373  
Client Project/Site: COP-WILLOW STATE #3  
Revision: 1

**For:**

TRC Solutions, Inc.  
2057 Commerce Drive  
Midland, Texas 79703

Attn: Jared Stoffel

A handwritten signature in black ink that reads "Jessica Kramer".

Authorized for release by:  
4/26/2022 10:39:20 AM

Jessica Kramer, Project Manager  
(432)704-5440  
[Jessica.Kramer@et.eurofinsus.com](mailto:Jessica.Kramer@et.eurofinsus.com)

#### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



Visit us at:

[www.eurofinsus.com/Env](http://www.eurofinsus.com/Env)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

Client: TRC Solutions, Inc.  
Project/Site: COP-WILLOW STATE #3

Laboratory Job ID: 890-2223-1  
SDG: 438373

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## Definitions/Glossary

Client: TRC Solutions, Inc.  
Project/Site: COP-WILLOW STATE #3

Job ID: 890-2223-1  
SDG: 438373

## Qualifiers

## GC VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

## GC Semi VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

## HPLC/IC

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count



## Case Narrative

Client: TRC Solutions, Inc.  
Project/Site: COP-WILLOW STATE #3

Job ID: 890-2223-1  
SDG: 438373

**Job ID: 890-2223-1**

**Laboratory: Eurofins Carlsbad**

### Narrative

#### Job Narrative 890-2223-1

### REVISION

The report being provided is a revision of the original report sent on 4/25/2022. The report (revision 1) is being revised due to Per client email, reviewing chloride dilutions.

Report revision history

### Receipt

The samples were received on 4/21/2022 12:36 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 22.2°C

### GC VOA

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

### GC Semi VOA

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

### HPLC/IC

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

## Client Sample Results

Client: TRC Solutions, Inc.  
Project/Site: COP-WILLOW STATE #3

Job ID: 890-2223-1  
SDG: 438373

## Client Sample ID: Confirmation- North

Lab Sample ID: 890-2223-1

Date Collected: 04/20/22 15:30

Matrix: Solid

Date Received: 04/21/22 12:36

Sample Depth: 5

## Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199		mg/Kg		04/24/22 22:21	04/25/22 04:00	1
Toluene	<0.00199	U	0.00199		mg/Kg		04/24/22 22:21	04/25/22 04:00	1
Ethylbenzene	<0.00199	U	0.00199		mg/Kg		04/24/22 22:21	04/25/22 04:00	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		04/24/22 22:21	04/25/22 04:00	1
o-Xylene	<0.00199	U	0.00199		mg/Kg		04/24/22 22:21	04/25/22 04:00	1
Xylenes, Total	<0.00398	U	0.00398		mg/Kg		04/24/22 22:21	04/25/22 04:00	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	103		70 - 130	04/24/22 22:21	04/24/22 00:19	1
4-Bromofluorobenzene (Surr)	103		70 - 130	04/24/22 22:21	04/25/22 04:00	1
1,4-Difluorobenzene (Surr)	93		70 - 130	04/24/22 22:21	04/24/22 00:19	1
1,4-Difluorobenzene (Surr)	101		70 - 130	04/24/22 22:21	04/25/22 04:00	1

## Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398		mg/Kg			04/25/22 11:39	1

## Method: 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9		mg/Kg			04/25/22 13:58	1

## Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9		mg/Kg		04/22/22 13:39	04/24/22 22:00	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9		mg/Kg		04/22/22 13:39	04/24/22 22:00	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		04/22/22 13:39	04/24/22 22:00	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	92		70 - 130				04/22/22 13:39	04/24/22 22:00	1
o-Terphenyl	108		70 - 130				04/22/22 13:39	04/24/22 22:00	1

## Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	343		4.97		mg/Kg			04/25/22 16:02	1

## Client Sample ID: Confirmation-East

Lab Sample ID: 890-2223-2

Date Collected: 04/20/22 10:00

Matrix: Solid

Date Received: 04/21/22 12:36

Sample Depth: 5

## Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		04/24/22 22:21	04/25/22 04:21	1
Toluene	<0.00200	U	0.00200		mg/Kg		04/24/22 22:21	04/25/22 04:21	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		04/24/22 22:21	04/25/22 04:21	1
m-Xylene & p-Xylene	<0.00401	U	0.00401		mg/Kg		04/24/22 22:21	04/25/22 04:21	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		04/24/22 22:21	04/25/22 04:21	1
Xylenes, Total	<0.00401	U	0.00401		mg/Kg		04/24/22 22:21	04/25/22 04:21	1

Eurofins Carlsbad

## Client Sample Results

Client: TRC Solutions, Inc.  
Project/Site: COP-WILLOW STATE #3

Job ID: 890-2223-1  
SDG: 438373

## Client Sample ID: Confirmation-East

Lab Sample ID: 890-2223-2

Date Collected: 04/20/22 10:00

Matrix: Solid

Date Received: 04/21/22 12:36

Sample Depth: 5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	103		70 - 130	04/24/22 22:21	04/24/22 00:40	1
4-Bromofluorobenzene (Surr)	104		70 - 130	04/24/22 22:21	04/25/22 04:21	1
1,4-Difluorobenzene (Surr)	100		70 - 130	04/24/22 22:21	04/24/22 00:40	1
1,4-Difluorobenzene (Surr)	102		70 - 130	04/24/22 22:21	04/25/22 04:21	1

## Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00401	U	0.00401		mg/Kg			04/25/22 11:39	1

## Method: 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9		mg/Kg			04/25/22 13:58	1

## Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9		mg/Kg		04/22/22 13:39	04/24/22 23:02	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9		mg/Kg		04/22/22 13:39	04/24/22 23:02	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		04/22/22 13:39	04/24/22 23:02	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	95		70 - 130	04/22/22 13:39	04/24/22 23:02	1
o-Terphenyl	111		70 - 130	04/22/22 13:39	04/24/22 23:02	1

## Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	278		4.95		mg/Kg			04/25/22 16:11	1

## Client Sample ID: Confirmation-South

Lab Sample ID: 890-2223-3

Date Collected: 04/20/22 09:00

Matrix: Solid

Date Received: 04/21/22 12:36

Sample Depth: 5

## Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00201	U	0.00201		mg/Kg		04/24/22 22:21	04/25/22 09:37	1
Toluene	<0.00201	U	0.00201		mg/Kg		04/24/22 22:21	04/25/22 09:37	1
Ethylbenzene	<0.00201	U	0.00201		mg/Kg		04/24/22 22:21	04/25/22 09:37	1
m-Xylene & p-Xylene	<0.00402	U	0.00402		mg/Kg		04/24/22 22:21	04/25/22 09:37	1
o-Xylene	<0.00201	U	0.00201		mg/Kg		04/24/22 22:21	04/25/22 09:37	1
Xylenes, Total	<0.00402	U	0.00402		mg/Kg		04/24/22 22:21	04/25/22 09:37	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	109		70 - 130	04/24/22 22:21	04/24/22 01:00	1
1,4-Difluorobenzene (Surr)	96		70 - 130	04/24/22 22:21	04/24/22 01:00	1

## Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00402	U	0.00402		mg/Kg			04/25/22 11:39	1

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## Client Sample Results

Client: TRC Solutions, Inc.  
Project/Site: COP-WILLOW STATE #3

Job ID: 890-2223-1  
SDG: 438373

## Client Sample ID: Confirmation-South

Lab Sample ID: 890-2223-3

Date Collected: 04/20/22 09:00

Matrix: Solid

Date Received: 04/21/22 12:36

Sample Depth: 5

## Method: 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0		mg/Kg			04/25/22 13:58	1

## Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		04/22/22 13:39	04/24/22 23:22	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		04/22/22 13:39	04/24/22 23:22	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		04/22/22 13:39	04/24/22 23:22	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	97		70 - 130				04/22/22 13:39	04/24/22 23:22	1
o-Terphenyl	114		70 - 130				04/22/22 13:39	04/24/22 23:22	1

## Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	280		4.95		mg/Kg			04/25/22 19:35	1

## Client Sample ID: Confirmation-West

Lab Sample ID: 890-2223-4

Date Collected: 04/21/22 10:00

Matrix: Solid

Date Received: 04/21/22 12:36

Sample Depth: 9

## Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00202	U	0.00202		mg/Kg		04/24/22 22:21	04/25/22 09:58	1
Toluene	<0.00202	U	0.00202		mg/Kg		04/24/22 22:21	04/25/22 09:58	1
Ethylbenzene	<0.00202	U	0.00202		mg/Kg		04/24/22 22:21	04/25/22 09:58	1
m-Xylene & p-Xylene	<0.00404	U	0.00404		mg/Kg		04/24/22 22:21	04/25/22 09:58	1
o-Xylene	<0.00202	U	0.00202		mg/Kg		04/24/22 22:21	04/25/22 09:58	1
Xylenes, Total	<0.00404	U	0.00404		mg/Kg		04/24/22 22:21	04/25/22 09:58	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	106		70 - 130				04/24/22 22:21	04/24/22 01:21	1
1,4-Difluorobenzene (Surr)	103		70 - 130				04/24/22 22:21	04/24/22 01:21	1

## Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00404	U	0.00404		mg/Kg			04/25/22 11:39	1

## Method: 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0		mg/Kg			04/25/22 13:58	1

## Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		04/22/22 13:39	04/24/22 23:42	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		04/22/22 13:39	04/24/22 23:42	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		04/22/22 13:39	04/24/22 23:42	1

Eurofins Carlsbad

## Client Sample Results

Client: TRC Solutions, Inc.  
Project/Site: COP-WILLOW STATE #3

Job ID: 890-2223-1  
SDG: 438373

## Client Sample ID: Confirmation-West

## Lab Sample ID: 890-2223-4

Date Collected: 04/21/22 10:00

Matrix: Solid

Date Received: 04/21/22 12:36

Sample Depth: 9

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	94		70 - 130	04/22/22 13:39	04/24/22 23:42	1
o-Terphenyl	111		70 - 130	04/22/22 13:39	04/24/22 23:42	1

## Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	284		5.00		mg/Kg			04/25/22 16:29	1

## Surrogate Summary

Client: TRC Solutions, Inc.  
Project/Site: COP-WILLOW STATE #3

Job ID: 890-2223-1  
SDG: 438373

## Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	BFB1 (70-130)	DFBZ1 (70-130)
890-2223-1	Confirmation- North	103	93
890-2223-1	Confirmation- North	103	101
890-2223-2	Confirmation-East	103	100
890-2223-2	Confirmation-East	104	102
890-2223-3	Confirmation-South	109	96
890-2223-4	Confirmation-West	106	103
LCS 880-23951/1-A	Lab Control Sample	99	101
LCS 880-24111/1-A	Lab Control Sample	97	95
LCSD 880-23951/2-A	Lab Control Sample Dup	96	104
LCSD 880-24111/2-A	Lab Control Sample Dup	99	99
MB 880-23948/5-A	Method Blank	99	101
MB 880-23951/5-A	Method Blank	98	104
MB 880-24111/5-A	Method Blank	99	96
<b>Surrogate Legend</b>			
BFB = 4-Bromofluorobenzene (Surr)			
DFBZ = 1,4-Difluorobenzene (Surr)			

## Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	1CO1 (70-130)	OTPH1 (70-130)
890-2223-1	Confirmation- North	92	108
890-2223-1 MS	Confirmation- North	88	94
890-2223-1 MSD	Confirmation- North	88	93
890-2223-2	Confirmation-East	95	111
890-2223-3	Confirmation-South	97	114
890-2223-4	Confirmation-West	94	111
<b>Surrogate Legend</b>			
1CO = 1-Chlorooctane			
OTPH = o-Terphenyl			

## Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	1CO2 (70-130)	OTPH2 (70-130)
LCS 880-24052/2-A	Lab Control Sample	100	116
LCSD 880-24052/3-A	Lab Control Sample Dup	99	117
MB 880-24052/1-A	Method Blank	89	107
<b>Surrogate Legend</b>			
1CO = 1-Chlorooctane			
OTPH = o-Terphenyl			

Eurofins Carlsbad



## QC Sample Results

Client: TRC Solutions, Inc.  
Project/Site: COP-WILLOW STATE #3

Job ID: 890-2223-1  
SDG: 438373

## Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-23948/5-A

Matrix: Solid

Analysis Batch: 23987

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 23948

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		04/21/22 14:40	04/23/22 01:15	1
Toluene	<0.00200	U	0.00200		mg/Kg		04/21/22 14:40	04/23/22 01:15	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		04/21/22 14:40	04/23/22 01:15	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		04/21/22 14:40	04/23/22 01:15	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		04/21/22 14:40	04/23/22 01:15	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		04/21/22 14:40	04/23/22 01:15	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		70 - 130	04/21/22 14:40	04/23/22 01:15	1
1,4-Difluorobenzene (Surr)	101		70 - 130	04/21/22 14:40	04/23/22 01:15	1

Lab Sample ID: MB 880-23951/5-A

Matrix: Solid

Analysis Batch: 23987

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 23951

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		04/21/22 15:01	04/23/22 17:14	1
Toluene	<0.00200	U	0.00200		mg/Kg		04/21/22 15:01	04/23/22 17:14	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		04/21/22 15:01	04/23/22 17:14	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		04/21/22 15:01	04/23/22 17:14	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		04/21/22 15:01	04/23/22 17:14	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		04/21/22 15:01	04/23/22 17:14	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	98		70 - 130	04/21/22 15:01	04/23/22 17:14	1
1,4-Difluorobenzene (Surr)	104		70 - 130	04/21/22 15:01	04/23/22 17:14	1

Lab Sample ID: LCS 880-23951/1-A

Matrix: Solid

Analysis Batch: 23987

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 23951

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.07802		mg/Kg		78	70 - 130
Toluene	0.100	0.09379		mg/Kg		94	70 - 130
Ethylbenzene	0.100	0.09701		mg/Kg		97	70 - 130
m-Xylene & p-Xylene	0.200	0.1958		mg/Kg		98	70 - 130
o-Xylene	0.100	0.09895		mg/Kg		99	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	99		70 - 130
1,4-Difluorobenzene (Surr)	101		70 - 130

Lab Sample ID: LCSD 880-23951/2-A

Matrix: Solid

Analysis Batch: 23987

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 23951

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.08535		mg/Kg		85	70 - 130	9	35

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## QC Sample Results

Client: TRC Solutions, Inc.  
Project/Site: COP-WILLOW STATE #3

Job ID: 890-2223-1  
SDG: 438373

## Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: LCSD 880-23951/2-A

Matrix: Solid

Analysis Batch: 23987

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 23951

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Toluene	0.100	0.09393		mg/Kg		94	70 - 130	0	35
Ethylbenzene	0.100	0.09600		mg/Kg		96	70 - 130	1	35
m-Xylene & p-Xylene	0.200	0.1904		mg/Kg		95	70 - 130	3	35
o-Xylene	0.100	0.09562		mg/Kg		96	70 - 130	3	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	96		70 - 130
1,4-Difluorobenzene (Surr)	104		70 - 130

Lab Sample ID: MB 880-24111/5-A

Matrix: Solid

Analysis Batch: 24110

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 24111

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		04/24/22 22:21	04/25/22 01:09	1
Toluene	<0.00200	U	0.00200		mg/Kg		04/24/22 22:21	04/25/22 01:09	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		04/24/22 22:21	04/25/22 01:09	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		04/24/22 22:21	04/25/22 01:09	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		04/24/22 22:21	04/25/22 01:09	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		04/24/22 22:21	04/25/22 01:09	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		70 - 130	04/24/22 22:21	04/25/22 01:09	1
1,4-Difluorobenzene (Surr)	96		70 - 130	04/24/22 22:21	04/25/22 01:09	1

Lab Sample ID: LCS 880-24111/1-A

Matrix: Solid

Analysis Batch: 24110

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 24111

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.07124		mg/Kg		71	70 - 130
Toluene	0.100	0.09089		mg/Kg		91	70 - 130
Ethylbenzene	0.100	0.09549		mg/Kg		95	70 - 130
m-Xylene & p-Xylene	0.200	0.1938		mg/Kg		97	70 - 130
o-Xylene	0.100	0.09767		mg/Kg		98	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	97		70 - 130
1,4-Difluorobenzene (Surr)	95		70 - 130

Lab Sample ID: LCSD 880-24111/2-A

Matrix: Solid

Analysis Batch: 24110

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 24111

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	0.100	0.07926		mg/Kg		79	70 - 130	11	35
Toluene	0.100	0.09758		mg/Kg		98	70 - 130	7	35
Ethylbenzene	0.100	0.1017		mg/Kg		102	70 - 130	6	35

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## QC Sample Results

Client: TRC Solutions, Inc.  
Project/Site: COP-WILLOW STATE #3

Job ID: 890-2223-1  
SDG: 438373

## Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: LCSD 880-24111/2-A

Matrix: Solid

Analysis Batch: 24110

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 24111

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
m-Xylene & p-Xylene	0.200	0.2056		mg/Kg		103	70 - 130	6	35
o-Xylene	0.100	0.1035		mg/Kg		104	70 - 130	6	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	99		70 - 130
1,4-Difluorobenzene (Surr)	99		70 - 130

## Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 880-24052/1-A

Matrix: Solid

Analysis Batch: 24107

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 24052

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		04/22/22 13:39	04/24/22 20:59	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		04/22/22 13:39	04/24/22 20:59	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		04/22/22 13:39	04/24/22 20:59	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	89		70 - 130	04/22/22 13:39	04/24/22 20:59	1
o-Terphenyl	107		70 - 130	04/22/22 13:39	04/24/22 20:59	1

Lab Sample ID: LCS 880-24052/2-A

Matrix: Solid

Analysis Batch: 24107

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 24052

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	1000	1151		mg/Kg		115	70 - 130
Diesel Range Organics (Over C10-C28)	1000	943.7		mg/Kg		94	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1-Chlorooctane	100		70 - 130
o-Terphenyl	116		70 - 130

Lab Sample ID: LCSD 880-24052/3-A

Matrix: Solid

Analysis Batch: 24107

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 24052

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	1150		mg/Kg		115	70 - 130	0	20
Diesel Range Organics (Over C10-C28)	1000	934.9		mg/Kg		93	70 - 130	1	20

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## QC Sample Results

Client: TRC Solutions, Inc.  
Project/Site: COP-WILLOW STATE #3

Job ID: 890-2223-1  
SDG: 438373

## Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: LCSD 880-24052/3-A

Matrix: Solid

Analysis Batch: 24107

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 24052

	LCSD	LCSD	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	99		70 - 130
o-Terphenyl	117		70 - 130

Lab Sample ID: 890-2223-1 MS

Matrix: Solid

Analysis Batch: 24107

Client Sample ID: Confirmation- North

Prep Type: Total/NA

Prep Batch: 24052

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	999	1036		mg/Kg		102	70 - 130
Diesel Range Organics (Over C10-C28)	<49.9	U	999	936.3		mg/Kg		92	70 - 130

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	88		70 - 130
o-Terphenyl	94		70 - 130

Lab Sample ID: 890-2223-1 MSD

Matrix: Solid

Analysis Batch: 24107

Client Sample ID: Confirmation- North

Prep Type: Total/NA

Prep Batch: 24052

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	999	1052		mg/Kg		103	70 - 130	2	20
Diesel Range Organics (Over C10-C28)	<49.9	U	999	938.8		mg/Kg		92	70 - 130	0	20

	MSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	88		70 - 130
o-Terphenyl	93		70 - 130

## Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-24067/1-A

Matrix: Solid

Analysis Batch: 24127

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00		mg/Kg			04/25/22 11:56	1

Lab Sample ID: LCS 880-24067/2-A

Matrix: Solid

Analysis Batch: 24127

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	249.3		mg/Kg		100	90 - 110

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QC Sample Results

Client: TRC Solutions, Inc.  
Project/Site: COP-WILLOW STATE #3

Job ID: 890-2223-1  
SDG: 438373

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCSD 880-24067/3-A					Client Sample ID: Lab Control Sample Dup						
Matrix: Solid					Prep Type: Soluble						
Analysis Batch: 24127											
Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit		
Chloride	250	250.2		mg/Kg		100	90 - 110	0	20		

## QC Association Summary

Client: TRC Solutions, Inc.  
Project/Site: COP-WILLOW STATE #3

Job ID: 890-2223-1  
SDG: 438373

## GC VOA

## Prep Batch: 23948

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-23948/5-A	Method Blank	Total/NA	Solid	5035	

## Prep Batch: 23951

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-23951/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-23951/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-23951/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	

## Analysis Batch: 23987

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2223-1	Confirmation- North	Total/NA	Solid	8021B	24111
890-2223-2	Confirmation-East	Total/NA	Solid	8021B	24111
890-2223-3	Confirmation-South	Total/NA	Solid	8021B	24111
890-2223-4	Confirmation-West	Total/NA	Solid	8021B	24111
MB 880-23948/5-A	Method Blank	Total/NA	Solid	8021B	23948
MB 880-23951/5-A	Method Blank	Total/NA	Solid	8021B	23951
LCS 880-23951/1-A	Lab Control Sample	Total/NA	Solid	8021B	23951
LCSD 880-23951/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	23951

## Analysis Batch: 24110

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2223-1	Confirmation- North	Total/NA	Solid	8021B	24111
890-2223-2	Confirmation-East	Total/NA	Solid	8021B	24111
890-2223-3	Confirmation-South	Total/NA	Solid	8021B	24111
890-2223-4	Confirmation-West	Total/NA	Solid	8021B	24111
MB 880-24111/5-A	Method Blank	Total/NA	Solid	8021B	24111
LCS 880-24111/1-A	Lab Control Sample	Total/NA	Solid	8021B	24111
LCSD 880-24111/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	24111

## Prep Batch: 24111

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2223-1	Confirmation- North	Total/NA	Solid	5035	
890-2223-2	Confirmation-East	Total/NA	Solid	5035	
890-2223-3	Confirmation-South	Total/NA	Solid	5035	
890-2223-4	Confirmation-West	Total/NA	Solid	5035	
MB 880-24111/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-24111/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-24111/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	

## Analysis Batch: 24172

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2223-1	Confirmation- North	Total/NA	Solid	Total BTEX	
890-2223-2	Confirmation-East	Total/NA	Solid	Total BTEX	
890-2223-3	Confirmation-South	Total/NA	Solid	Total BTEX	
890-2223-4	Confirmation-West	Total/NA	Solid	Total BTEX	

## GC Semi VOA

## Prep Batch: 24052

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2223-1	Confirmation- North	Total/NA	Solid	8015NM Prep	

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## QC Association Summary

Client: TRC Solutions, Inc.  
Project/Site: COP-WILLOW STATE #3

Job ID: 890-2223-1  
SDG: 438373

## GC Semi VOA (Continued)

## Prep Batch: 24052 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2223-2	Confirmation-East	Total/NA	Solid	8015NM Prep	
890-2223-3	Confirmation-South	Total/NA	Solid	8015NM Prep	
890-2223-4	Confirmation-West	Total/NA	Solid	8015NM Prep	
MB 880-24052/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-24052/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-24052/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-2223-1 MS	Confirmation- North	Total/NA	Solid	8015NM Prep	
890-2223-1 MSD	Confirmation- North	Total/NA	Solid	8015NM Prep	

## Analysis Batch: 24107

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2223-1	Confirmation- North	Total/NA	Solid	8015B NM	24052
890-2223-2	Confirmation-East	Total/NA	Solid	8015B NM	24052
890-2223-3	Confirmation-South	Total/NA	Solid	8015B NM	24052
890-2223-4	Confirmation-West	Total/NA	Solid	8015B NM	24052
MB 880-24052/1-A	Method Blank	Total/NA	Solid	8015B NM	24052
LCS 880-24052/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	24052
LCSD 880-24052/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	24052
890-2223-1 MS	Confirmation- North	Total/NA	Solid	8015B NM	24052
890-2223-1 MSD	Confirmation- North	Total/NA	Solid	8015B NM	24052

## Analysis Batch: 24196

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2223-1	Confirmation- North	Total/NA	Solid	8015 NM	
890-2223-2	Confirmation-East	Total/NA	Solid	8015 NM	
890-2223-3	Confirmation-South	Total/NA	Solid	8015 NM	
890-2223-4	Confirmation-West	Total/NA	Solid	8015 NM	

## HPLC/IC

## Leach Batch: 24067

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2223-1	Confirmation- North	Soluble	Solid	DI Leach	
890-2223-2	Confirmation-East	Soluble	Solid	DI Leach	
890-2223-3	Confirmation-South	Soluble	Solid	DI Leach	
890-2223-4	Confirmation-West	Soluble	Solid	DI Leach	
MB 880-24067/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-24067/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-24067/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	

## Analysis Batch: 24127

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2223-1	Confirmation- North	Soluble	Solid	300.0	24067
890-2223-2	Confirmation-East	Soluble	Solid	300.0	24067
890-2223-3	Confirmation-South	Soluble	Solid	300.0	24067
890-2223-4	Confirmation-West	Soluble	Solid	300.0	24067
MB 880-24067/1-A	Method Blank	Soluble	Solid	300.0	24067
LCS 880-24067/2-A	Lab Control Sample	Soluble	Solid	300.0	24067
LCSD 880-24067/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	24067

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## Lab Chronicle

Client: TRC Solutions, Inc.  
Project/Site: COP-WILLOW STATE #3

Job ID: 890-2223-1  
SDG: 438373

## Client Sample ID: Confirmation- North

Date Collected: 04/20/22 15:30

Date Received: 04/21/22 12:36

## Lab Sample ID: 890-2223-1

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	5 mL	5 mL	23987	04/24/22 00:19	MR	XEN MID
Total/NA	Prep	5035			5.02 g	5 mL	24111	04/24/22 22:21	MR	XEN MID
Total/NA	Prep	5035			5.02 g	5 mL	24111	04/24/22 22:21	MR	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	24110	04/25/22 04:00	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			24172	04/25/22 11:39	AJ	XEN MID
Total/NA	Analysis	8015 NM		1			24196	04/25/22 13:58	AJ	XEN MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	24052	04/22/22 13:39	DM	XEN MID
Total/NA	Analysis	8015B NM		1			24107	04/24/22 22:00	AJ	XEN MID
Soluble	Leach	DI Leach			5.03 g	50 mL	24067	04/22/22 16:33	SC	XEN MID
Soluble	Analysis	300.0		1			24127	04/25/22 16:02	CH	XEN MID

## Client Sample ID: Confirmation-East

Date Collected: 04/20/22 10:00

Date Received: 04/21/22 12:36

## Lab Sample ID: 890-2223-2

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	5 mL	5 mL	23987	04/24/22 00:40	MR	XEN MID
Total/NA	Prep	5035			4.99 g	5 mL	24111	04/24/22 22:21	MR	XEN MID
Total/NA	Prep	5035			4.99 g	5 mL	24111	04/24/22 22:21	MR	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	24110	04/25/22 04:21	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			24172	04/25/22 11:39	AJ	XEN MID
Total/NA	Analysis	8015 NM		1			24196	04/25/22 13:58	AJ	XEN MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	24052	04/22/22 13:39	DM	XEN MID
Total/NA	Analysis	8015B NM		1			24107	04/24/22 23:02	AJ	XEN MID
Soluble	Leach	DI Leach			5.05 g	50 mL	24067	04/22/22 16:33	SC	XEN MID
Soluble	Analysis	300.0		1			24127	04/25/22 16:11	CH	XEN MID

## Client Sample ID: Confirmation-South

Date Collected: 04/20/22 09:00

Date Received: 04/21/22 12:36

## Lab Sample ID: 890-2223-3

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	5 mL	5 mL	23987	04/24/22 01:00	MR	XEN MID
Total/NA	Prep	5035			4.98 g	5 mL	24111	04/24/22 22:21	MR	XEN MID
Total/NA	Prep	5035			4.98 g	5 mL	24111	04/24/22 22:21	MR	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	24110	04/25/22 09:37	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			24172	04/25/22 11:39	AJ	XEN MID
Total/NA	Analysis	8015 NM		1			24196	04/25/22 13:58	AJ	XEN MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	24052	04/22/22 13:39	DM	XEN MID
Total/NA	Analysis	8015B NM		1			24107	04/24/22 23:22	AJ	XEN MID
Soluble	Leach	DI Leach			5.05 g	50 mL	24067	04/22/22 16:33	SC	XEN MID
Soluble	Analysis	300.0		1			24127	04/25/22 19:35	CH	XEN MID

Eurofins Carlsbad

## Lab Chronicle

Client: TRC Solutions, Inc.  
Project/Site: COP-WILLOW STATE #3

Job ID: 890-2223-1  
SDG: 438373

Client Sample ID: Confirmation-West

Lab Sample ID: 890-2223-4

Date Collected: 04/21/22 10:00

Matrix: Solid

Date Received: 04/21/22 12:36

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	5 mL	5 mL	23987	04/24/22 01:21	MR	XEN MID
Total/NA	Prep	5035			4.95 g	5 mL	24111	04/24/22 22:21	MR	XEN MID
Total/NA	Prep	5035			4.95 g	5 mL	24111	04/24/22 22:21	MR	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	24110	04/25/22 09:58	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			24172	04/25/22 11:39	AJ	XEN MID
Total/NA	Analysis	8015 NM		1			24196	04/25/22 13:58	AJ	XEN MID
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	24052	04/22/22 13:39	DM	XEN MID
Total/NA	Analysis	8015B NM		1			24107	04/24/22 23:42	AJ	XEN MID
Soluble	Leach	DI Leach			5 g	50 mL	24067	04/22/22 16:33	SC	XEN MID
Soluble	Analysis	300.0		1			24127	04/25/22 16:29	CH	XEN MID

## Laboratory References:

XEN MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440



Accreditation/Certification Summary

Client: TRC Solutions, Inc.  
Project/Site: COP-WILLOW STATE #3

Job ID: 890-2223-1  
SDG: 438373

Laboratory: Eurofins Midland

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-21-22	06-30-22
The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.			
Analysis Method	Prep Method	Matrix	Analyte
8015 NM		Solid	Total TPH
Total BTEX		Solid	Total BTEX

## Method Summary

Client: TRC Solutions, Inc.  
Project/Site: COP-WILLOW STATE #3

Job ID: 890-2223-1  
SDG: 438373

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	XEN MID
Total BTEX	Total BTEX Calculation	TAL SOP	XEN MID
8015 NM	Diesel Range Organics (DRO) (GC)	SW846	XEN MID
8015B NM	Diesel Range Organics (DRO) (GC)	SW846	XEN MID
300.0	Anions, Ion Chromatography	MCAWW	XEN MID
5035	Closed System Purge and Trap	SW846	XEN MID
8015NM Prep	Microextraction	SW846	XEN MID
DI Leach	Deionized Water Leaching Procedure	ASTM	XEN MID

### Protocol References:

ASTM = ASTM International

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

### Laboratory References:

XEN MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Eurofins Carlsbad

Sample Summary

Client: TRC Solutions, Inc.  
Project/Site: COP-WILLOW STATE #3

Job ID: 890-2223-1  
SDG: 438373

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-2223-1	Confirmation- North	Solid	04/20/22 15:30	04/21/22 12:36	5
890-2223-2	Confirmation-East	Solid	04/20/22 10:00	04/21/22 12:36	5
890-2223-3	Confirmation-South	Solid	04/20/22 09:00	04/21/22 12:36	5
890-2223-4	Confirmation-West	Solid	04/21/22 10:00	04/21/22 12:36	9

- 1
- 2
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- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14





Environment Testing  
Xenco

Houston, TX (281) 240-4200, Dallas, TX (214) 902-0300  
Midland, TX (432) 704-5440, San Antonio, TX (210) 509-3334  
El Paso, TX (915) 585-3443, Lubbock, TX (806) 794-1296  
Hobbs, NM (575) 392-7550, Carlsbad, NM (575) 988-3199

Chain of Custody

Work Order No: \_\_\_\_\_

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Project Manager:	Jared Stofell	Bill to: (if different)	KE TAVARIZ
Company Name:	TRE	Company Name:	
Address:		Address:	
City, State ZIP:		City, State ZIP:	
Phone:		Email:	

Program:	UST/PST	PPP	Brownfields	RRC	Superfund
State of Project:					
Reporting:	Level II	Level III	PST/UST	TRRP	Level IV
Deliverables:	EDD	ADAPT	Other:		

Project Name:	COF Wilson State #3	Turn Around	Pres Code	ANALYSIS REQUEST												Preservative Codes														
Project Number:	438373	<input type="checkbox"/> Routine <input checked="" type="checkbox"/> Rush														None: NO DI Water: H <sub>2</sub> O Cool: Cool MeOH: Me HCL: HC HNO: HN H <sub>2</sub> SO <sub>4</sub> : H <sub>2</sub> H <sub>3</sub> PO <sub>4</sub> : HP NaHSO <sub>4</sub> : NABIS Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> : NaSO <sub>3</sub> Zn Acetate+NaOH: Zn NaOH+Ascorbic Acid: SAPC														
Project Location:	ARAPA	Due Date:	8/24/24																											
Sample's Name:	16826582104	TAT starts the day received by the lab, if received by 4:30pm																												
PO #:		Temp Blank:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Wet Ice:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No																									
SAMPLE RECEIPT		Samples Received Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Thermometer ID:	1404M-007																									
Cooler Custody Seals:		Yes	No	Correction Factor:	-0.2																									
Sample Custody Seals:		Yes	No	Temperature Reading:	22.4																									
Total Containers:		Yes	No	Corrected Temperature:	22.2																									
Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/Comp	# of Cont													Sample Comments											
CONFIRMATION - NORTH	S	24/07/22	1530	5'															37.5											
CONFIRMATION - EAST		24/07/22	1606	5'															TPH											
CONFIRMATION - SOUTH		24/07/22	1600	5'															CHLORIDES											
CONFIRMATION - WEST		24/07/22	1600	4'																										



890-2223 Chain of Custody

Total 200.7 / 6010	200.8 / 6020:	8RCRA 13PPM	Texas 11	Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO <sub>2</sub> Na Sr Ti Sn U V Zn
Circle Method(s) and Metal(s) to be analyzed	TCLP / SPLP 6010 : 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U	Hg: 1631 / 245.1 / 7470 / 7471		

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Eurofins Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Eurofins Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Eurofins Xenco. A minimum charge of \$85.00 will be applied to each project and a charge of \$5 for each sample submitted to Eurofins Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
		4-01-22 1830			

## Login Sample Receipt Checklist

Client: TRC Solutions, Inc.

Job Number: 890-2223-1

SDG Number: 438373

**Login Number: 2223****List Number: 1****Creator: Clifton, Cloe****List Source: Eurofins Carlsbad**

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	

## Login Sample Receipt Checklist

Client: TRC Solutions, Inc.

Job Number: 890-2223-1

SDG Number: 438373

**Login Number: 2223****List Number: 2****Creator: Rodriguez, Leticia****List Source: Eurofins Midland****List Creation: 04/22/22 11:15 AM**

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	



**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 135605

CONDITIONS

Operator: COG OPERATING LLC 600 W Illinois Ave Midland, TX 79701	OGRID: 229137
	Action Number: 135605
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
rhamlet	We have received your closure report and final C-141 for Incident #NRM1935157445 WILLOW A STATE #003, thank you. This closure is approved.	1/20/2023