

SITE INFORMATION

Report Type: Closure Report 2RP-4945

General Site Information:

Site:	WD McIntyre E SW Tank Battery					
Company:	COG Operating LLC					
Section, Township and Range	Unit N	Sec. 20	T 17S	R 30E		
Lease Number:	NA					
County:	Eddy County					
GPS:	32.8150708			-103.995597		
Surface Owner:	Federal					
Directions:	From the intersection of Goat Ropers Road and Lovington Hwy in Loco Hills, NM, go west approximately 0.80 miles to the pad entrance. Turn left (south) onto pad and travel approximately 378 feet to lease road. Travel approximately 560 feet to fork, turn left (south) onto lease road. Travel approximately 0.21 miles to the McIntyre Battery.					

Release Data:

Date Released:	8/18/2018
Type Release:	Oil
Source of Contamination:	Tank overfilled
Fluid Released:	15 bbls
Fluids Recovered:	12 bbls

Official Communication:

Name:	Ike Tavaréz		Clair Gonzales
Company:	COG Operating, LLC		Tetra Tech
Address:	One Concho Center		901 West Wall Street
	600 W. Illinois Ave.		Suite 100
City:	Midland Texas, 79701		Midland, Texas
Phone number:	(432) 686-3023		(432) 687-8110
Fax:	(432) 684-7137		
Email:	itavarez@concho.com		Clair.Gonzales@tetrattech.com

Site Characterization

Depth to Groundwater:	80' below surface
Karst Potential:	Low

Recommended Remedial Action Levels (RRALs)

Benzene	Total BTEX	TPH (GRO+DRO)	TPH (GRO+DRO+MRO)	Chlorides
10 mg/kg	50 mg/kg	1,000 mg/kg	2,500 mg/kg	10,000 mg/kg



TETRA TECH

May 23, 2019

Mr. Mike Bratcher
Oil Conservation Division, District 2
811 S. First St.
Artesia, New Mexico 88210

**Re: Closure Report for the COG Operating, LLC, WD McIntyre E SW Tank Battery (08/18/18), Unit N, Section 20, Township 17 South, Range 30 East, Eddy County, New Mexico.
2RP-4945**

Mr. Bratcher:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating, LLC (COG) to remediate a release that occurred at the WD McIntyre E SW Tank Battery, Unit N, Section 20, Township 17 South, Range 30 East, Eddy County, New Mexico (Site). The spill site coordinates are 32.8150708°, -103.995597°. The site location is shown on Figures 1 and 2.

Background

According to the State of New Mexico C-141 Initial Report the release was discovered on August 18, 2018. Approximately 15 barrels of crude oil were released due to an oil tank overflow from a plugged equalizer line. A vacuum truck was dispatched to remove all freestanding fluids, recovering approximately 12 barrels. The release stayed contained with the facility firewalls. The initial C-141 Form is included in Appendix A.

Site Characterization

A site characterization was performed for the site and no watercourses, lakebeds, sinkholes, playa lakes, residences, schools, hospitals, institutions, churches, springs, private domestic water wells, springs, wetlands, incorporated municipal boundaries, subsurface mines, or floodplains are located within the specified distances. The site is in a low karst potential area. One well near the site is listed in the New Mexico Office of the State Engineers website. The nearest well is listed .68 miles away from site in Section 20, Township 17 South, Range 30 East, and has a reported depth to groundwater of 80 feet below ground surface. It was completed in 2013. The Chevron trend map show a depth to water >100 feet. The groundwater data is shown in Appendix B.

Tetra Tech

901 W. Wall Street, Suite 100, Midland, TX 79701

Tel 432.682.4559 www.tetrattech.com



Regulatory

A risk-based evaluation was performed for the Site in accordance with the New Mexico Oil Conservation Division (NMOCD) Guidelines for Remediation of Leaks, Spills and Releases, updated August 14, 2018. The guidelines require a risk-based evaluation of the site to determine recommended remedial action levels (RRAL) for benzene, toluene, ethylbenzene and xylene (collectively referred to as BTEX) and total petroleum hydrocarbons (TPH) in soil. The proposed RRAL for benzene was determined to be 10 parts per million (ppm) or milligrams per kilogram (mg/kg) and 50 ppm for total BTEX (sum of benzene, toluene, ethylbenzene, and xylene). Based upon the site characterization, the proposed RRAL for TPH is 1,000 mg/kg (GRO + DRO) and 2,500 mg/kg (GRO + DRO + MRO). Additionally, based on the site characterization, the proposed RRAL for chlorides is 10,000 mg/kg.

Soil Assessment and Analytical Results

On August 23, 2018, COG personnel were onsite to assess the spill area. A total of three (3) Auger Holes (AH-1, AH-2, and AH-3) were installed until refusal to total depths of 2.0 – 2.5' below surface. Soil samples were collected and submitted to the laboratory for TPH analysis by EPA method 8015 modified, BTEX by EPA Method 8021B, and chloride by EPA method 300.0. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix C. The results of the sampling are summarized in Table 1. The sample locations are shown on Figure 3.

Referring to Table 1, the sample locations not have benzene, total BTEX, or chlorides above the respective RRALs. The sample locations exceeded the RRALs for TPH in the shallow 0-1' interval but decreased with depth and did not exceed the RRAL in the deeper intervals. The TPH ranged from 2,079 mg/kg (AH-3 at 0-1.0') to 4,370 mg/kg (AH-1 at 0-1.0').

Remediation Activities

Tetra Tech personnel were onsite from March 28 – April 8, 2019 to supervise the remediation activities. The release area was excavated to total depth of 2.0 – 3.0' below surface. After excavation and confirmation of clean samples, the site was then backfilled with clean material to surface grade. Two (2) bottom hole and six (6) sidewall composite samples were collected every 200 square feet to ensure proper removal of the impacted soils. The samples were submitted to the laboratory to be analyzed for TPH method 8015 extended, BTEX method 8021B, and Chloride by EPA Method 300.0. The sampling results are summarized in Table 1. The excavation depths and sample locations are shown in Figure 4.

Referring to Table 2, all collected confirmation samples showed benzene, total BTEX, TPH, and chloride concentrations below the RRAL's.



TETRA TECH

Conclusion

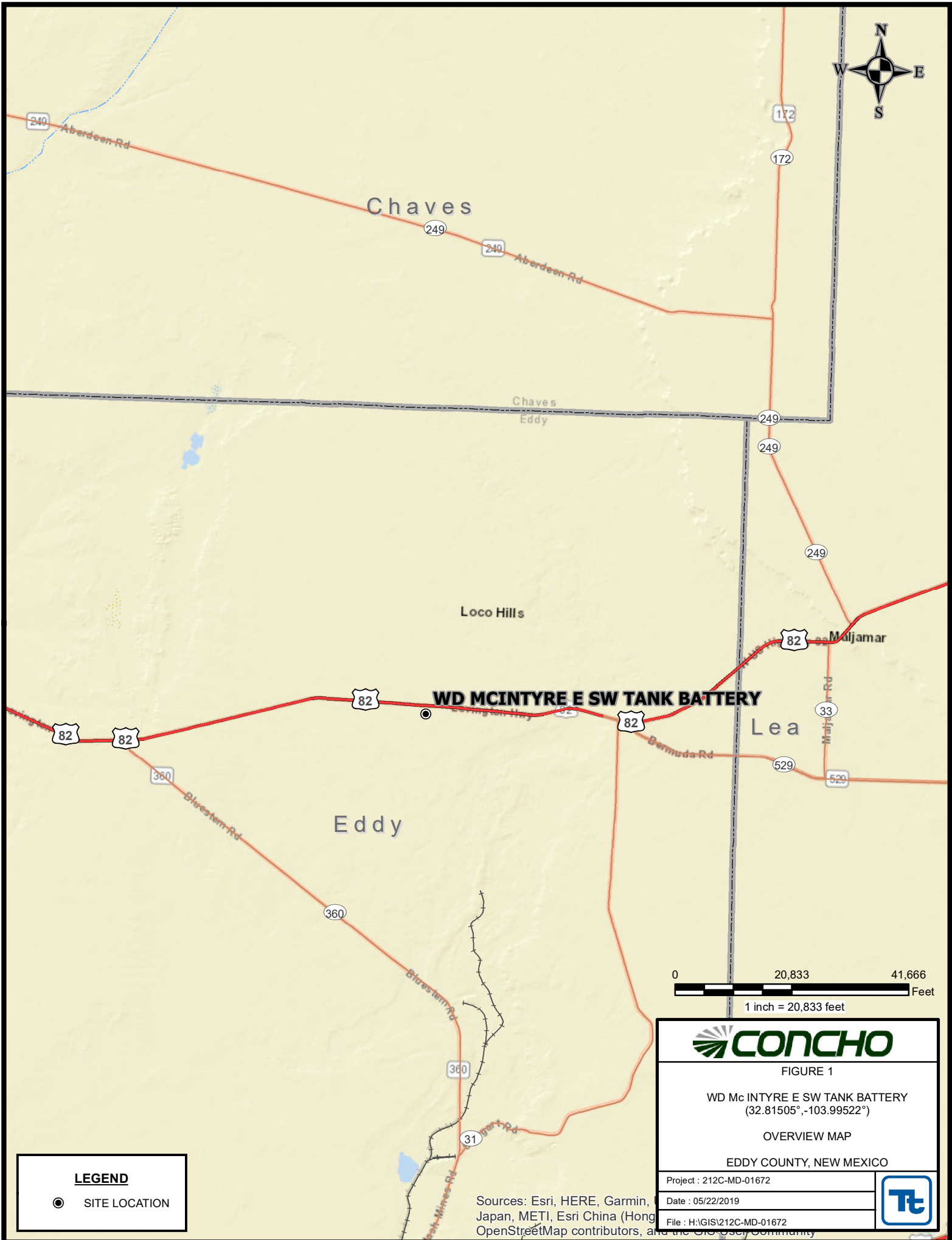
Based on the laboratory results and remediation activities performed COG requests closure of this spill issue. The final C-141 is enclosed in Appendix A. If you have any questions or comments concerning the assessment or remediation activities for this site, please call at (432) 682-4559.

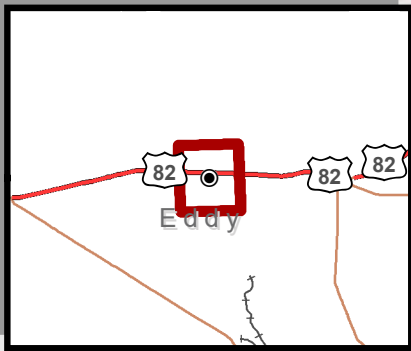
Respectfully submitted,
TETRA TECH

Kayla Taylor,
Project Manager

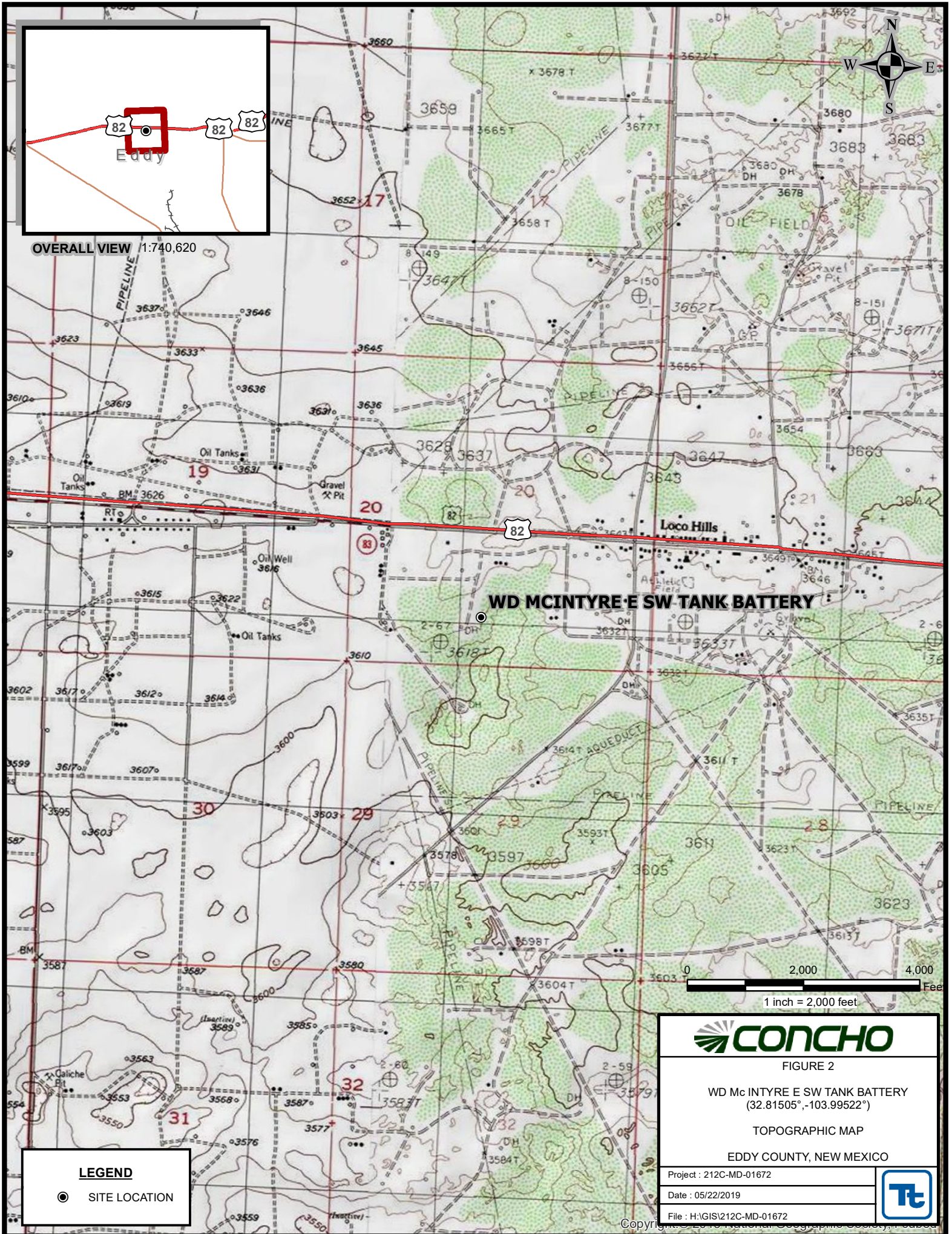
cc: Ike Tavarez – COG
Dakota Neel - COG
Rebecca Haskell - COG
Sheldon Hitchcock - COG
DeAnn Grant - COG

Figures





OVERALL VIEW 1:740,620



WD MCINTYRE E SW TANK BATTERY



FIGURE 2

WD McINTYRE E SW TANK BATTERY
(32.81505°,-103.99522°)

TOPOGRAPHIC MAP

EDDY COUNTY, NEW MEXICO

Project : 212C-MD-01672

Date : 05/22/2019

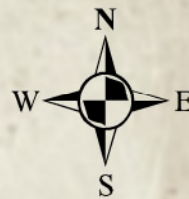
File : H:\GIS\212C-MD-01672



LEGEND

● SITE LOCATION





PUMP
JACK



Tables

Table 1
COG Operating LLC.
Summary of COG Operating LLC. Soil Assessment Sample Locations
WD McIntyre E SW Tank Battery
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH						BTEX							Chloride (mg/kg)			
			In Situ	Removed	TPH GRO (mg/kg)	Qualifier	TPH DRO (mg/kg)	Qualifier	TPH ORO (mg/kg)	Qualifier	Total TPH (mg/kg)	Benzene (mg/kg)	Qualifier	Toluene (mg/kg)	Qualifier	Ethylbenzene (mg/kg)	Qualifier		Xylenes (mg/kg)	Qualifier	Total BTEX (mg/kg)
AH-1	08/23/18	0-1	X		1650		2,720		90.1		4,460	7.48		91		130		110		339	22.5
	08/23/18	1-1.5			<15.0		<15.0		<15.0		<15.0	<0.001		<0.001		<0.001		<0.001		<0.002	62.9
	08/23/18	2-2.5			<15.0		<15.0		<15.0		<15.0	<0.002		<0.002		<0.002		<0.002		<0.002	32.2
AH-2	08/23/18	0-1	X		1560		1,820		<74.8		3,380	3.87		65.5		109		85.2		264	34.3
	08/23/18	1-1.5			<14.9		<14.9		<14.9		<14.9	<0.002		0.00322		0.014		0.02		0.0335	<4.96
	08/23/18	2-2.5			<14.9		<14.9		<14.9		<14.9	<0.002		<0.002		<0.002		<0.002		<0.002	<4.99
AH-3	8/23/2018	0-1	X		909		1,170		<74.9		2,080	3.37		36.7		62.8		41.2		160	14.9
	8/23/2018	1-1.5			<15.0		41.40		<15.0		41.4	<0.002		<0.002		<0.002		<0.002		<0.002	39.4
	08/23/18	2-2.5			<15.0		<15.0		<15.0		<15.0	0.023		0.018		<0.00994		<0.00994		0.041	158

NOTES:

ft	Feet	DRO	Diesel Range Organics
PPM	Parts per million	ORO	Oil Range Organics
mg/kg	Milligrams per kilogram		
TPH	Total Petroleum Hydrocarbons		
GRO	Gasoline Range Organics		

Table 2
COG Operating LLC.
Summary of Soil Excavation Locations
WD McIntyre E SW Tank Battery
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH						BTEX								Chloride (mg/kg)		
			In Situ	Removed	TPH GRO (mg/kg)	Qualifier	TPH DRO (mg/kg)	Qualifier	TPH ORO (mg/kg)	Qualifier	Total TPH (mg/kg)	Benzene (mg/kg)	Qualifier	Toluene (mg/kg)	Qualifier	Ethylbenzene (mg/kg)	Qualifier	Xylenes (mg/kg)		Qualifier	Total BTEX (mg/kg)
Bottomhole-1	03/26/19	3'	X		<10.0		<10.0		<10.0		<10.0	<0.050		<0.050		<0.050		<0.150		<0.300	32
Bottomhole-2	04/01/19	2'	X		<10.0		35		<10.0		35.4	<0.050		<0.050		0.113		0.291		0.404	48
NSW-1	03/26/19	-	X		<10.0		<10.0		<10.0		<10.0	<0.050		<0.050		<0.050		<0.150		<0.300	16
NSW-2	03/27/19	-	X		<10.0		47		<10.0		47.1	<0.050		<0.050		0.098		<0.150		<0.300	64
SSW-1	03/27/19	-	X		<10.0		212.00		34.6		246.6	<0.050		<0.050		0.122		0.176		<0.300	16
SSW-2	03/27/19	-	X		<10.0		326		13.0		339	<0.050		0.473		0.894		0.973		2.340	32
ESW-1	03/26/19	-	X		<10.0		<10.0		<10.0		<10.0	<0.050		<0.050		<0.050		<0.150		<0.300	32
WSW-1	03/27/19	-	X		29.6		485		38.0		553	0.080		1.070		2.070		2.250		5.470	48

NOTES:

ft Feet
PPM Parts per million
mg/kg Milligrams per kilogram
TPH Total Petroleum Hydrocarbons
GRO Gasoline Range Organics

DRO Diesel Range Organics
ORO Oil Range Organics

Photos



Facing East – View of Bottomhole-2



Facing East – View of Bottomhole-1



Facing East - View of Excavation Area



Facing West – View of Excavation Area

Appendix A

Incident ID	
District RP	
Facility ID	
Application ID	

Closure


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

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

- ☐ A scaled site and sampling diagram as described in 19.15.29.11 NMAC
- ☐ Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)
- ☐ Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)
- ☐ Description of remediation activities

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: _____ Title: _____

Signature:  _____ Date: _____

email: _____ Telephone: _____

OCD Only

Received by: _____ Date: _____

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

Closure Approved by: _____ Date: _____

Printed Name: _____ Title: _____

Appendix B

COG Operating LLC

WVD McIntyre E SW Tank Battery
Eddy County, New Mexico
32.8150708 -103.9955972

Legend

- High
- Low
- Medium
- Site Location

Site Location

Livingston Hwy

82

Goat Ropers Rd
Loco Hills

Hagerman Cutoff Rd

Google Earth

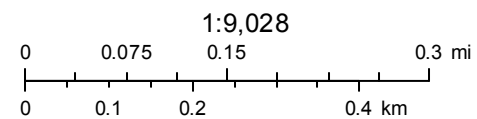
3000 ft

N

New Mexico NFHL Data



November 7, 2018



FEMA
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus

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This is a non-regulatory product for informational use only. Please consult your local floodplain administrator for further information.



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	Depth Well	Depth Water	Water Column
RA 11914 POD1	RA	ED		2	4	2	20	17S	30E	594801	3632002	85	80	5

Average Depth to Water: **80 feet**

Minimum Depth: **80 feet**

Maximum Depth: **80 feet**

Record Count: 1

PLSS Search:

Section(s): 20

Township: 17S

Range: 30E

Appendix C



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

March 27, 2019

KAYLA LOVELY TAYLOR

TETRA TECH

901 WEST WALL STREET , STE 100

MIDLAND, TX 79701

RE: MCINTYRE W SE TANK BATTERY

Enclosed are the results of analyses for samples received by the laboratory on 03/26/19 16:21.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-18-11. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

A handwritten signature in black ink, appearing to read "Mike Snyder".

Mike Snyder For Celey D. Keene

Lab Director/Quality Manager

Analytical Results For:

TETRA TECH
KAYLA LOVELY TAYLOR
901 WEST WALL STREET , STE 100
MIDLAND TX, 79701
Fax To: (432) 682-3946

Received:	03/26/2019	Sampling Date:	03/26/2019
Reported:	03/27/2019	Sampling Type:	Soil
Project Name:	MCINTYRE W SE TANK BATTERY	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-01672	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: BOTTOM HOLE - 1 (COMP 3') (H901137-01)

BTEX 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	03/27/2019	ND	1.94	96.9	2.00	1.80	
Toluene*	<0.050	0.050	03/27/2019	ND	1.83	91.4	2.00	0.722	
Ethylbenzene*	<0.050	0.050	03/27/2019	ND	1.91	95.5	2.00	1.50	
Total Xylenes*	<0.150	0.150	03/27/2019	ND	5.89	98.2	6.00	2.37	
Total BTEX	<0.300	0.300	03/27/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 95.8 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	32.0	16.0	03/27/2019	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	03/27/2019	ND	221	110	200	1.38	
DRO >C10-C28*	<10.0	10.0	03/27/2019	ND	199	99.7	200	12.8	
EXT DRO >C28-C36	<10.0	10.0	03/27/2019	ND					

Surrogate: 1-Chlorooctane 97.7 % 41-142

Surrogate: 1-Chlorooctadecane 100 % 37.6-147

Cardinal Laboratories

*=Accredited Analyte

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

TETRA TECH
KAYLA LOVELY TAYLOR
901 WEST WALL STREET , STE 100
MIDLAND TX, 79701
Fax To: (432) 682-3946

Received:	03/26/2019	Sampling Date:	03/26/2019
Reported:	03/27/2019	Sampling Type:	Soil
Project Name:	MCINTYRE W SE TANK BATTERY	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-01672	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: SSW - 1 (COMP 3') (H901137-02)

BTEx 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	03/27/2019	ND	1.94	96.9	2.00	1.80	
Toluene*	<0.050	0.050	03/27/2019	ND	1.83	91.4	2.00	0.722	
Ethylbenzene*	0.122	0.050	03/27/2019	ND	1.91	95.5	2.00	1.50	
Total Xylenes*	0.176	0.150	03/27/2019	ND	5.89	98.2	6.00	2.37	
Total BTEX	<0.300	0.300	03/27/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 92.9 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: JH						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	16.0	16.0	03/27/2019	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	03/27/2019	ND	221	110	200	1.38	
DRO >C10-C28*	212	10.0	03/27/2019	ND	199	99.7	200	12.8	
EXT DRO >C28-C36	34.6	10.0	03/27/2019	ND					

Surrogate: 1-Chlorooctane 97.6 % 41-142

Surrogate: 1-Chlorooctadecane 103 % 37.6-147

Cardinal Laboratories

*=Accredited Analyte

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

 TETRA TECH
 KAYLA LOVELY TAYLOR
 901 WEST WALL STREET , STE 100
 MIDLAND TX, 79701
 Fax To: (432) 682-3946

Received:	03/26/2019	Sampling Date:	03/26/2019
Reported:	03/27/2019	Sampling Type:	Soil
Project Name:	MCINTYRE W SE TANK BATTERY	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-01672	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: NSW - 1 (COMP 3') (H901137-03)

BTEx 8021B			mg/kg		Analyzed By: ms				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	03/27/2019	ND	1.94	96.9	2.00	1.80	
Toluene*	<0.050	0.050	03/27/2019	ND	1.83	91.4	2.00	0.722	
Ethylbenzene*	<0.050	0.050	03/27/2019	ND	1.91	95.5	2.00	1.50	
Total Xylenes*	<0.150	0.150	03/27/2019	ND	5.89	98.2	6.00	2.37	
Total BTEX	<0.300	0.300	03/27/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 94.8 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: JH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	16.0	16.0	03/27/2019	ND	416	104	400	3.77	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	03/27/2019	ND	221	110	200	1.38	
DRO >C10-C28*	<10.0	10.0	03/27/2019	ND	199	99.7	200	12.8	
EXT DRO >C28-C36	<10.0	10.0	03/27/2019	ND					

Surrogate: 1-Chlorooctane 93.9 % 41-142

Surrogate: 1-Chlorooctadecane 92.9 % 37.6-147

Cardinal Laboratories

*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

TETRA TECH
KAYLA LOVELY TAYLOR
901 WEST WALL STREET , STE 100
MIDLAND TX, 79701
Fax To: (432) 682-3946

Received:	03/26/2019	Sampling Date:	03/26/2019
Reported:	03/27/2019	Sampling Type:	Soil
Project Name:	MCINTYRE W SE TANK BATTERY	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-01672	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: ESW - 1 (COMP 3') (H901137-04)

BTEx 8021B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	03/27/2019	ND	1.94	96.9	2.00	1.80		
Toluene*	<0.050	0.050	03/27/2019	ND	1.83	91.4	2.00	0.722		
Ethylbenzene*	<0.050	0.050	03/27/2019	ND	1.91	95.5	2.00	1.50		
Total Xylenes*	<0.150	0.150	03/27/2019	ND	5.89	98.2	6.00	2.37		
Total BTEX	<0.300	0.300	03/27/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 92.8 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: JH					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	03/27/2019	ND	416	104	400	3.77	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	03/27/2019	ND	221	110	200	1.38	
DRO >C10-C28*	<10.0	10.0	03/27/2019	ND	199	99.7	200	12.8	
EXT DRO >C28-C36	<10.0	10.0	03/27/2019	ND					

Surrogate: 1-Chlorooctane 98.7 % 41-142

Surrogate: 1-Chlorooctadecane 96.6 % 37.6-147

Cardinal Laboratories

*=Accredited Analyte

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

Notes and Definitions

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

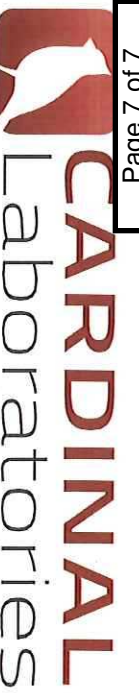
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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager



CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

Company Name: **Tetra Tech**

Project Manager: **Kayla Taylor**

Address: **901 W Wall Street**

City: **Midland** State: **TX** Zip: **79701**

Phone #: **438-210-5443** Fax #:

Project #: **218C-MS-01672** Project Owner:

Project Name: **Mcintyre W SE Tank Battery**

Project Location: **Eddy County, NM**

Sampler Name: **Devon Dominguez**

BILL TO

ANALYSIS REQUEST

P.O. #:

Company: **Coneno**

Attn: **Ike Tavares**

Address: **600 W Illinois**

City: **Midland**

State: **TX** Zip: **79701**

Phone #: **438-701-8630**

Fax #:

FOR LAB USE ONLY

Lab I.D. Sample I.D.

HPD137

Bottomhole-1 (Comp 3')

(G)RAB OR (C)OMP.

CONTAINERS

GROUNDWATER

WASTEWATER

SOIL

OIL

SLUDGE

OTHER :

ACID/BASE:

ICE / COOL

OTHER :

DATE

TIME

TPH

BTex

Chlorides

TPH

BTex

Chlorides

TPH

BTex

Chlorides

TPH

BTex

Chlorides

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Chlorides

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Chlorides

TPH

BTex

Chlorides

1 Bottomhole-1 (Comp 3')
2 SSU-1 (Comp 3')
3 NSU-1 (Comp 3')
4 ESU-1 (Comp 3')

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Relinquished By:

Date: **3/26/19**

Received By:

P.O. #:

Company: **Coneno**

Attn: **Ike Tavares**

Address: **600 W Illinois**

City: **Midland**

State: **TX** Zip: **79701**

Phone #: **438-701-8630**

Fax #:

Phone Result: ☐ Yes ☐ No

Add'l Phone #:

Fax Result: ☐ Yes ☐ No

Add'l Fax #:

REMARKS:

Request to attach devon.dominguez@tetratech.com to Results Email

Relinquished By:

Date: **4:21**

Received By:

P.O. #:

Company: **Coneno**

Attn: **Ike Tavares**

Address: **600 W Illinois**

City: **Midland**

State: **TX** Zip: **79701**

Phone #: **438-701-8630**

Fax #:

Phone Result: ☐ Yes ☐ No

Add'l Phone #:

Fax Result: ☐ Yes ☐ No

Add'l Fax #:

REMARKS:

Request to attach devon.dominguez@tetratech.com to Results Email

Delivered By: (Circle One)

Sample Condition

CHECKED BY: (Initials)

Sampler - UPS - Bus - Other:

Cool ☒ Intact ☒

Yes ☒ No ☒

Phone Result: ☐ Yes ☐ No

Fax Result: ☐ Yes ☐ No

Add'l Phone #:

Add'l Fax #:

REMARKS:

Request to attach devon.dominguez@tetratech.com to Results Email

Request!



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

March 28, 2019

KAYLA LOVELY TAYLOR

TETRA TECH

901 WEST WALL STREET , STE 100

MIDLAND, TX 79701

RE: MCINTYRE W SE TANK BATTERY

Enclosed are the results of analyses for samples received by the laboratory on 03/27/19 16:20.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-18-11. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

Mike Snyder For Celey D. Keene

Lab Director/Quality Manager

Analytical Results For:

TETRA TECH
KAYLA LOVELY TAYLOR
901 WEST WALL STREET , STE 100
MIDLAND TX, 79701
Fax To: (432) 682-3946

Received:	03/27/2019	Sampling Date:	03/27/2019
Reported:	03/28/2019	Sampling Type:	Soil
Project Name:	MCINTYRE W SE TANK BATTERY	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-01672	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: BOTTOM HOLE - 2 (COMP 1.5') (H901159-01)

BTX 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	0.265	0.050	03/28/2019	ND	1.97	98.7	2.00	0.445	
Toluene*	2.87	0.050	03/28/2019	ND	1.84	91.8	2.00	1.59	
Ethylbenzene*	5.51	0.050	03/28/2019	ND	1.94	96.9	2.00	1.23	
Total Xylenes*	6.14	0.150	03/28/2019	ND	5.87	97.8	6.00	1.22	
Total BTX	14.8	0.300	03/28/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 106 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	16.0	16.0	03/28/2019	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	81.9	10.0	03/28/2019	ND	176	88.0	200	2.44	
DRO >C10-C28*	998	10.0	03/28/2019	ND	203	101	200	1.41	
EXT DRO >C28-C36	160	10.0	03/28/2019	ND					

Surrogate: 1-Chlorooctane 118 % 41-142

Surrogate: 1-Chlorooctadecane 137 % 37.6-147

Cardinal Laboratories

*=Accredited Analyte

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

TETRA TECH
KAYLA LOVELY TAYLOR
901 WEST WALL STREET , STE 100
MIDLAND TX, 79701
Fax To: (432) 682-3946

Received:	03/27/2019	Sampling Date:	03/27/2019
Reported:	03/28/2019	Sampling Type:	Soil
Project Name:	MCINTYRE W SE TANK BATTERY	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-01672	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: NSW - 2 (COMP 1.5') (H901159-02)

BTX 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	03/28/2019	ND	1.97	98.7	2.00	0.445	
Toluene*	<0.050	0.050	03/28/2019	ND	1.84	91.8	2.00	1.59	
Ethylbenzene*	0.098	0.050	03/28/2019	ND	1.94	96.9	2.00	1.23	
Total Xylenes*	<0.150	0.150	03/28/2019	ND	5.87	97.8	6.00	1.22	
Total BTX	<0.300	0.300	03/28/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 94.4 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	64.0	16.0	03/28/2019	ND	416	104	400	0.00		

TPH 8015M	mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	03/28/2019	ND	176	88.0	200	2.44	
DRO >C10-C28*	47.1	10.0	03/28/2019	ND	203	101	200	1.41	
EXT DRO >C28-C36	<10.0	10.0	03/28/2019	ND					

Surrogate: 1-Chlorooctane 99.1 % 41-142

Surrogate: 1-Chlorooctadecane 105 % 37.6-147

Cardinal Laboratories

*=Accredited Analyte

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

TETRA TECH
KAYLA LOVELY TAYLOR
901 WEST WALL STREET , STE 100
MIDLAND TX, 79701
Fax To: (432) 682-3946

Received:	03/27/2019	Sampling Date:	03/27/2019
Reported:	03/28/2019	Sampling Type:	Soil
Project Name:	MCINTYRE W SE TANK BATTERY	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-01672	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: SSW - 2 (COMP 1.5') (H901159-03)

BTEx 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	03/28/2019	ND	1.97	98.7	2.00	0.445	
Toluene*	0.473	0.050	03/28/2019	ND	1.84	91.8	2.00	1.59	
Ethylbenzene*	0.894	0.050	03/28/2019	ND	1.94	96.9	2.00	1.23	
Total Xylenes*	0.973	0.150	03/28/2019	ND	5.87	97.8	6.00	1.22	
Total BTEX	2.34	0.300	03/28/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 94.6 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	32.0	16.0	03/28/2019	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	03/28/2019	ND	176	88.0	200	2.44	
DRO >C10-C28*	326	10.0	03/28/2019	ND	203	101	200	1.41	
EXT DRO >C28-C36	13.0	10.0	03/28/2019	ND					

Surrogate: 1-Chlorooctane 110 % 41-142

Surrogate: 1-Chlorooctadecane 123 % 37.6-147

Cardinal Laboratories

*=Accredited Analyte

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

TETRA TECH
KAYLA LOVELY TAYLOR
901 WEST WALL STREET , STE 100
MIDLAND TX, 79701
Fax To: (432) 682-3946

Received:	03/27/2019	Sampling Date:	03/27/2019
Reported:	03/28/2019	Sampling Type:	Soil
Project Name:	MCINTYRE W SE TANK BATTERY	Sampling Condition:	Cool & Intact
Project Number:	212C-MD-01672	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: WSW - 1 (COMP 1.5') (H901159-04)

BTEx 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	0.080	0.050	03/28/2019	ND	1.97	98.7	2.00	0.445	
Toluene*	1.07	0.050	03/28/2019	ND	1.84	91.8	2.00	1.59	
Ethylbenzene*	2.07	0.050	03/28/2019	ND	1.94	96.9	2.00	1.23	
Total Xylenes*	2.25	0.150	03/28/2019	ND	5.87	97.8	6.00	1.22	
Total BTEX	5.47	0.300	03/28/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 97.7 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	48.0	16.0	03/28/2019	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	29.6	10.0	03/28/2019	ND	176	88.0	200	2.44	
DRO >C10-C28*	485	10.0	03/28/2019	ND	203	101	200	1.41	
EXT DRO >C28-C36	38.0	10.0	03/28/2019	ND					

Surrogate: 1-Chlorooctane 108 % 41-142

Surrogate: 1-Chlorooctadecane 119 % 37.6-147

Cardinal Laboratories

*=Accredited Analyte

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

Notes and Definitions

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

Cardinal Laboratories

*=Accredited Analyte

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Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

[illegible]



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

April 02, 2019

KAYLA LOVELY TAYLOR

TETRA TECH

901 WEST WALL STREET , STE 100

MIDLAND, TX 79701

RE: MCINTYRE E SW TANK BATTERY

Enclosed are the results of analyses for samples received by the laboratory on 04/01/19 16:30.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-18-11. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

Celey D. Keene

Lab Director/Quality Manager

Analytical Results For:

TETRA TECH
KAYLA LOVELY TAYLOR
901 WEST WALL STREET , STE 100
MIDLAND TX, 79701
Fax To: (432) 682-3946

Received:	04/01/2019	Sampling Date:	04/01/2019
Reported:	04/02/2019	Sampling Type:	Soil
Project Name:	MCINTYRE E SW TANK BATTERY	Sampling Condition:	** (See Notes)
Project Number:	NOT GIVEN	Sample Received By:	Celey D. Keene
Project Location:	COG - EDDY CO NM		

Sample ID: BOTTOMHOLE-2 (COMP 2') (H901190-01)

BTX 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	04/02/2019	ND	1.93	96.4	2.00	11.0	
Toluene*	<0.050	0.050	04/02/2019	ND	1.85	92.4	2.00	9.88	
Ethylbenzene*	0.113	0.050	04/02/2019	ND	1.99	99.7	2.00	9.83	
Total Xylenes*	0.291	0.150	04/02/2019	ND	6.16	103	6.00	9.30	
Total BTX	0.404	0.300	04/02/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 98.3 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	48.0	16.0	04/02/2019	ND	416	104	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	04/01/2019	ND	154	76.8	200	10.6	
DRO >C10-C28*	35.4	10.0	04/01/2019	ND	175	87.5	200	10.4	
EXT DRO >C28-C36	<10.0	10.0	04/01/2019	ND					

Surrogate: 1-Chlorooctane 79.8 % 41-142

Surrogate: 1-Chlorooctadecane 78.7 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

Notes and Definitions

QR-02	The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

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CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page 4 of 4