4LLVG-190816-C-1410

Delineation Investigation and Site Closure Request

August 13, 2019

Admiral Federal Com #002H (2RP-5471)

Prepared For:

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

Prepared By:

TRC Environmental Corporation
10 Desta Dr. STE 150E
Midland, TX 79705

Prepared by:
Jared Stoffel, PG
Project Manager

Reviewed and Approved by:
Curt Stanley
Senior Project Manager

TABLE OF CONTENTS

TABLES

FIGURES

APPENDICES

1.0 Introduction and Background Information

TRC Environmental Corporation (TRC), on behalf of COG Operating, LLC (COG), has prepared this *Delineation Investigation and Site Closure Request* for the Release at the Site known as the Admiral Federal Com #002H (the Site). The legal description of the Site is Unit Letter "P", Section 28, Township 25 South, Range 29 East, in Eddy County, New Mexico. The subject property is owned by the Federal government and administered by Bureau of Land Management (BLM). The GPS coordinates for the Site are N 32.09389° W 103.98264°. A topographical map is provided as **Figure 1**. Photographs are provided in the photolog as **Appendix A**.

On May 18, 2019, COG discovered a produced water release had occurred at the Site. The Release was attributed to a flowline failure, which impacted pastureland. On the discovery date, COG notified the New Mexico Oil and Conservation Division (NMOCD) and Bureau of Land Management (BLM) of the Release and the Release was assigned an NMOCD Reference number of 2RP-5471. During initial response activities, a vacuum truck was dispatched to recover all freestanding fluids. On June 4, 2019, the initial Release Notification and Corrective Action (Form C-141) was submitted to the NMOCD. The Form C-141 indicated ten (10) barrels (bbls) of produced water was released. No produced water was recovered during initial response activities. The release affected an area measuring approximately five-hundred (500) square feet (sq. ft.). A copy of the submitted Form C-141 for the Release is provided in **Appendix D**. Depth to groundwater data is presented in **Appendix B.**

A groundwater database maintained by The New Mexico Office of the State Engineer (NMOSE) did not identify any registered water wells in Section 28, Township 25 South, Range 29 East. A reference map utilized by the NMOCD indicates groundwater should be encountered at less than twenty-five (25) 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. An aerial map of the site location is provided as **Figure 2**.

Based on the depth to groundwater at the Admiral Federal Com #002H Release Site, the NMOCD *Closure Criteria for Soils Impacted by a Release* are the most stringent closure criteria listed. In addition, the Admiral Federal Com #002H is located in the 'medium karst' area as outlined in the BLM publicly available Karst Potential Map, provided as **Figure 3**. Subsequently, COG will utilize the most stringent NMOCD Closure Criteria for Soils Impacted by a Release for the Admiral Federal Com #002H as follows:

- Benzene – 10 mg/kg
- Benzene, toluene, ethylbenzene, and xylenes (BTEX) – 50 mg/kg
- Total Petroleum Hydrocarbons (TPH) –100 mg/kg
- Chloride – 600 mg/kg

2.0 Initial Delineation Investigation

On July 30, 2019, an initial investigation was conducted at the Release Site. During the initial investigation activities, one (1) test trench (TT-1) was advanced at the center of the Release area utilizing an excavator, due to the hard rock layer at approximately one (1) foot bgs. The Release area was inferred from GPS data obtained from COG, as there was no visible hydrocarbon staining or chloride crusting evident in the Release area. During the advancement of the delineation trench (TT-1), three (3) soil samples (TT-1 @ 0-1', TT-1 @ 2', and TT-1 @ 3') were collected from the trench and submitted to Xenco Laboratories in Midland, TX for chloride and/or TPH and BTEX analyses. Each soil sample exhibited chloride and/or TPH and BTEX concentrations below NMOCD regulatory guidelines. Please reference **Figure 4 – Release Area & Sample Location Map** for sample and Release Site information. Please reference **Table 1- Concentrations of Benzene, BTEX, TPH, and Chloride in Soils** for a summary of analytical data. Laboratory analytical reports are provided as **Appendix C**.

3.0 Site Closure Request

Laboratory analytical results from delineation soil samples indicated TPH, BTEX, and/or chloride concentrations were below the NMOCD regulatory guidelines in the submitted soil samples. No hydrocarbon staining or chloride crusting was evident in the indicated Release area. Based on laboratory analytical results and field activities conducted to date, TRC recommends COG provide copies of this Delineation Investigation and Site Closure Request to the NMOCD and BLM and request closure status to the Admiral Federal Com #002H.

4.0 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.

5.0 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

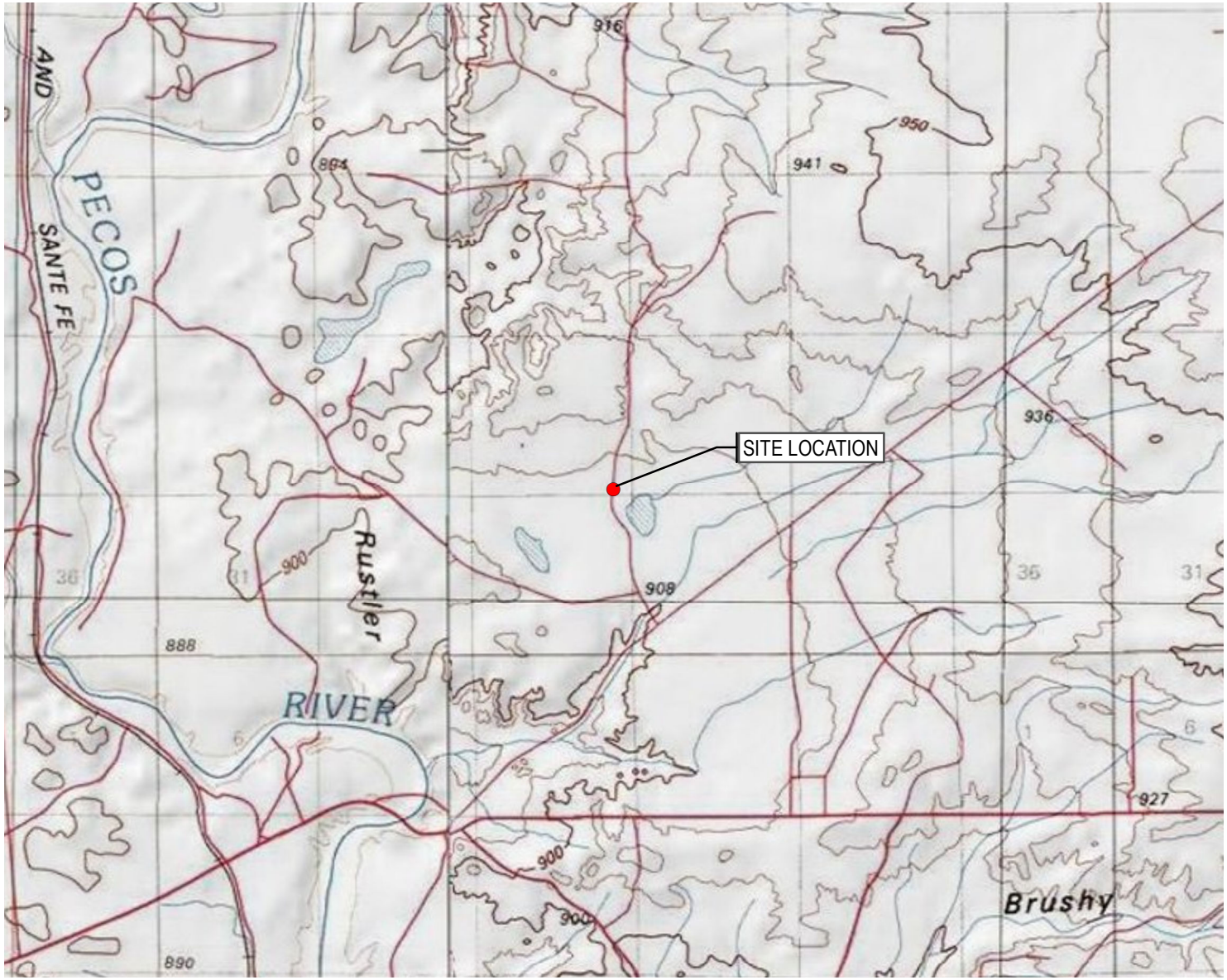
Copy 2: Jim Amos
U.S. Department of the Interior
Carlsbad Field Office
620 E Greene Street
Carlsbad, New Mexico 88220

Copy 3: Rebecca Haskell
COG Operating, LLC
600 W. Illinois Avenue
Midland, Texas 79701

Copy4: TRC Environmental Corporation
10 Desta Dr STE 150E
Midland, TX 79705

Concentrations of BTEX, TPH and/or Chloride in Soil											
Sample ID	Date	Depth	Soil Status	SW 846 8021B		SW 846 8015M Ext.					E 300
				Benzene (mg/kg)	BTEX (mg/kg)	GRO C_6-C_{10} (mg/kg)	DRO C_{10}-C_{28} (mg/kg)	GRO + DRO C_6-C_{28} (mg/kg)	ORO C_{28}-C_{35} (mg/kg)	TPH C_6-C_{35} (mg/kg)	Chloride (mg/kg)
TT-1 @ 0-1'	7/30/19	0-1'	In-Situ	<0.050	<0.300	<15.0	<15.0	<15.0	<15.0	<15	82.2
TT-1 @ 2'	7/30/19	2'	In-Situ	-	-	-	-	-	-	-	21.3
TT-1 @ 3'	7/30/19	3'	In-Situ	-	-	-	-	-	-	-	6.23
NMOCD Closure Criteria				10	50	-	-	-	-	100	600

S:\1-PROJECTS\ConchoResources\347257_Admiral\347257_1.mxd -- Saved By: MHORN on 8/13/2019, 08:57:49 AM



LEGEND

- Site Location

BASEMAP FROM USGS 7.5 MINUTE TOPOGRAPHIC QUADRANGLE SERIES - ROSS RANCH, NM.

N

0 0.5 1 MILE

1 " = 1 MILES

1:63,360

TRC

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

TRC - GIS

PROJECT:

ADMIRAL FEDERAL COM #002H
EDDY COUNTY, NM

TITLE:

TOPOGRAPHIC MAP

DRAWN BY:	MHORN
CHECKED BY:	JSTOFFEL
APPROVED BY:	JSTOFFEL
DATE:	AUGUST 2019
PROJ. NO.:	347257
FILE:	347257_1.mxd

FIGURE 1

S:\1-PROJECTS\ConchoResources\347257_Admiral\347257_2.mxd -- Saved By: MHORN on 8/13/2019, 08:51:40 AM

LEGEND

- Site Location
- 1/2 Mile Radius
- 100-Year- Floodplain (FEMA)

BASEMAP FROM GOOGLE EARTH AND THEIR DATA PARTNERS (2/21/2019).

N

0 2,000 4,000 FT

1 " = 2,000 FEET

1:24,000

TRC

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

TRC - GIS

PROJECT:

ADMIRAL FEDERAL COM #002H
EDDY COUNTY, NM

TITLE:

AERIAL MAP

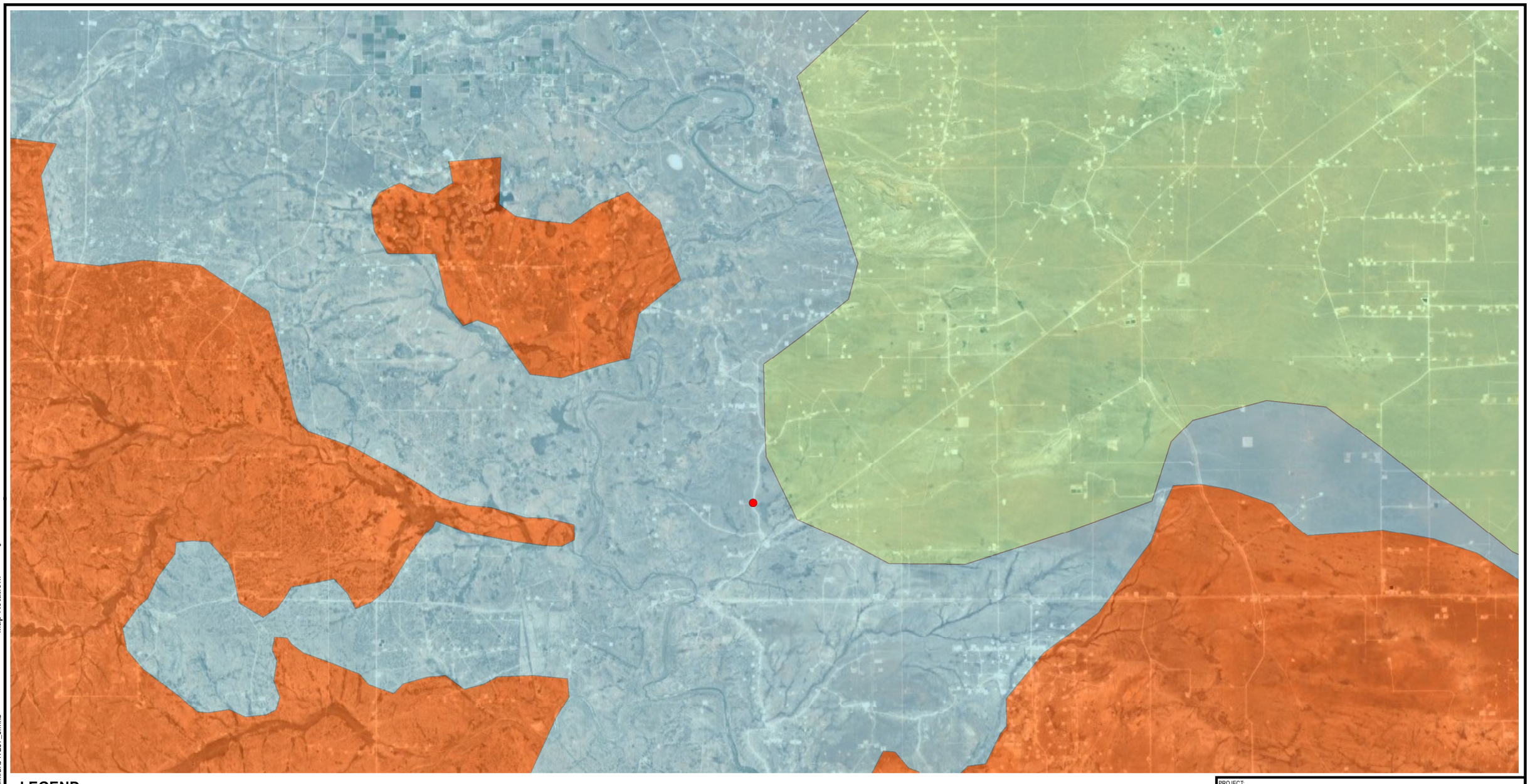
DRAWN BY:	MHORN
CHECKED BY:	JSTOFFEL
APPROVED BY:	JSTOFFEL
DATE:	AUGUST 2019
PROJ. NO.:	347257
FILE:	347257_2.mxd

FIGURE 2

TRC - GIS

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

Plot Date: 8/13/2019, 09:00:03 AM by MHORN -- LAYOUT: ANSI B (11"x17")
Path: S:\11-PROJECTS\ConchoResources\347257_Admiral\347257_3.mxd



LEGEND

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

N

0 2 4 Miles

1 INCH = 2 MILES
1:126,720

PROJECT:
ADMIRAL FEDERAL COM #002H
EDDY COUNTY, NM

TITLE:
KARST POTENTIAL MAP

DRAWN BY:	MHORN	PROJ. NO.:	347257
CHECKED BY:	JSTOFFEL		
APPROVED BY:	JSTOFFEL	**FIGURE 3**	
DATE:	AUGUST 2019		

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

FILE NO.: 347257_3.mxd

S:\1-PROJECTS\ConchoResources\347257_Admiral\347257_4.mxd -- Saved By: MHORN on 8/13/2019, 09:01:49 AM

LEGEND

- Sample Location
- Solaris Line
- COG Lines
- Impacted Area

BASEMAP FROM GOOGLE EARTH AND THEIR DATA PARTNERS (2/21/2019).

N

0 100 200 FT

1 " = 100 FEET

1:1,200

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

PROJECT:

ADMIRAL FEDERAL COM #002H
EDDY COUNTY, NM

TITLE:

RELEASE AREA AND SAMPLE LOCATION MAP

DRAWN BY:	MHORN
CHECKED BY:	JSTOFFEL
APPROVED BY:	JSTOFFEL
DATE:	AUGUST 2019
PROJ. NO.:	347257
FILE:	347257_4.mxd

FIGURE 4

Appendix A: Photographic Documentation

COG- Admiral Federal Com #002H
Date: 8/13/19

Photographic Documentation

Photograph No. 1 **Date:** **8/6/2019** **Direction:** **Northwest** **Description:** **View of the Release Area.**	
Photograph No. 2 **Date:** **8/6/2019** **Direction:** **Southwest** **Description:** **View of the Release Area.**	

Appendix B: Depth to Groundwater Data

New Mexico Office of the State Engineer

Wells with Well Log Information

No wells found.

UTMNAD83 Radius Search (in meters):

Easting (X): 595999.25 **Northing (Y):** 3551295.63 **Radius:** 805

Appendix C: Laboratory Analytical Reports

Analytical Report 632559

for

TRC Solutions, Inc

Project Manager: Jared Stoffel

Admiral Federal Com #002H

06-AUG-19

Collected By: Client

1211 W. Florida Ave
Midland TX 79701

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-19-29), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142), North Carolina (681)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-19-19), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-18-14)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-19-20)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-18-18)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-18-4)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Atlanta (LELAP Lab ID #04176)
Xenco-Tampa: Florida (E87429), North Carolina (483)

06-AUG-19

Project Manager: **Jared Stoffel**
TRC Solutions, Inc
2057 Commerce
Midland, TX 79703

Reference: XENCO Report No(s): **632559**
Admiral Federal Com #002H
Project Address:

Jared Stoffel:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 632559. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 632559 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

Jessica Kramer

Jessica Kramer
Project Assistant

Sample Cross Reference 632559

TRC Solutions, Inc, Midland, TX

Admiral Federal Com #002H

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
TT-1 @ 0-1'	S	07-30-19 09:40	0 - 1 ft	632559-001
TT-1@ 2'	S	07-30-19 09:45	2 ft	632559-002
TT-1 @ 3'	S	07-30-19 09:50	3 ft	632559-003

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3097523 BTEX by EPA 8021B

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

Certificate of Analysis Summary 632559

TRC Solutions, Inc, Midland, TX

Project Name: Admiral Federal Com #002H

Project Id:
Contact: Jared Stoffel
Project Location:

Date Received in Lab: Wed Jul-31-19 09:59 am
Report Date: 06-AUG-19
Project Manager: Jessica Kramer

Analysis Requested												
	Lab Id:	632559-001		632559-002		632559-003						
	Field Id:	TT-1 @ 0-1'		TT-1@ 2'		TT-1 @ 3'						
	Depth:	0-1 ft		2- ft		3- ft						
	Matrix:	SOIL		SOIL		SOIL						
	Sampled:	Jul-30-19 09:40		Jul-30-19 09:45		Jul-30-19 09:50						
BTEX by EPA 8021B	***Extracted:***	Aug-02-19 10:00										
	Analyzed:	Aug-02-19 22:21										
	Units/RL:	mg/kg	RL									
Benzene		<0.00199	0.00199									
Toluene		<0.00199	0.00199									
Ethylbenzene		<0.00199	0.00199									
m,p-Xylenes		<0.00398	0.00398									
o-Xylene		<0.00199	0.00199									
Total Xylenes		<0.00199	0.00199									
Total BTEX		<0.00199	0.00199									
Chloride by EPA 300	***Extracted:***	Aug-01-19 08:30		Aug-01-19 08:30		Aug-01-19 08:30						
	Analyzed:	Aug-01-19 13:24		Aug-01-19 13:30		Aug-01-19 13:37						
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL					
Chloride		82.2	4.96	21.3	4.96	6.23	4.97					
TPH by SW8015 Mod	***Extracted:***	Aug-02-19 13:41										
	Analyzed:	Aug-05-19 10:27										
	Units/RL:	mg/kg	RL									
Gasoline Range Hydrocarbons (GRO)		<15.0	15.0									
Diesel Range Organics (DRO)		<15.0	15.0									
Motor Oil Range Hydrocarbons (MRO)		<15.0	15.0									
Total TPH		<15	15									

Flagging Criteria

X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

J The target analyte was positively identified below the quantitation limit and above the detection limit.

U Analyte was not detected.

L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

K Sample analyzed outside of recommended hold time.

JN A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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

Form 2 - Surrogate Recoveries

Project Name: Admiral Federal Com #002H

Work Orders : 632559,

Project ID:

Lab Batch #: 3097523 **Sample:** 632559-001 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/02/19 22:21

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0283	0.0300	94	70-130	
4-Bromofluorobenzene	0.0341	0.0300	114	70-130	

Lab Batch #: 3097580 **Sample:** 632559-001 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/05/19 10:27

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	87.3	99.7	88	70-135	
o-Terphenyl	43.1	49.9	86	70-135	

Lab Batch #: 3097523 **Sample:** 7683378-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 08/02/19 22:01

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0316	0.0300	105	70-130	
4-Bromofluorobenzene	0.0313	0.0300	104	70-130	

Lab Batch #: 3097580 **Sample:** 7683388-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 08/05/19 09:18

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	92.7	100	93	70-135	
o-Terphenyl	43.6	50.0	87	70-135	

Lab Batch #: 3097523 **Sample:** 7683378-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 08/02/19 20:21

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0301	0.0300	100	70-130	
4-Bromofluorobenzene	0.0296	0.0300	99	70-130	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

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

Form 2 - Surrogate Recoveries

Project Name: Admiral Federal Com #002H

Work Orders : 632559,

Project ID:

Lab Batch #: 3097580 **Sample:** 7683388-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 08/05/19 09:41

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	84.8	100	85	70-135	
o-Terphenyl	48.7	50.0	97	70-135	

Lab Batch #: 3097523 **Sample:** 7683378-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 08/02/19 20:41

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0305	0.0300	102	70-130	
4-Bromofluorobenzene	0.0310	0.0300	103	70-130	

Lab Batch #: 3097580 **Sample:** 7683388-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 08/05/19 10:04

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	95.3	100	95	70-135	
o-Terphenyl	52.3	50.0	105	70-135	

Lab Batch #: 3097580 **Sample:** 632559-001 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/05/19 10:51

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	88.3	99.9	88	70-135	
o-Terphenyl	48.1	50.0	96	70-135	

Lab Batch #: 3097580 **Sample:** 632559-001 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/05/19 11:14

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	88.7	100	89	70-135	
o-Terphenyl	44.2	50.0	88	70-135	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

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

Form 2 - Surrogate Recoveries

Project Name: Admiral Federal Com #002H

Work Orders : 632559,

Project ID:

Lab Batch #: 3097523 **Sample:** 632559-001 D / MD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 08/02/19 21:22

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0319	0.0300	106	70-130	
4-Bromofluorobenzene	0.0333	0.0300	111	70-130	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

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

BS / BSD Recoveries

Project Name: Admiral Federal Com #002H

Work Order #: 632559 **Project ID:**

Analyst: ALG **Date Prepared:** 08/02/2019 **Date Analyzed:** 08/02/2019

Lab Batch ID: 3097523 **Sample:** 7683378-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.00200	0.100	0.104	104	0.100	0.115	115	10	70-130	35	
Toluene	<0.00200	0.100	0.0950	95	0.100	0.106	106	11	70-130	35	
Ethylbenzene	<0.00200	0.100	0.0953	95	0.100	0.106	106	11	70-130	35	
m,p-Xylenes	<0.00101	0.200	0.190	95	0.200	0.213	107	11	70-130	35	
o-Xylene	<0.00200	0.100	0.0974	97	0.100	0.109	109	11	70-130	35	

Analyst: SPC **Date Prepared:** 08/01/2019 **Date Analyzed:** 08/01/2019

Lab Batch ID: 3097154 **Sample:** 7683285-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	<5.00	250	254	102	250	255	102	0	90-110	20	

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

Version: 1.%

BS / BSD Recoveries

Project Name: Admiral Federal Com #002H

Work Order #: 632559 **Project ID:**

Analyst: ARM **Date Prepared:** 08/02/2019 **Date Analyzed:** 08/05/2019

Lab Batch ID: 3097580 **Sample:** 7683388-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Gasoline Range Hydrocarbons (GRO)	<8.00	1000	976	98	1000	1060	106	8	70-135	20	
Diesel Range Organics (DRO)	<8.13	1000	1030	103	1000	1100	110	7	70-135	20	

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

Version: 1.%

Form 3 - MS / MSD Recoveries

Project Name: Admiral Federal Com #002H

Work Order # : 632559 **Project ID:**

Lab Batch ID: 3097154 **QC- Sample ID:** 632555-045 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 08/01/2019 **Date Prepared:** 08/01/2019 **Analyst:** SPC

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	32.3	249	294	105	249	294	105	0	90-110	20	

Lab Batch ID: 3097154 **QC- Sample ID:** 632558-002 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 08/01/2019 **Date Prepared:** 08/01/2019 **Analyst:** SPC

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	344	250	617	109	250	619	110	0	90-110	20	

Lab Batch ID: 3097580 **QC- Sample ID:** 632559-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 08/05/2019 **Date Prepared:** 08/02/2019 **Analyst:** ARM

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Gasoline Range Hydrocarbons (GRO)	10.1	999	987	98	1000	1010	100	2	70-135	20	
Diesel Range Organics (DRO)	14.2	999	1030	102	1000	1080	107	5	70-135	20	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B

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

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

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

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

Sample Duplicate Recovery

Project Name: Admiral Federal Com #002H

Work Order #: 632559

Lab Batch #: 3097523 **Project ID:**

Date Analyzed: 08/02/2019 21:22 **Date Prepared:** 08/02/2019 **Analyst:** ALG

QC- Sample ID: 632559-001 D **Batch #:** 1 **Matrix:** Soil

Reporting Units: mg/kg

BTEX by EPA 8021B Analyte	SAMPLE / SAMPLE DUPLICATE RECOVERY Parent Sample Result [A]	Sample Duplicate Result [B]	%RPD	RPD Limit	Flag
Benzene	<0.00198	<0.00198	0	35	
Toluene	<0.00198	<0.00198	0	35	
Ethylbenzene	<0.00198	<0.00198	0	35	
m,p-Xylenes	<0.00397	<0.00397	0	35	
o-Xylene	<0.00198	<0.00198	0	35	
Total Xylenes	0	0	0	20	
Total BTEX	0	0	0	20	

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

Spike Relative Difference RPD 200 * | (B-A)/(B+A) |

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

BRL - Below Reporting Limit

Version: 1.%

Chain of Custody

Work Order No: 632559

XENCO LABORATORIES

Houston,TX (281) 240-4200 Dallas,TX (214) 902-0300 San Antonio,TX (210) 509-3334
Midland,TX (432-704-5440) EL Paso,TX (915)585-3443 Lubbock,TX (806)794-1296
Hobbs,NM (575-392-7550) Phoenix,AZ (480-355-0900) Atlanta,GA (770-449-8800) Tampa,FL (813-620-2000) www.xenco.com Page 1 of 1

Project Manager:	Jared Stoffel	Bill to: (if different)	Ike Tavarez
Company Name:	TRC	Company Name:	COG
Address:	10 Desta Dr. STE 150 E	Address:	
City, State ZIP:	Midland, TX 79705	City, State ZIP:	
Phone:	(432) 238-3003 Email:	JStoffel@trccompanies.com	

Work Order Comments

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

Project Name:	Admiral Federal Com #002H	Turn Around	
Project Number:		Routine	X
P.O. Number:		Rush: 24hrs	
Sampler's Name:	Tania Babu	Due Date:	

SAMPLE RECEIPT			
Temp Blank:	Yes (No)	Wet Ice:	(Yes) No
Temperature (°C):	0.6 0.4	Thermometer ID	
Received Intact:	(Yes) No		
Cooler Custody Seals:	Yes (No) N/A	Correction Factor:	-0.2
Sample Custody Seals:	Yes (No) N/A	Total Containers:	

ANALYSIS REQUEST

Work Order Notes

TAT starts the day recevied by the lab, if received by 4:30pm

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	Chloride (E300)	Sample Comments
TT-1 @ 0-1'	ss	7/30/2019	9:40	0-1'	1	x	
TT-1 @ 2'	ss	7/30/2019	9:45	2'	1	x	
TT-1 @ 3'	ss	7/30/2019	9:50	3'	1	x	

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 SiO2 Na Sr Tl 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 Tl U **1631 / 245.1 / 7470 / 7471** : Hg

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Xenco. A minimum charge of $75.00 will be applied to each project and a charge of $5 for each sample submitted to 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
1		7/31/19 1989	2		
3			4		
5			6		

Revised Date 051418 Rev. 2018.1

Final 1.000

Page 14 of 15

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: TRC Solutions, Inc

Date/ Time Received: 07/31/2019 09:59:00 AM

Work Order #: 632559

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

Temperature Measuring device used : R8

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

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

Analyst: PH Device/Lot#:

Checklist completed by: Brianna Teel Date: 07/31/2019
Brianna Teel

Checklist reviewed by: Jessica Kramer Date: 07/31/2019
Jessica Kramer

Appendix D: 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	NAB1915735032
District RP	2RP-5471
Facility ID	fAB1915734135
Application ID	pAB1915734232

Release Notification

Responsible Party

Responsible Party	COG Operating, LLC	OGRID	229137
Contact Name	Jennifer Knowlton	Contact Telephone	(575) 748-1570
Contact email	JKnowlton@concho.com	Incident # *(assigned by OCD)*	NAB1915735032
Contact mailing address	600 West Illinois Avenue, Midland, Texas 79701		

Location of Release Source

Latitude 32.09389 Longitude -103.98264

(NAD 83 in decimal degrees to 5 decimal places)

Site Name	Admiral Federal Com #002H	Site Type	Flowline
Date Release Discovered	May 18, 2019	API# *(if applicable)*	

Unit Letter	Section	Township	Range	County
P	28	25S	29E	Eddy

Surface Owner: ☐ State ☒ Federal ☐ Tribal ☐ Private (*Name:* _____)

Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

☐ Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
☒ Produced Water	Volume Released (bbls) 10	Volume Recovered (bbls) 0
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☒ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release

The release was caused by a flowline leak. The flowline has been repaired.
The release was in the pasture. A vacuum truck was dispatched to remove all freestanding fluids. Concho will evaluate the site to determine if we may commence remediation immediately or delineate any possible impact from the release and we will present a remediation work plan to the NMOCD for approval prior to any significant remediation activities.

State of New Mexico
Oil Conservation Division

Incident ID	NAB1915735032
District RP	2RP-5471
Facility ID	fAB1915734135
Application ID	pAB1915734232

Was this a major release as defined by 19.15.29.7(A) NMAC? ☐ Yes ☐ No	If YES, for what reason(s) does the responsible party consider this a major release?
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?	

Initial Response

The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury

- ■ The source of the release has been stopped.
- ■ The impacted area has been secured to protect human health and the environment.
- ■ Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.
- ■ All free liquids and recoverable materials have been removed and managed appropriately.

If all the actions described above have not been undertaken, explain why:

Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.

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

Printed Name: DeAnn Grant
Title: HSE Administrative Assistant
Signature: DeAnn Grant
Date: 6/4/2019
email: agrant@concho.com
Telephone: (432) 253-4513

OCD Only

Received by: Amalia Bustamante
Date: 6/6/2019

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	2RP-5471
Facility ID	
Application ID	

Site Assessment/Characterization

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

What is the shallowest depth to groundwater beneath the area affected by the release?	>25 (ft bgs)
Did this release impact groundwater or surface water?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	☐ Yes ☒ No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	☐ Yes ☒ No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	☐ Yes ☒ No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	☐ Yes ☒ No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a wetland?	☐ Yes ☒ No
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ☒ No
Are the lateral extents of the release overlying an unstable area such as karst geology?	☒ Yes ☐ No
Are the lateral extents of the release within a 100-year floodplain?	☐ Yes ☒ No
Did the release impact areas **not** on an exploration, development, production, or storage site?	☒ Yes ☐ No

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

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

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

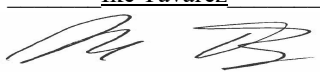
If the site characterization report does not include completed efforts at remediation of the release, the report must include a proposed remediation plan. That plan must include the estimated volume of material to be remediated, the proposed remediation technique, proposed sampling plan and methods,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

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	2RP-5471
Facility ID	
Application ID	

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

Printed Name: Ike Tavarez Title: Senior HSE Supervisor

Signature:  Date: 8/14/19

email: itavarez@concho.com Telephone: 432-685-2573

OCD Only

Received by: _____ Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	NAB1915735032
District RP	2RP-5471
Facility ID	fAB1915734135
Application ID	pAB1915734232

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 Tavarez Title: Senior HSE Supervisor

Signature:  Date: 8/14/19

email: itavarez@concho.com Telephone: 432-685-2573

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: _____