May 30, 2019 Vertex Project #: 19E-00614-003

Spill Closure Report: Fiddle Fee 24 28 23 TB #2H (Section 23, Township 24 South, Range 28 East)
API: 30-015-44540
County: Eddy
Incident Report: 2RP-5322

Prepared For: **Marathon Oil Permian LLC**
4111 South Tidwell Road
Carlsbad, New Mexico 88220

New Mexico Oil Conservation Division - District 2 - Artesia
811 S. 1st Street
Artesia, New Mexico 88210

Marathon Oil Permian LLC retained Vertex Resource Services Inc. (Vertex) to conduct a Spill Assessment for a release of production water caused when the mechanical seal on a water transfer pump failed at Fiddle Fee 24 28 23 TB #2H, API 30-015-44540, Incident 2RP-5322 (hereafter referred to as "site"). This letter provides a description of the Spill Assessment and includes a request for Spill Closure. The spill area is located at N 32.20947660, W 104.06591841.

Background

The site is located approximately 18 miles southeast of Carlsbad, New Mexico. The legal location for the site is Section 23, Township 24 South and Range 28 East in Eddy County, New Mexico. The spill area is located on private property. An aerial photograph and site schematic are included in Attachment 1.

The *Geological Map of New Mexico* (New Mexico Bureau of Geology and Mineral Resources, 2014 – 2017) indicates the site's surface geology is comprised primarily of Qa ---- Alluvium (Holocene to upper Pleistocene). Predominant soil texture on the site is loam/clay loam.

Incident Description

A spill occurred on March 16, 2019, when the mechanical seal on the water transfer pump failed. The spill was reported March 16, 2019 and involved the release of approximately 252 barrels (bbls) of produced water. 250 bbls of production water were released into the lined containment and 2 bbls were released onto the pad site due to overspray. Approximately 250 bbls of free fluid was removed during initial spill clean-up. The New Mexico Oil Conservation Division (NMOCD) C-141 Report: 2RP-5322 is included in Attachment 2. The Daily Field Reports (DFRs) and site photographs are presented in Attachment 3.

Closure Criteria Determination

The depth to groundwater was determined using information from Oil and Gas Drilling records and the New Mexico Office of the State Engineer Water Column/Average Depth to Water report. A 5,000-meter search radius was used to determine groundwater depth. The closest recorded depth to groundwater was determined to be 370 feet below ground surface (bgs) and 1,692 feet from the location of the spill. Documentation used in Closure Criteria Determination research is included in Attachment 4.

Table 1. Closure Criteria Determination			
Site Name: Fiddle Fee 24 28 23 #2H 6H 9H CTB			
Spill Coordinates: 32.20947660, -104.06591841			
Site Specific Conditions		**Value**	**Unit**
1	Depth to Groundwater	**370**	feet
2	Within 300 feet of any continuously flowing watercourse or any other significant watercourse	467	feet
3	Within 200 feet of any lakebed, sinkhole or playa lake (measured from the ordinary high-water mark)	4186	feet
4	Within 300 feet from an occupied residence, school, hospital, institution or church	5194	feet
5	i) Within 500 feet of a spring or a private, domestic fresh water well used by less than five households for domestic or stock watering purposes, **or**	7034	feet
	ii) Within 1000 feet of any fresh water well or spring	3064	feet
6	Within incorporated municipal boundaries or within a defined municipal fresh water field covered under a municipal ordinance adopted pursuant to Section 3-27-3 NMSA 1978 as amended, unless the municipality specifically approves	No	(Y/N)
7	Within 300 feet of a wetland	4652	feet
8	Within the area overlying a subsurface mine	No	(Y/N)
9	Within an unstable area (Karst Map)	Medium	Critical High Medium Low
10	Within a 100-year Floodplain	500	year
NMAC 19.15.29.12 E (Table 1) Closure Criteria		**>100'**	<50' 51-100' >100'

The closure criteria determined for the site are associated with the following constituent concentration limits as presented in Table 2.

Table 2. Closure Criteria for Soils Impacted by a Release

Minimum depth below any point within the horizontal boundary of the release to groundwater less than 10,000 mg/l TDS	Constituent	Limit
> 100 feet	Chloride	20,000 mg/kg
	TPH (GRO+DRO+MRO)	2,500 mg/kg
	GRO+DRO	1,000 mg/kg
	BTEX	50 mg/kg
	Benzene	10 mg/kg

Remedial Actions Taken

An initial site inspection of the spill area was completed on March 18, 2019, which identified the area of the spill specified in the initial C-141 Report, estimated the approximate volume of the spill and white lined the area required for the 811 One Call request. The impacted area was determined to be approximately 82 feet long and 32 feet wide; the total affected area was determined to be 1,171 square feet. The DFR associated with the site is included in Attachment 3.

Remediation efforts began on March 20, 2019 and were completed on the same day. Vertex personnel supervised the excavation of impacted soils. Field screening was completed on a total of 6 sample points and consisted of analysis using a Photo Ionization Detector (volatile hydrocarbons) and Quantabs (chlorides). Field screening results were used to identify areas requiring further remediation from those areas showing concentrations below determined closure criteria levels. Soils were removed to a depth of 6 inches bgs. Impacted soil was transported by a licensed waste hauler and disposal at an approved waste management facility. Waste Manifest is presented in Attachment 5. Field screening results are presented Attachment 6, as well as in the DFRs in Attachment 3.

Notification that a liner inspection was scheduled to be completed was provided to the NMOCD on March 21, 2019 are in Attachment 7. Visual observation of the liner was completed on all sides and at the base of the containment, around equipment, and of all seams in the liner. As evidenced in the DFR, Attachment 3, liner integrity was confirmed, and the Liner Inspection Notification email is presented in Attachment 7.

Notification that confirmatory samples were being collected was provided to the NMOCD on March 18, 2019 and are included in Attachment 7. Confirmatory composite samples were collected from across the identified spill area. Five (5) samples (SS19-01 to SS19-05), including one (1) background sample, were collected for laboratory analysis following NMOCD soil sampling procedures. Samples were submitted to XENCO Laboratories under chain-of-custody protocols and analyzed for BTEX (EPA Method 8021B), Total Petroleum Hydrocarbons (GRO, DRO, MRO – EPA Method SW8015 Mod) and Total Chlorides (EPA Method 300.0). Laboratory results are presented in Table 3, Attachment 6. All confirmatory samples collected and analyzed were below closure criteria for the site.

Closure Request

The spill area was fully delineated, remediated and backfilled with local soils by March 30, 2019. Confirmatory samples were analyzed by the laboratory and found to be below allowable concentrations as per the New Mexico Administrative Code (NMAC) Closure Criteria for Soils Impacted by a Release locations "over 100 feet to groundwater". Based on these findings, Marathon Oil Permian LLC requests that this spill be closed.

Should you have any questions or concerns, please do not hesitate to contact the undersigned at 575.361.1137 or dwilliams@vertex.ca.

Sincerely,

Dennis Williams
ENVIRONMENTAL EARTHWORKS ADVISOR

Attachments

Attachment 1. Site Schematic
Attachment 2. NMOCD C-141 Report
Attachment 3. Daily Field Report(s) with Pictures
Attachment 4. Closure Criteria for Soils Impacted by a Release Research Determination Documentation
Attachment 5. Waste Manifest(s)
Attachment 6. Table 3 - Laboratory Results Table
Attachment 7. Liner Inspection and Confirmatory Sample Notification to the NMOCD
Attachment 8. Laboratory Data Reports and COCs

References

1. *Water Column/Average Depth to Water Report.* New Mexico Water Rights Reporting System, (2019). Retrieved from http://nmwrrs.ose.state.nm.us/nmwrrs/waterColumn.html

2. *Assessed and Impaired Waters of New Mexico.* New Mexico Department of Surface Water Quality Bureau, (2019). Retrieved from https://gis.web.env.nm.gov/oem/?map=swqb

3. *Interactive Geologic Map.* New Mexico Bureau of Geology and Mineral Resources, (2019). Retrieved from http://geoinfo.nmt.edu

4. *Measured Distance from the Subject Site to Residence.* Google Earth Pro, (2019). Retrieved from https://earth.google.com

5. *Point of Diversion Location Report.* New Mexico Water Rights Reporting System, (2019). Retrieved from http://nmwrrs.ose.state.nm.us/nmwrrs/wellSurfaceDiversion.html

6. *Measured Distance from the Subject Site to Municipal Boundaries.* Google Earth Pro, (2019). Retrieved from https://earth.google.com

7. *National Wetland Inventory Surface Waters and Wetland*. United State Fish and Wildlife Service, (2019). Retrieved from https://www.fws.gov/wetlands/data/mapper.html

8. *Coal Mine Resources in New Mexico*. NM Mining and Minerals Division, (2019). Retrieved from http://www.emnrd.state.nm.us/MMD/gismapminedata.html

9. *New Mexico Cave/Karsts*. United States Department of the Interior, Bureau of Land Management, (2019) Retrieved from https://www.blm.gov/programs/recreation/recreation-programs/caves/new-mexico

10. *Flood Map Number 35015C1875D.* United States Department of Homeland Security, FEMA Flood Map Service Center, (2010). Retrieved from https://msc.fema.gov/portal/search?AddressQuery=malaga%20new%20mexico#searchresultsanchor

11. *Well Log/Meter Information Report.* NM Office of the State Engineer, New Mexico Water Rights Reporting System. (2019). Retrieved from http://nmwrrs.ose.state.nm.us/nmwrrs/meterReport.html

12. *Natural Resources and Wildlife Oil and Gas Releases*. New Mexico Oil Conservation Division, (2019). Santa Fe, New Mexico.

13. *Soil Survey, New Mexico*. United States Department of Agriculture, Soil Conservation Service in Cooperation with New Mexico Agricultural Experiment Station. (1971). Retrieved from http://www.wipp.energy.gov/library/Information_Repository_A/Supplemental_Information/Chugg%20et%20al%201971%20w-map.pdf

Limitations

This report has been prepared for the sole benefit of Marathon Oil Permian LLC. This document may not be used by any other person or entity, with the exception of the New Mexico Oil Conservation Division, without the express written consent of Vertex Resource Services Inc. (Vertex) and Marathon Oil Permian LLC. Any use of this report by a third party, or any reliance on decisions made based on it, or damages suffered as a result of the use of this report are the sole responsibility of the user.

The information and conclusions contained in this report are based upon work undertaken by trained professional and technical staff in accordance with generally accepted scientific practices current at the time the work was performed. The conclusions and recommendations presented represent the best judgement of Vertex based on the data collected during the assessment. Due to the nature of the assessment and the data available, Vertex cannot warrant against undiscovered environmental liabilities. Conclusions and recommendations presented in this report should not be considered legal advice.

ATTACHMENT 1

LEGEND

- SOIL SAMPLE
- WELL
- SPILL

0 37.5 75 150 ft

SCALE 1:1,500

Notes: Aerial Image from Eddy County Assessor 2019

Marathon Oil

Site Schematic
Fiddle Fee 24 28 23
2H 6H 9H

VERTEX

DRAWN:	NM
APPROVED:	KM
DATE:	MAR 25/19

FIGURE: **1**

VERSATILITY. EXPERTISE.

Document Path: C:\Users\mocny\Documents\Natasha Mocny\Projects\Marathon\Figure 1 Site Schematic Fiddle Fee 2H 6H 9H (19E-00614).mxd

ATTACHMENT 2

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	NAB1909133556
District RP	2RP-5322
Facility ID	
Application ID	pAB1909132593

Release Notification

Responsible Party

Responsible Party Marathon Oil Permian LLC	OGRID 372098
Contact Name Callie Karrigan	Contact Telephone 575-297-0956
Contact email cnkarrigan@marathonoil.com	Incident # *(assigned by OCD)* NAB1909133556
Contact mailing address 4111 Tidwell Road, Carlsbad New Mexico, 88220	

Location of Release Source

Latitude 32.20947660 Longitude 104.06591841
(NAD 83 in decimal degrees to 5 decimal places)

Site Name Fiddle Fee 24 28 23 TB 2H**	Site Type Oil and gas drilling facility
Date Release Discovered 3/16/19	API# *(if applicable)* 30-015-44549 **30-015-44540

Unit Letter	Section	Township	Range	County
D	23	24S	28E	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) 252	Volume Recovered (bbls) 250
	Is the concentration of total dissolved solids (TDS) 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 Operator reported the mechanical seal on the water transfer pump failed, resulting in a release into lined containment. Approximately 250 barrels was released and recovered in containment. Due to overspray, approximately 2 barrels was released directly outside of containment.

State of New Mexico
Oil Conservation Division

Incident ID	NAB1909133556
District RP	2RP-5322
Facility ID	
Application ID	pAB1909132593

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)? **

By Callie Karrigan to D1 email and Jim Griswold on 3/1/19 at 5:43 pm.

** Date of Discovery: 3/16/19, "should not have an immediate notice date before the Date of Discovery".

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: Callie Karrigan Title: HES Professional

Signature: Callie Karrigan Date: 3/16/19

email: cnkarrigan@marathonoil.com Telephone: 575-297-0956

OCD Only

Received by: Amalia Barrameda Date: 4/1/2019

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

Site Assessment/Characterization

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

What is the shallowest depth to groundwater beneath the area affected by the release?	_____ (ft bgs)
Did this release impact groundwater or surface water?	☐ 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.

ATTACHMENT 3

Daily Site Visit Report

Client:	Marathon Oil Permian LLC	Inspection Date:	3/17/2019
Site Location Name:	Fiddle Fee 24 28 23 #2H 6H 9H CTB	Report Run Date:	3/18/2019 12:20 AM
Project Owner:	Isaac Castro	File (Project) #:	19-00614
Project Manager:	Dennis Williams	API #:	3001544540
Client Contact Name:	Callie Karrigan	Reference	Water transfer spill
Client Contact Phone #:	(405) 202-1028		

Summary of Times	
Left Office	3/17/2019 10:00 AM
Arrived at Site	3/17/2019 10:30 AM
Departed Site	3/17/2019 11:12 AM
Returned to Office	3/17/2019 11:46 AM

Daily Site Visit Report

Site Sketch

Daily Site Visit Report

Summary of Daily Operations

10:51 Arrive on site
Fill out arrival form and safety forms
Map spill with Trimble
Take pictures of spill
Fill out DFR
Fill out departure form
Head back to office
Upload DFR and paperwork

Next Steps & Recommendations

1 Work with Wescom to get spill cleaned up

2 Perform liner inspection

3 Collect samples

Daily Site Visit Report

Site Photos

Viewing Direction: North

Spill area outside containment

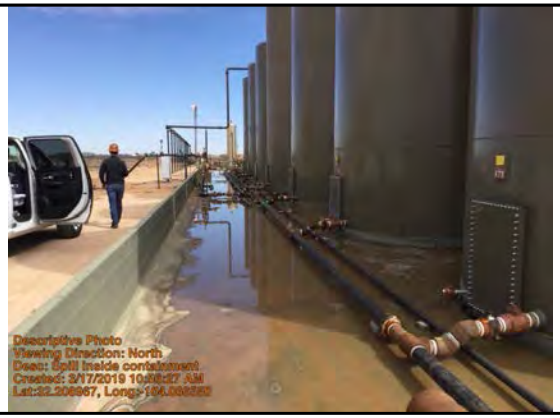
Viewing Direction: East

Spill area outside containment

Viewing Direction: South

Spill area outside containment

Viewing Direction: North



Spill inside containment

Daily Site Visit Report

Viewing Direction: North

Spill inside containment

Daily Site Visit Report

Daily Site Visit Signature

Signature of Inspector:

Daily Site Visit Report

Depth Sample Photos

Sample Point ID: SS19-01

Depth: 0.5 ft.

Sample Point ID: SS19-02

Depth: 0.5 ft.

Sample Point ID: SS19-03

Depth: 0.5 ft.

Sample Point ID: SS19-04

Depth: 0.5 ft.

Daily Site Visit Report

Sample Point ID: SS19-05

Depth: 0.5 ft.

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Jason Crabtree

Signature: 

Daily Site Visit Report

Client:	Marathon Oil Permian LLC	Inspection Date:	3/20/2019
Site Location Name:	Fiddle Fee 24 28 23 #2H 6H 9H CTB	Report Run Date:	6/5/2019 9:24 PM
Project Owner:	Isaac Castro	File (Project) #:	19-00614
Project Manager:	Dennis Williams	API #:	3001544540
Client Contact Name:	Callie Karrigan	Reference	Water transfer spill
Client Contact Phone #:	(405) 202-1028		

Summary of Times

Left Office	3/20/2019 6:45 AM
Arrived at Site	3/20/2019 7:32 AM
Departed Site	3/20/2019 11:13 AM
Returned to Office	3/20/2019 11:53 AM

Summary of Daily Operations

7:33 Arrive on site
Fill out arrival form and safety paperwork
Perform safety meeting and go over work plan with Wescom crew
Begin spill clean up
Take pictures throughout process
Field screen samples
Pack samples in jars
Fill out DFR
Ship samples to Xenco
Return to office and upload all paperwork and data

Next Steps & Recommendations

1 Ship samples and await results

Daily Site Visit Report

Sampling

SS19-01

Depth ft	VOC PID	Petro Flag TPH ppm	Quantab Range ppm	Quantab Reading ppm	Lab Analysis	Picture	Trimble Location	Marked On Site Sketch?
0.5 ft.	0 ppm		High (300-6000ppm)	4647 ppm	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓	32°12'33.091"N, 104°03'59.809"W	Yes

SS19-02

Depth ft	VOC PID	Petro Flag TPH ppm	Quantab Range ppm	Quantab Reading ppm	Lab Analysis	Picture	Trimble Location	Marked On Site Sketch?
0.5 ft.	0 ppm		High (300-6000ppm)	2262 ppm	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓	32°12'32.960"N, 104°03'59.706"W	Yes

SS19-03

Depth ft	VOC PID	Petro Flag TPH ppm	Quantab Range ppm	Quantab Reading ppm	Lab Analysis	Picture	Trimble Location	Marked On Site Sketch?
0.5 ft.	0 ppm		High (300-6000ppm)	1075 ppm	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓	32°12'32.895"N, 104°03'59.901"W	Yes

SS19-04

Depth ft	VOC PID	Petro Flag TPH ppm	Quantab Range ppm	Quantab Reading ppm	Lab Analysis	Picture	Trimble Location	Marked On Site Sketch?
0.5 ft.	0 ppm		High (300-6000ppm)	1170 ppm	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓	32°12'33.380"N, 104°03'59.863"W	Yes

Daily Site Visit Report

SS19-05

Depth ft	VOC PID	Petro Flag TPH ppm	Quantab Range ppm	Quantab Reading ppm	Lab Analysis	Picture	Trimble Location	Marked On Site Sketch?
0.5 ft.	0 ppm		High (300-6000ppm)	300 ppm	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓	32°12'33.610"N, 104°03'59.850"W	Yes

Daily Site Visit Report

Site Photos

Viewing Direction: North

Spill area

Viewing Direction: North

Clean up area

Viewing Direction: East

Cleaning up spill with skid steer and shovels

Viewing Direction: East

Surface Sample 1

Daily Site Visit Report

Viewing Direction: North	**Viewing Direction**: South
	
Clean up area	Clean up area
Viewing Direction: North	**Viewing Direction**: South
	
Clean up area	Clean up area

Daily Site Visit Report

Viewing Direction: East

Surface sample 4

Viewing Direction: North

Surface sample 5

Viewing Direction: East

Surface sample 3

Viewing Direction: East

Surface sample 2

Daily Site Visit Report

Viewing Direction: North

Contaminated soil on liner

Daily Site Visit Report

Depth Sample Photos

Sample Point ID: SS19-01

Depth: 0.5 ft.

Sample Point ID: SS19-02

Depth: 0.5 ft.

Sample Point ID: SS19-03

Depth: 0.5 ft.

Sample Point ID: SS19-04

Depth: 0.5 ft.

Daily Site Visit Report

Sample Point ID: SS19-05

Depth: 0.5 ft.

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Jason Crabtree

Signature: 

Daily Site Visit Report

Client:	Marathon Oil Permian LLC	Inspection Date:	3/23/2019
Site Location Name:	Fiddle Fee 24 28 23 #2H 6H 9H CTB	Report Run Date:	3/25/2019 2:58 PM
Project Owner:	Isaac Castro	File (Project) #:	19-00614
Project Manager:	Dennis Williams	API #:	3001544540
Client Contact Name:	Callie Karrigan	Reference	Water transfer spill
Client Contact Phone #:	(405) 202-1028		

Summary of Times

Left Office	3/23/2019 11:45 AM
Arrived at Site	3/23/2019 12:00 PM
Departed Site	3/23/2019 12:28 PM
Returned to Office	3/23/2019 1:02 PM

Summary of Daily Operations

12:01 Fill out arrival and safety forms
Perform liner inspection
Take pictures
Fill out DFR
Return to office
Upload all paperwork and data

Next Steps & Recommendations

1

Daily Site Visit Report

Site Photos

Viewing Direction: North

In tact liner

Viewing Direction: North

In tact liner

Viewing Direction: South

In tact liner

Viewing Direction: East

In tact liner

Daily Site Visit Report

Viewing Direction: South	**Viewing Direction**: West
	
In tact liner	In tact liner
Viewing Direction: South	**Viewing Direction**: Southwest
	
In tact liner	In tact liner

Daily Site Visit Report

Viewing Direction: North

In tact liner

Viewing Direction: West

In tact liner

Viewing Direction: North

In tact liner

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Jason Crabtree

Signature: 

Daily Site Visit Report

Client:	Marathon Oil Permian LLC	Inspection Date:	4/17/2019
Site Location Name:	Fiddle Fee 24 28 23 #2H 6H 9H CTB	Report Run Date:	4/17/2019 7:35 PM
Project Owner:	Isaac Castro	File (Project) #:	19E-00614
Project Manager:	Dennis Williams	API #:	3001544540
Client Contact Name:	Callie Karrigan	Reference	Water Transfer Spill
Client Contact Phone #:	(405) 202-1028		

Summary of Times

Left Office	4/17/2019 11:05 AM
Arrived at Site	4/17/2019 11:50 AM
Departed Site	4/17/2019 12:10 PM
Returned to Office	4/17/2019 12:13 PM

Summary of Daily Operations

11:56 Fill out arrival and safety forms
Conduct backfill inspection
Take pictures
Fill out DFR
Demobilize

Next Steps & Recommendations

1 N/A

Daily Site Visit Report

Site Photos

Viewing Direction: North

Backfilled area

Viewing Direction: East

Backfilled area

Viewing Direction: East

Backfilled area

Viewing Direction: South

Backfilled area

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Jason Crabtree

Signature: 

Daily Site Visit Report

Client:	Marathon Oil Permian LLC	Inspection Date:	4/20/2019
Site Location Name:	Fiddle Fee 24 28 23 #2H 6H 9H CTB	Report Run Date:	4/20/2019 3:24 PM
Project Owner:	Isaac Castro	File (Project) #:	19E-00614
Project Manager:	Dennis Williams	API #:	3001544540
Client Contact Name:	Callie Karrigan	Reference	Water Transfer Spill
Client Contact Phone #:	(405) 202-1028		

Summary of Times

Left Office	4/20/2019 7:00 AM
Arrived at Site	4/20/2019 7:40 AM
Departed Site	4/20/2019 8:16 AM
Returned to Office	4/20/2019 8:17 AM

Summary of Daily Operations

8:00 Fill out safety and arrival forms
Conduct final site inspection
Take pictures
Fill out DFR
Demobilize

Next Steps & Recommendations

1 N/A

Daily Site Visit Report

Site Photos

Viewing Direction: North

Backfilled spill area

Viewing Direction: South

Backfilled spill area

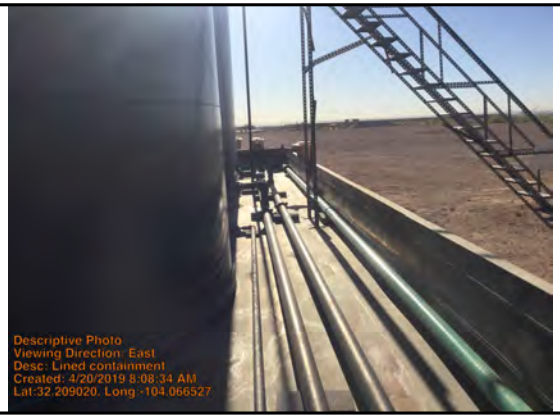
Viewing Direction: South

Lined containment

Viewing Direction: North

Lined containment

Daily Site Visit Report

Viewing Direction: East	**Viewing Direction**: North
	
Lined containment	Lined containment
Viewing Direction: Northeast	**Viewing Direction**: East
	
Lined containment	Lined containment

Daily Site Visit Report

Viewing Direction: East

Lined containment

Viewing Direction: North

Lined containment

Viewing Direction: South

Lined containment

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Jason Crabtree

Signature: 

ATTACHMENT 4

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-basin Code	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
C 04263 POD1	CUB	ED	3	1	1	23	24S	28E	588026	3563915	122	390	370	20
C 03986 POD1	CUB	ED	3	4	2	22	24S	28E	587505	3563502	746	170	120	50
C 02244	C	LE	3	1	2	22	24S	28E	587224	3563865*	820	260		
C 04222 POD2	CUB	ED	1	2	4	22	24S	28E	587707	3563255	844	100	40	60
C 03132	C	ED	1	2	4	15	24S	28E	587616	3564877*	934	90	19	71

Average Depth to Water: **137 feet**

Minimum Depth: **19 feet**

Maximum Depth: **370 feet**

Record Count: 5

UTMNAD83 Radius Search (in meters):

Easting (X): 588026.55 **Northing (Y):** 3564037.52 **Radius:** 1000

***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.

New Mexico Office of the State Engineer

Active & Inactive Points of Diversion

(with Ownership Information)

(acre ft per annum) (R=POD has been replaced and no longer serves this file, C=the file is closed) (quarters are 1=NW 2=NE 3=SW 4=SE) (quarters are smallest to largest) (NAD83 UTM in meters)

WR File Nbr	Sub basin	Use	Diversion	Owner	County	POD Number	Well Tag	Code	Grant	Source	q q q 6416 4	Sec	Tws	Rng	X	Y	Distance
C 04263	CUB	EXP	0	RUSTLER HILLS II LTD PTP	ED	C 04263 POD1	NA			Shallow	3 1 1	23	24S	28E	588026	3563915	122
C 03754	C	STK	0	BRANTLEY BROTHERS	ED	C 03754 POD1			NON		4 4 2	22	24S	28E	587843	3563496	571
C 03756	C	STK	0	BRANTLEY BROTHERS	ED	C 03756 POD1			NON		1 4 4	15	24S	28E	587599	3564476	612
C 03987	CUB	EXP	0	RUSTLER HILLS II LTD	ED	C 03987 POD1			NON		3 4 2	22	24S	28E	587591	3563491	698
C 03986	CUB	EXP	0	RUSTLER HILLS II LTD	ED	C 03986 POD1	NA		NON	Shallow	3 4 2	22	24S	28E	587505	3563502	746
C 02244	C	PRO	0	KAISER-FRANCIS OIL COMPANY	LE	C 02244					3 1 2	22	24S	28E	587224	3563865*	820
C 04222	CUB	EXP	0	VL FRESH WATER LLC	ED	C 04222 POD2	NA			Shallow	1 2 4	22	24S	28E	587707	3563255	844
C 03132	C	DOL	3	BRANTLEY BROTHERS	ED	C 03132				Shallow	1 2 4	15	24S	28E	587616	3564877*	934

Record Count: 8

UTMNAD83 Radius Search (in meters):

Easting (X): 588026.55 **Northing (Y):** 3564037.52 **Radius:** 1000

Sorted by: Distance

***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.

Help Using this Tool

Legend | Basemap | Query

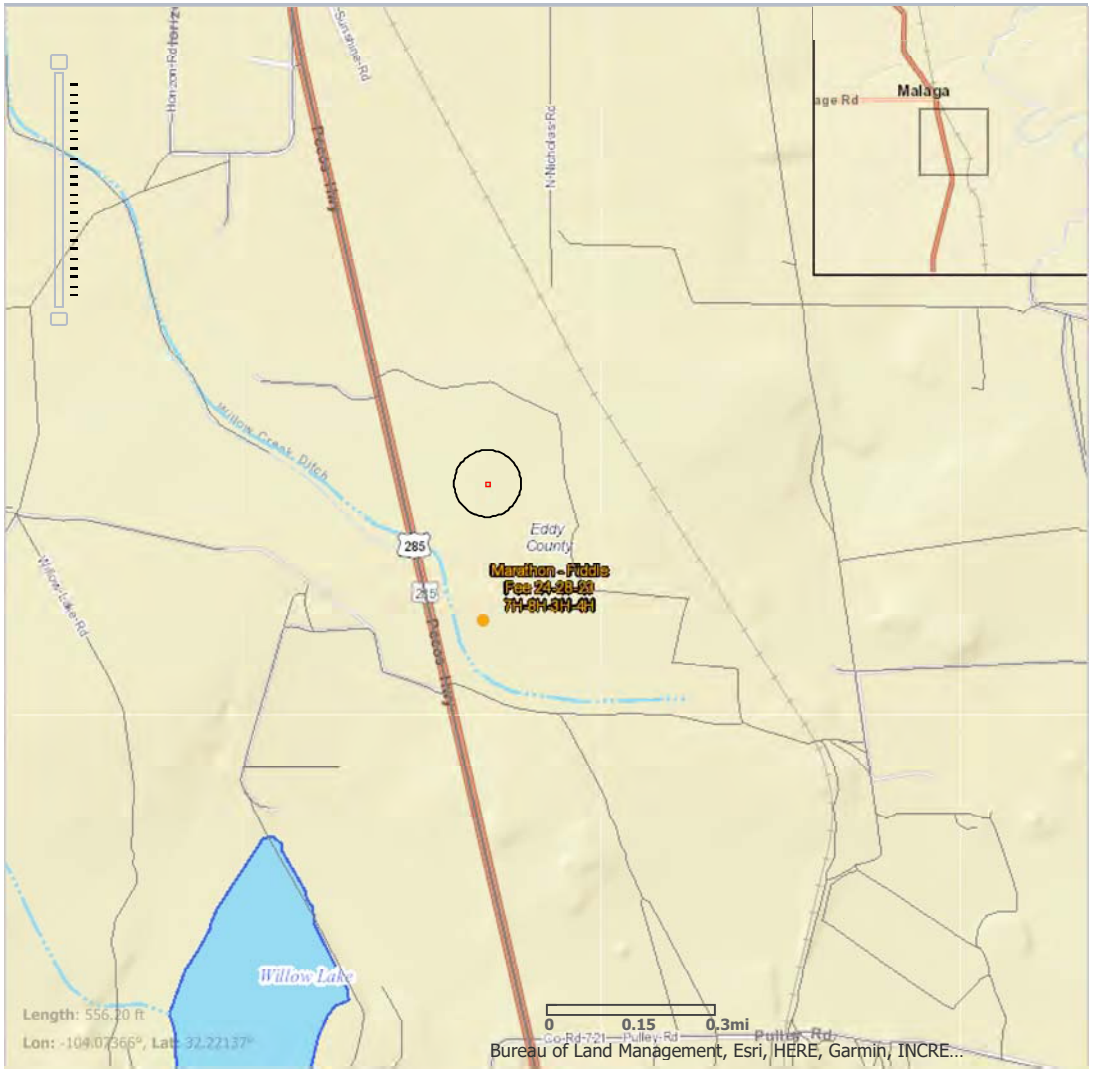
1:18,056

Legend

All Layers On/Off

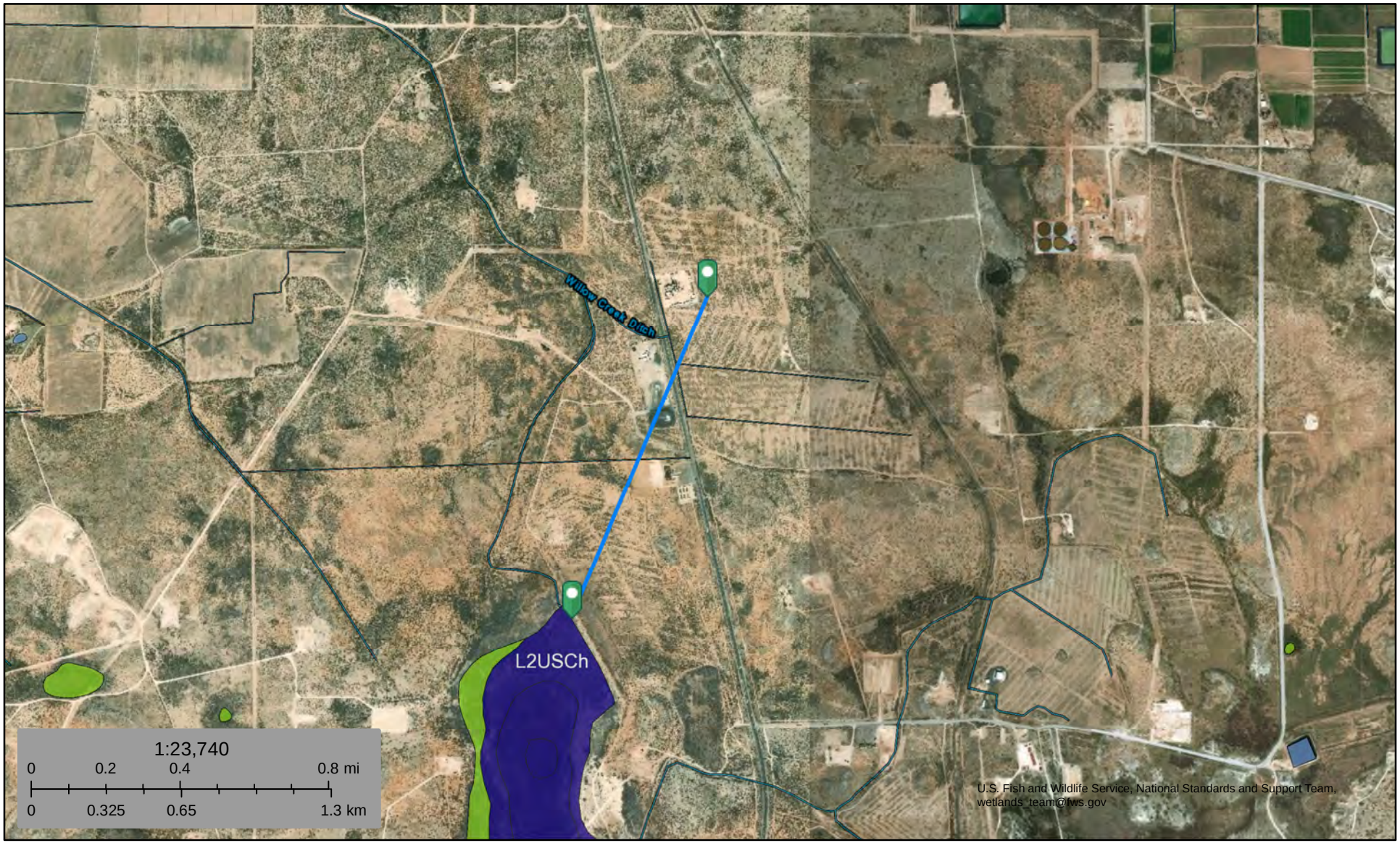
All Layer Transparency

- Roads
- Counties
- Air Emissions
- Air Facilities
- APS Food Facilities
- Dairies
- Brownfields
- Ground Water Discharge Permits
- State Cleanup Program
- Voluntary Remediation Program
- Superfund Sites
- Drinking Water Sources
- Hazardous Waste Facilities
- Landfills
- Petroleum Storage Tanks
- Leaking Tank Sites
- NPDES Permits
- Water Quality Stations
- Nonpoint Source Program
- Impaired Waters
- Assessed Waters
- National Hydrography Dataset
- Watershed Boundary Dataset
- Aquifer Sensitivity
- National Land Cover Database
- USGS Stream Gages
- Legislative Boundaries
- Places



U.S. Fish and Wildlife Service
National Wetlands Inventory

Fiddle Fee distance to lake 4189 ft

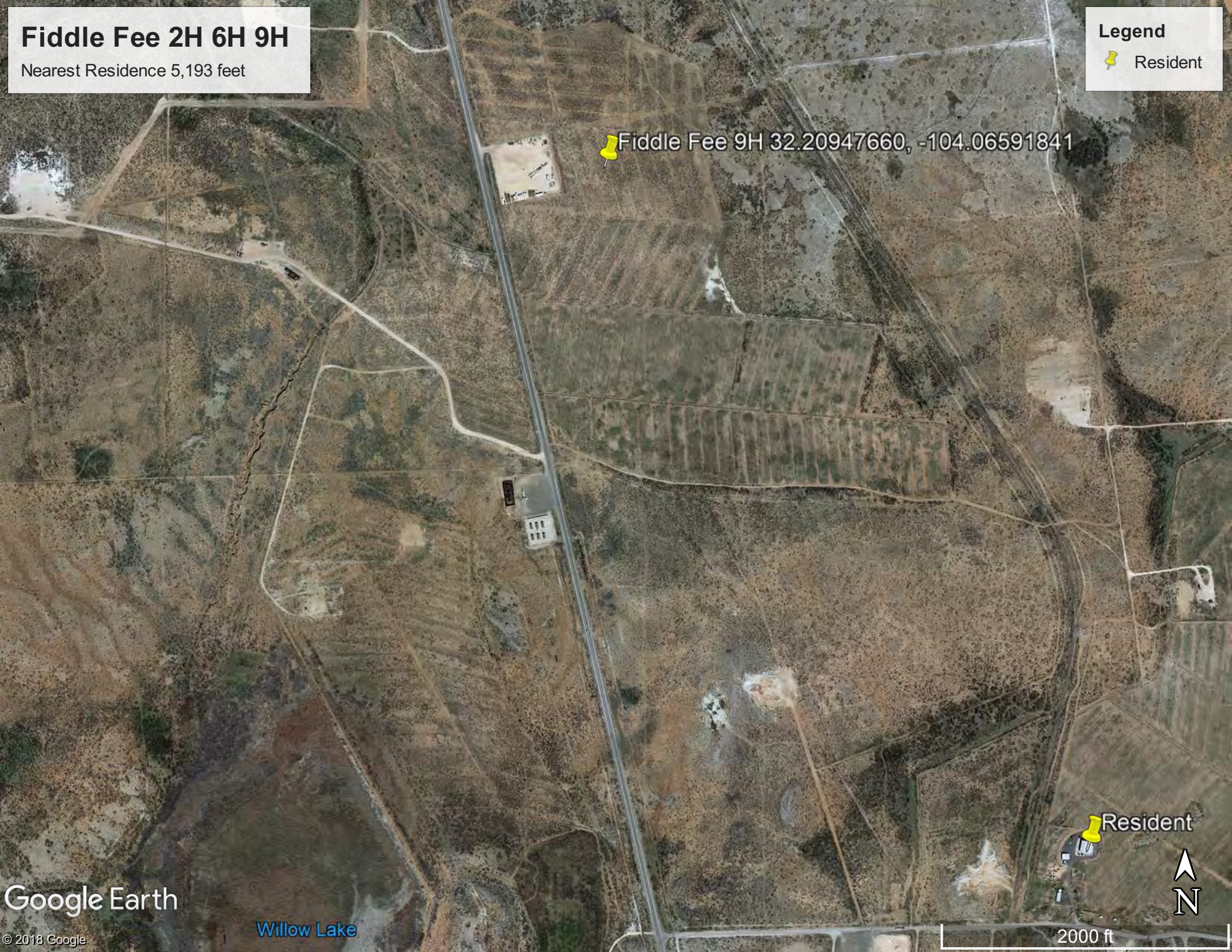


March 20, 2019

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.


Fiddle Fee 2H 6H 9H
Nearest Residence 5,193 feet
Legend
Resident
Fiddle Fee 9H 32.20947660, -104.06591841
Resident
Google Earth
© 2018 Google
Willow Lake
N
2000 ft

New Mexico Office of the State Engineer

Wells with Well Log Information

(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-basin Code	County	Source	q 6416	q	q 4	Sec	Tws	Rng	X	Y	Distance	Start Date	Finish Date	Log File Date	Depth Well	Depth Water	Driller	License Number
C 04263 POD1	CUB	ED	Shallow	3	1	1	23	24S	28E	588026	3563915	122	09/12/2018	09/13/2018	10/04/2018	390	370	JASON MALEY	1690
C 03986 POD1	CUB	ED	Shallow	3	4	2	22	24S	28E	587505	3563502	746	01/09/2017	01/10/2017	01/16/2017	170	120	MALEY, JASON	1690
C 02244	C	LE		3	1	2	22	24S	28E	587224	3563865*	820	01/03/1992	01/03/1992	01/14/1992	260		CORKY GLENN	421
C 04222 POD2	CUB	ED	Shallow	1	2	4	22	24S	28E	587707	3563255	844	05/29/2018	05/30/2018	07/05/2018	100	40	BRYCE WALLACE	1706
C 03132	C	ED	Shallow	1	2	4	15	24S	28E	587616	3564877*	934	11/06/2004	11/07/2004	11/22/2004	90	19		1348

Record Count: 5

UTMNAD83 Radius Search (in meters):

Easting (X): 588026.55 **Northing (Y):** 3564037.52 **Radius:** 1000

***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.

New Mexico Office of the State Engineer
Water Right Summary

get image list

WR File Number: C 03132 **Subbasin:** C **Cross Reference:** -

Primary Purpose: DOL 72-12-1 DOMESTIC AND LIVESTOCK WATERING

Primary Status: PMT PERMIT

Total Acres: **Subfile:** - **Header:** -

Total Diversion: 3 **Cause/Case:** -

Owner: BRANTLEY BROTHERS

Contact: DRAPER BRANTLEY SR.

Documents on File

	Trn #	Doc	File/Act	Status 1	Status 2	Transaction Desc.	From/ To	Acres	Diversion	Consumptive
get images	467828	72121	2004-10-29	PMT	LOG	C 03132	T		3	

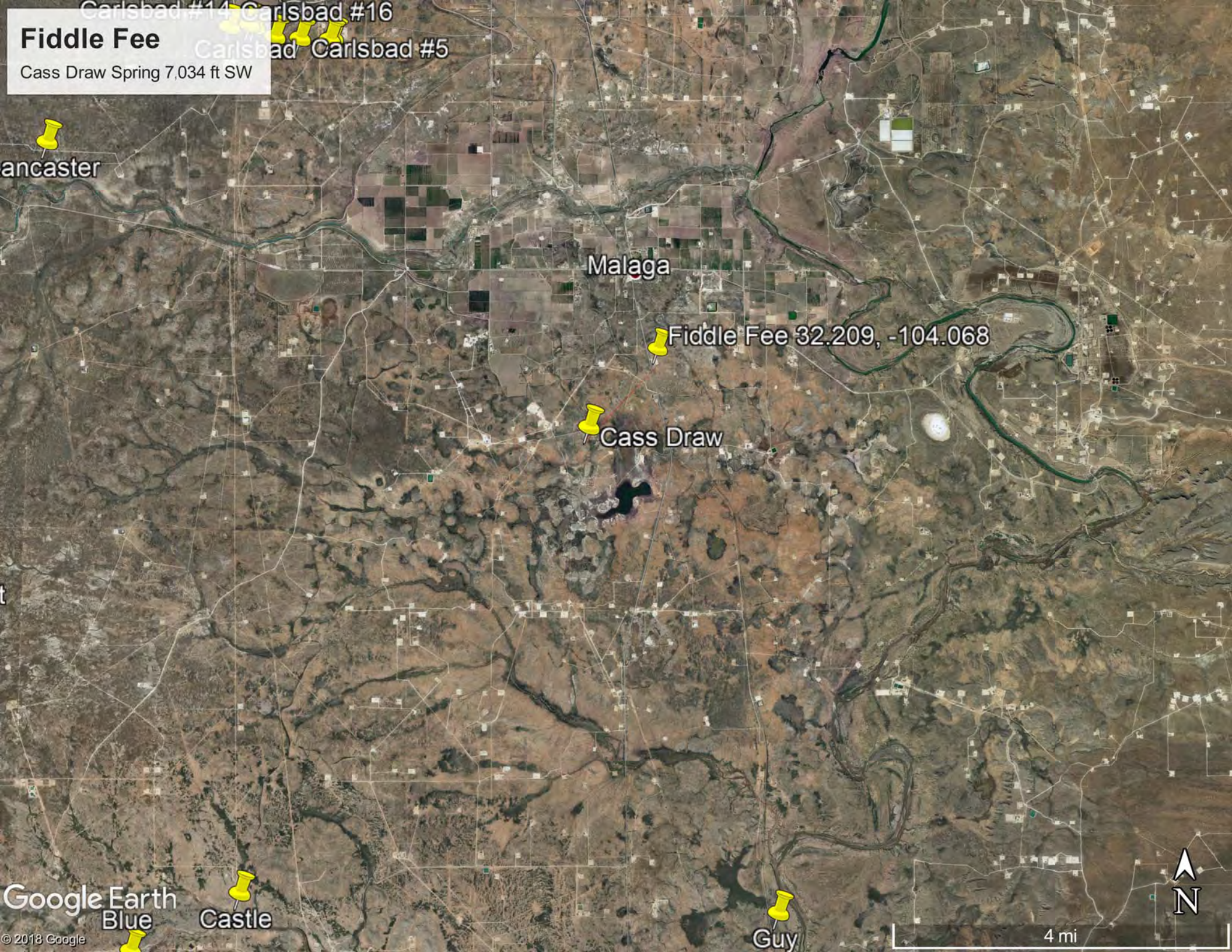
Current Points of Diversion

(NAD83 UTM in meters)

POD Number	Well Tag	Source	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Other Location Desc
C 03132		Shallow	1	2	4	15	24S	28E	587616	3564877*	

***An (*) after northing value indicates 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.


Fiddle Fee
Cass Draw Spring 7,034 ft SW
Carlsbad #16
Carlsbad #5
ancaster
Malaga
Fiddle Fee 32.209, -104.068
Cass Draw
Google Earth
Blue
Castle
Guy
© 2018 Google
4 mi
N

U.S. Fish and Wildlife Service
National Wetlands Inventory

Fiddle Fee 6H 9H CTB 4652 ft wetland

March 25, 2019

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

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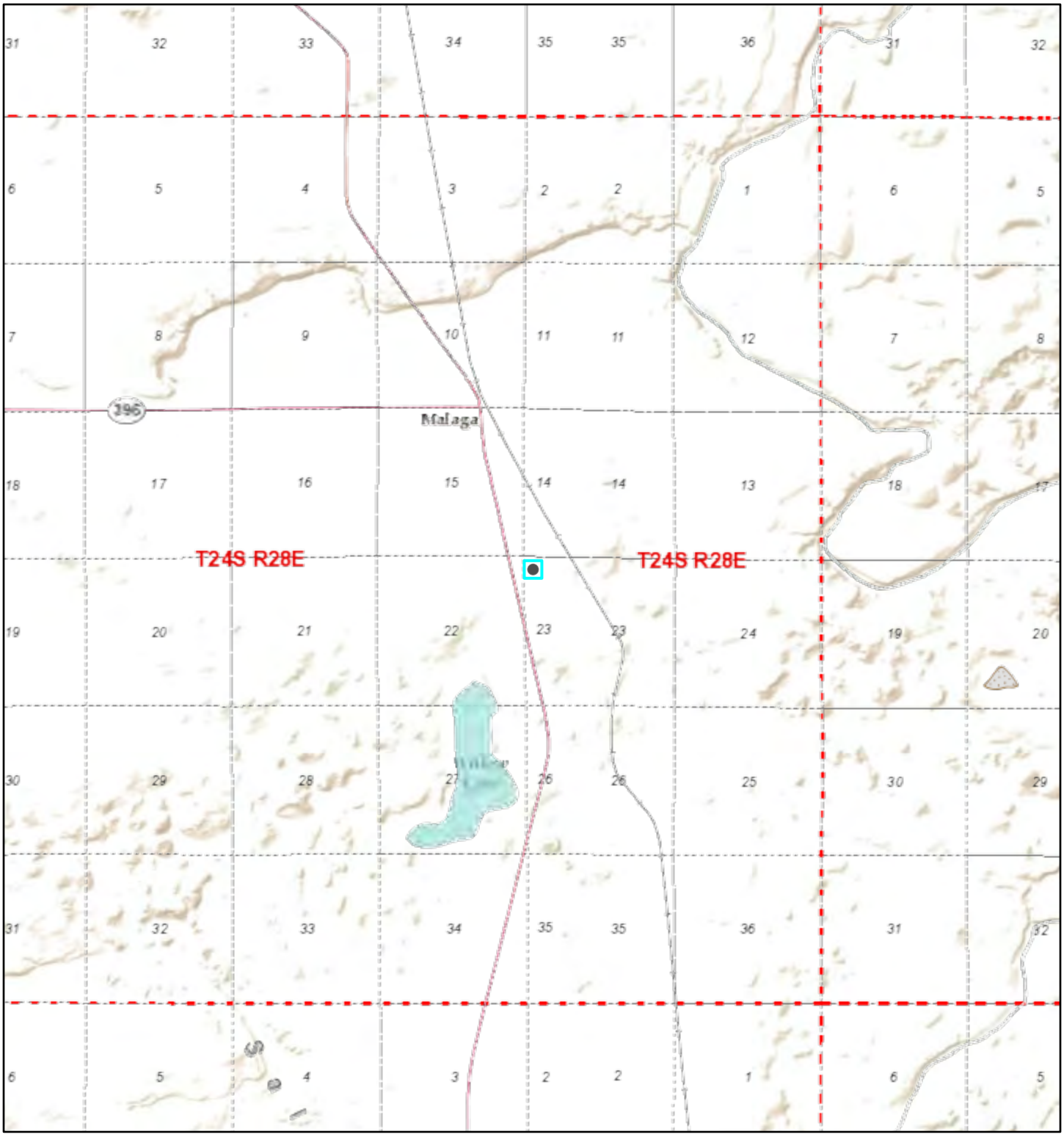
Active Mines in New Mexico



21/03/2019 1:09:39 PM

1:72,224

0 0.5 1 2 mi

0 0.75 1.5 3 km

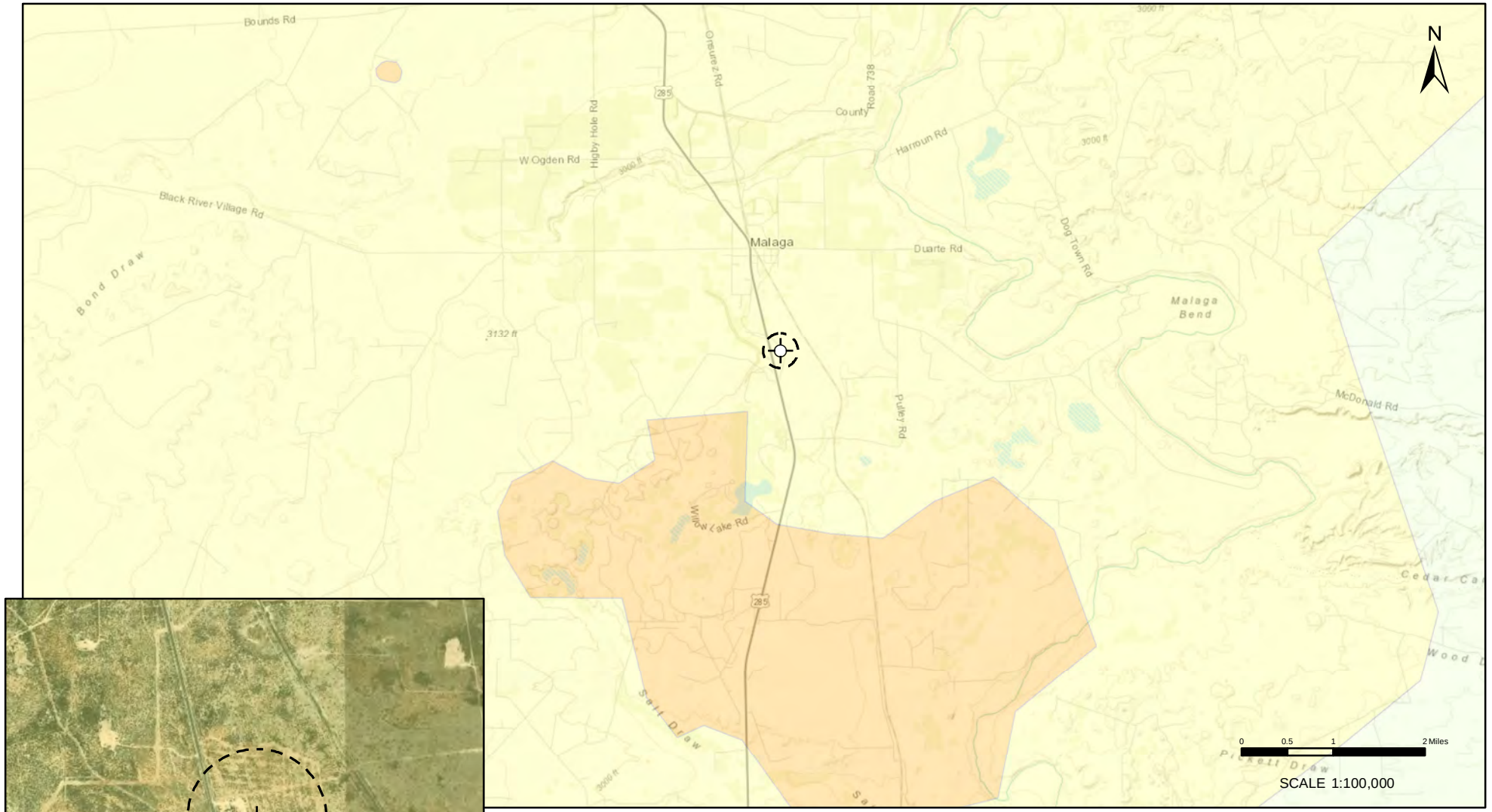
Registered Mines

Salt

Bureau of Land Management Geographic Coordinate Database, Sources: Esri, USGS, NOAA, Sources: Esri, Garmin, USGS, NPS

EMNRD MMD GIS Coordinator

NM Energy, Minerals and Natural Resources Department (http://nm-emnrd.maps.arcgis.com/apps/webappviewer/index.html?id=1b5e577974664d689b47790897ca2795)



Legend

- Fiddle Fee 2H 6H 9H
- 1000 ft Buffer

Karst Potential

- Critical
- High
- Medium
- Low

Notes: Aerial Image from ESRI Digital Globe 2017

Marathon Oil

Karst Potential Fiddle Fee

VERTEX

DRAWN:	NM
APPROVED:	KM
DATE:	MAR 18/19

FIGURE: 1

VERSATILITY. EXPERTISE.

National Flood Hazard Layer FIRMette

Feet
0 250 500 1,000 1,500 2,000
1:6,000

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN — Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 / 17.5 — Cross Sections with 1% Annual Chance / Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 3/18/2019 at 1:07:38 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Eddy Area, New Mexico

May 1, 2019

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

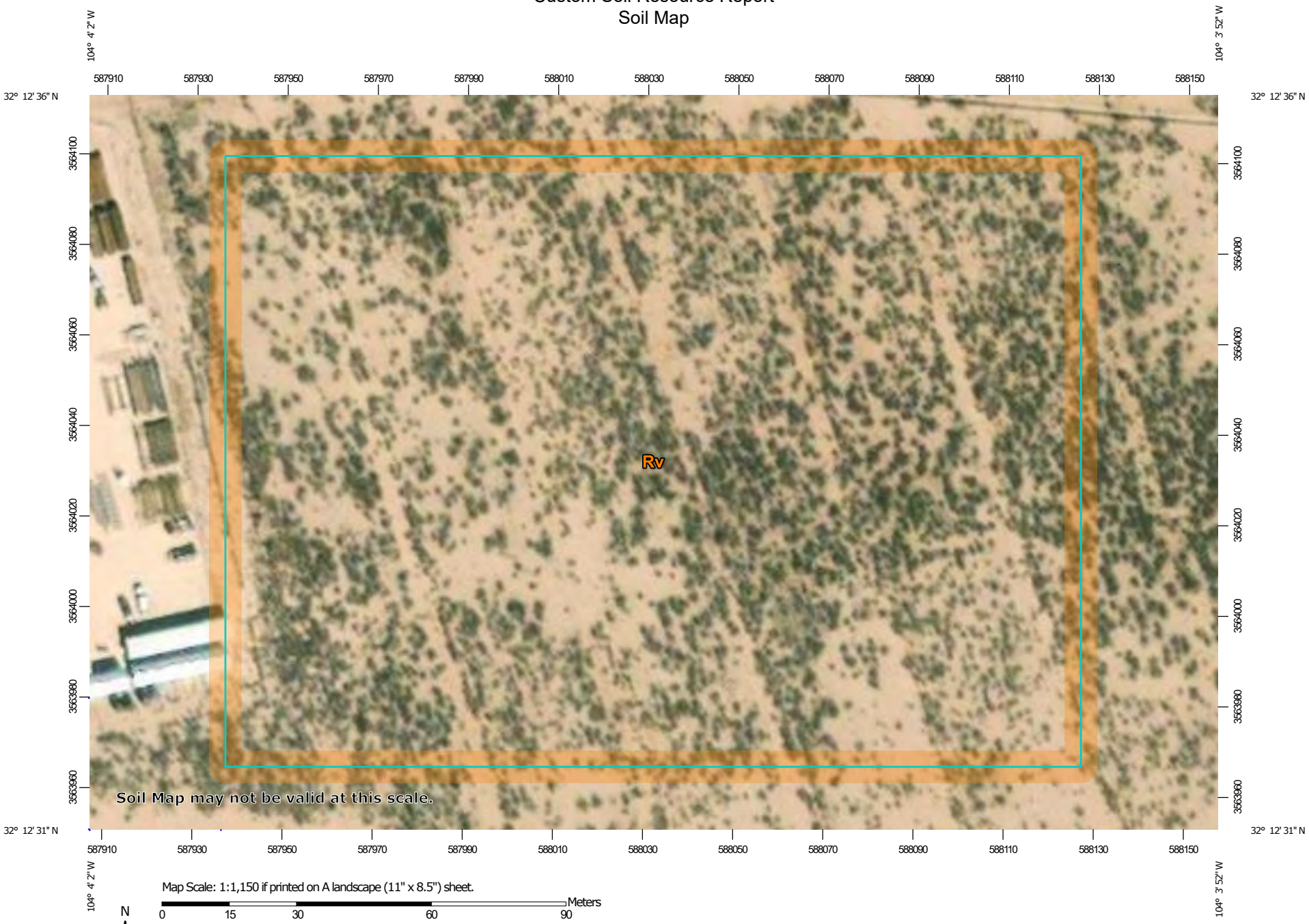
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Eddy Area, New Mexico
Survey Area Data: Version 14, Sep 12, 2018

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Dec 31, 2009—Jun 10, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Rv	Russler loam, 1 to 3 percent slopes	6.4	100.0%
Totals for Area of Interest		**6.4**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Eddy Area, New Mexico

Rv—Russler loam, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: 1w5t
Elevation: 1,250 to 5,300 feet
Mean annual precipitation: 10 to 25 inches
Mean annual air temperature: 57 to 70 degrees F
Frost-free period: 200 to 235 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Russler and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Russler

Setting

Landform: Alluvial fans, plains
Landform position (three-dimensional): Rise
Down-slope shape: Linear, convex
Across-slope shape: Linear
Parent material: Alluvium

Typical profile

H1 - 0 to 11 inches: loam
H2 - 11 to 45 inches: clay loam
H3 - 45 to 60 inches: gypsiferous material

Properties and qualities

Slope: 1 to 3 percent
Depth to restrictive feature: 20 to 47 inches to paralithic bedrock
Natural drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 15 percent
Gypsum, maximum in profile: 40 percent
Salinity, maximum in profile: Moderately saline to strongly saline (8.0 to 16.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Low (about 4.4 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: C
Ecological site: Loamy (R042XC007NM)
Hydric soil rating: No

Minor Components

Reeves

Percent of map unit:
Ecological site: Loamy (R042XC007NM)
Hydric soil rating: No

Cottonwood

Percent of map unit:
Ecological site: Gyp Upland (R042XC006NM)
Hydric soil rating: No

Reagan

Percent of map unit:
Ecological site: Loamy (R042XC007NM)
Hydric soil rating: No

References

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ATTACHMENT 5

R360 ENVIRONMENTAL SOLUTIONS

Permian Basin

Customer:	MARATHON OIL COMPANY	Ticket #:	700-993598
Customer #:	CRI3930	Bid #:	O6UJ9A000AM5
Ordered by:	CALLIE KARRIGAN	Date:	3/21/2019
AFE #:		Generator:	MARATHON OIL COMPANY
PO #:		Generator #:	
Manifest #:	375864	Well Ser. #:	44541
Manif. Date:	3/21/2019	Well Name:	FIDDLE 24 28 23 WA
Hauler:	WESCOM, INC	Well #:	006H
Driver	RAND	Field:	
Truck #	231	Field #:	
Card #		Rig:	NON-DRILLING
Job Ref #		County	EDDY (NM)

Facility: CRI

Product / Service	Quantity Units
Contaminated Soil (RCRA Exempt)	8.00 yards

	Cell	pH	Cl	Cond.	%Solids	TDS	PCI/GM	MR/HR	H2S	% Oil	Weight
Lab Analysis.	50/51	0.00	0.00	0.00	0						

Generator Certification Statement of Waste Status

I hereby certify that according to the Resource Conservation and Recovery Act (RCRA) and the US Environmental Protection Agency's July 1988 regulatory determination, the above described waste is:

X RCRA Exempt: Oil Field wastes generated from oil and gas exploration and production operations and are not mixed with non-exempt wast

_ RCRA Non-Exempt: Oil field waste which is non-hazardous that does not exceed the minimum standards for waste hazardous by characteristics established in RCRA regulations, 40 CFR 261.21-261.24 or listed hazardous waste as defined in 40 CFR, part 261, subpart D, as amended. The following documentation is attached to demonstrate the above-described waste is non-hazardous. (Check the appropriate items):

_ MSDS Information _ RCRA Hazardous Waste Analysis _ Process Knowledge _ Other (Provide description above)

Driver/ Agent Signature

_____

R360 Representative Signature

_____

Customer Approval

THIS IS NOT AN INVOICE!

Approved By: _____ Date: _____

R360 ENVIRONMENTAL SOLUTIONS

NEW MEXICO NON-HAZARDOUS OILFIELD WASTE MANIFEST

(PLEASE PRINT)

Company Man Contact Information
Name Callie Kerrigan
Phone No.

GENERATOR

NO. 375864

Operator No. Marathon
Operators Name
Address
City, State, Zip
Phone No.

Permit/RRC No.
Lease/Well Name & No. Fiddle Fee 2-6-9 CTB
County
API No.
Rig Name & No.
AFE/PO No. ccH 29714900

EXEMPT E&P Waste/Service Identification and Amount (place volume next to waste type in barrels or cubic yards)

Oil Based Muds		NON-INJECTABLE WATERS	INJECTABLE WATERS
Oil Based Cuttings		Washout Water (Non-Injectable)	Washout Water (Injectable)
Water Based Muds		Completion Fluid/Flow back (Non-Injectable)	Completion Fluid/Flow back (Injectable)
Water Based Cuttings		Produced Water (Non-Injectable)	Produced Water (Injectable)
Produced Formation Solids		Gathering Line Water/Waste (Non-Injectable)	Gathering Line Water/Waste (Injectable)
Tank Bottoms		INTERNAL USE ONLY	OTHER EXEMPT WASTES (type and generation process of the waste)
E&P Contaminated Soil	X	Truck Washout (exempt waste)	
Gas Plant Waste			

WASTE GENERATION PROCESS: ☐ DRILLING ☐ COMPLETION ☐ PRODUCTION ☐ GATHERING LINES

NON-EXEMPT E&P Waste/Service Identification and Amount
All non-exempt E&P waste must be analysed and be below the threshold limits for toxicity (TCLP), Ignitability, Corrosivity and Reactivity.

Non-Exempt Other *please select from **Non-Exempt Waste List** on back

QUANTITY 8 B - BARRELS L - LIQUID (Y - YARDS) E - EACH

I hereby certify that according to the Resource Conservation and Recovery Act (RCRA) and the US Environmental Protection Agency's July 1988 regulatory determination, the above described waste load is (Check the appropriate classification)

☒ RCRA EXEMPT: Oil field wastes generated from oil and gas exploration and production operations and are not mixed with non-exempt waste (R360 Accepts certifications on a per load basis only)

☐ RCRA NON-EXEMPT: Oil field waste which is non-hazardous that does not exceed the minimum standards for waste hazardous by characteristics established in RCRA regulations, 40 CFR 261.21-261.24, or listed hazardous waste as defined by 40 CFR, part 261, subpart D, as amended. The following documentation demonstrating the waste as non-hazardous is attached. (Check the appropriate items as provided)

☐ MSDS Information ☐ RCRA Hazardous Waste Analysis ☐ Other (Provide Description Below)

☐ EMERGENCY NON-OILFEILD: Emergency non-hazradous, non-oilfeild waste that has been ordered by the Department of Public Safety (the order, documentation of non-hazardous waste determination and a desciption of the waste must accompany this form)

Kevin Waliezer in behalf of Callie Kerrigan — (PRINT) AUTHORIZED AGENTS NAME
3/21/19 — DATE
SIGNATURE

TRANSPORTER

Transporter's Name Wescom
Address
Phone No.

Driver's Name Raul Lobbestael
Print Name
Phone No. 218 464 9613
Truck No. 231

I hereby certify that the above named material(s) was/were picked up at the Generator's site listed above and delivered without incident to the disposal facility listed below.

3/21/19 — SHIPMENT DATE
DRIVER'S SIGNATURE
4/21/19 — DELIVERY DATE
DRIVER'S SIGNATURE

DISPOSAL FACILITY

TRUCK TIME STAMP
IN: OUT:

RECEIVING AREA
Name/No. [illegible]

Site Name/Permit No. Halfway Facility / NM1-006
Address 6601 Hobbs Hwy US 62/180 Mile Marker 66 Carlsbad, NM 88220
Phone No. 575-393-1079

NORM READINGS TAKEN? (Circle One) YES NO If YES, was reading > 50 micro roentgens? (circle one) YES NO
PASS THE PAINT FILTER TEST? (Circle One) YES NO

TANK BOTTOMS

	Feet	Inches				
1st Gauge			BS&W/BBLS Received		BS&W (%)	
2nd Gauge			Free Water			
Received			Total Received			

I hereby certify that the above load material has been (circle one): ACCEPTED DENIED If denied, why?

[illegible] — NAME (PRINT)
3/21 — DATE
[illegible] — TITLE
SIGNATURE

C-138 White - R360 ORIGINAL Yellow - TRANSPORTER COPY Pink - GENERATOR SITE COPY Gold - RETURN TO GENERATOR Version 1

R360 ENVIRONMENTAL SOLUTIONS

Permian Basin

Customer:	MARATHON OIL COMPANY	Ticket #:	700-993510
Customer #:	CRI3930	Bid #:	O6UJ9A000AM5
Ordered by:	CALLIE KARRIGAN	Date:	3/21/2019
AFE #:		Generator:	MARATHON OIL COMPANY
PO #:		Generator #:	
Manifest #:	369871	Well Ser. #:	44541
Manif. Date:	3/21/2019	Well Name:	FIDDLE 24 28 23 WA
Hauler:	WESCOM, INC	Well #:	006H
Driver	RAND	Field:	
Truck #	231	Field #:	
Card #		Rig:	NON-DRILLING
Job Ref #		County	EDDY (NM)

Facility: CRI

Product / Service	Quantity Units
Contaminated Soil (RCRA Exempt)	8.00 yards

	Cell	pH	Cl	Cond.	%Solids	TDS	PCI/GM	MR/HR	H2S	% Oil	Weight
Lab Analysis:	50/51	0.00	0.00	0.00	0						

Generator Certification Statement of Waste Status

I hereby certify that according to the Resource Conservation and Recovery Act (RCRA) and the US Environmental Protection Agency's July 1988 regulatory determination, the above described waste is:

X RCRA Exempt: Oil Field wastes generated from oil and gas exploration and production operations and are not mixed with non-exempt waste

_ RCRA Non-Exempt: Oil field waste which is non-hazardous that does not exceed the minimum standards for waste hazardous by characteristics established in RCRA regulations, 40 CFR 261.21-261.24 or listed hazardous waste as defined in 40 CFR, part 261, subpart D, as amended. The following documentation is attached to demonstrate the above-described waste is non-hazardous. (Check the appropriate items):

_ MSDS Information _ RCRA Hazardous Waste Analysis _ Process Knowledge _ Other (Provide description above)

Driver/ Agent Signature **R360 Representative Signature**

_____ _____

Customer Approval

THIS IS NOT AN INVOICE!

Approved By: _____ Date: _____

R360 ENVIRONMENTAL SOLUTIONS

NEW MEXICO NON-HAZARDOUS OILFIELD WASTE MANIFEST

(PLEASE PRINT)

Company Man Contact Information
Name Callie Kerrigan
Phone No.

GENERATOR

NO. 369871

Operator No. marathon
Operators Name
Address
City, State, Zip
Phone No.

Permit/RRC No.
Lease/Well Name & No. Fiddle Fee GH 9H-21H
County Eddy
API No.
Rig Name & No.
AFE/PO No. CC# 79714900

EXEMPT E&P Waste/Service Identification and Amount (place volume next to waste type in barrels or cubic yards)

Oil Based Muds		NON-INJECTABLE WATERS	INJECTABLE WATERS
Oil Based Cuttings		Washout Water (Non-Injectable)	Washout Water (Injectable)
Water Based Muds		Completion Fluid/Flow back (Non-Injectable)	Completion Fluid/Flow back (Injectable)
Water Based Cuttings		Produced Water (Non-Injectable)	Produced Water (Injectable)
Produced Formation Solids		Gathering Line Water/Waste (Non-Injectable)	Gathering Line Water/Waste (Injectable)
Tank Bottoms		INTERNAL USE ONLY	OTHER EXEMPT WASTES (type and generation process of the waste)
E&P Contaminated Soil	X	Truck Washout (exempt waste)	
Gas Plant Waste			

WASTE GENERATION PROCESS: ☐ DRILLING ☐ COMPLETION ☐ PRODUCTION ☐ GATHERING LINES

NON-EXEMPT E&P Waste/Service Identification and Amount
All non-exempt E&P waste must be analysed and be below the threshold limits for toxicity (TCLP), Ignitability, Corrosivity and Reactivity.

Non-Exempt Other *please select from **Non-Exempt Waste List** on back

QUANTITY 8 B - BARRELS L - LIQUID (Y - YARDS) E - EACH

I hereby certify that according to the Resource Conservation and Recovery Act (RCRA) and the US Environmental Protection Agency's July 1988 regulatory determination, the above described waste load is (Check the appropriate classification)

☒ RCRA EXEMPT: Oil field wastes generated from oil and gas exploration and production operations and are not mixed with non-exempt waste (R360 Accepts certifications on a per load basis only)

☐ RCRA NON-EXEMPT: Oil field waste which is non-hazardous that does not exceed the minimum standards for waste hazardous by characteristics established in RCRA regulations, 40 CFR 261.21-261.24, or listed hazardous waste as defined by 40 CFR, part 261, subpart D, as amended. The following documentation demonstrating the waste as non-hazardous is attached. (Check the appropriate items as provided)

☐ MSDS Information ☐ RCRA Hazardous Waste Analysis ☐ Other (Provide Description Below)

☐ EMERGENCY NON-OILFEILD: Emergency non-hazradous, non-oilfeild waste that has been ordered by the Department of Public Safety (the order, documentation of non-hazardous waste determination and a desciption of the waste must accompany this form)

Kevin Waliezer in behalf of Callie Kerrigan — (PRINT) AUTHORIZED AGENTS NAME
3/21/19 — DATE
SIGNATURE

TRANSPORTER

Transporter's Name Wescom
Address
Phone No.

Driver's Name Rand Lobbestael
Print Name
Phone No. 218 464 8613
Truck No. 231

I hereby certify that the above named material(s) was/were picked up at the Generator's site listed above and delivered without incident to the disposal facility listed below.

3/21/19 — SHIPMENT DATE
DRIVER'S SIGNATURE
3/21/19 — DELIVERY DATE
DRIVER'S SIGNATURE

TRUCK TIME STAMP
IN: OUT:

DISPOSAL FACILITY

RECEIVING AREA
Name/No.

Site Name/Permit No. Halfway Facility / NM1-006
Phone No. 575-393-1079
Address 6601 Hobbs Hwy US 62/180 Mile Marker 66 Carlsbad, NM 88220

NORM READINGS TAKEN? (Circle One) YES (NO) If YES, was reading > 50 micro roentgens? (circle one) YES NO
PASS THE PAINT FILTER TEST? (Circle One) YES NO

TANK BOTTOMS

	Feet	Inches
1st Gauge		
2nd Gauge		
Received		

BS&W/BBLS Received		BS&W (%)	
Free Water			
Total Received			

I hereby certify that the above load material has been (circle one): ACCEPTED DENIED If denied, why?

[signature] — NAME (PRINT)
3-21 — DATE
[signature] — TITLE
SIGNATURE

C-138 White - R360 ORIGINAL Yellow - TRANSPORTER COPY Pink - GENERATOR SITE COPY Gold - RETURN TO GENERATOR Version 1

ATTACHMENT 6

Table 3. Soil Characterization - Salinity and Petroleum Hydrocarbon Parameters
Client Name: Marathon Oil Permian LLC
Site Name: Fiddle Fee 24 28 23 TB #2H
Project #: 19E-00614-003
Lab Report(s): 618408

Table 3. Soil Analysis - March 20, 2019																			
Sample Description			Field Screening			Petroleum Hydrocarbons													Inorganic
						Volatile							Extractable						
Sample ID	Depth (inches)	Sample Date	Volatile Organic Compounds (PID)	Extractable Organic Compounds (PetroFlag)	Quantab Result (High/Low)	Benzene	Toluene	Ethylbenzene	Xylenes (o&m)	Xylenes (p)	Xylenes (Total)	BTEX (Total)	Gasoline Range Organics (GRO)	Diesel Range Organics (DRO)	Motor Oil Range Hydrocarbons (MRO)	(GRO + DRO)	Total Petroleum Hydrocarbons (TPH)	Chloride
			(ppm)	(ppm)	(+/-)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
SS-19-01	**6**	03-20-2019	ND	ND	4,647	<0.00199	<0.00199	<0.00199	<0.00398	<0.00199	<0.00199	<0.00199	<15.0	<15.0	<15.0	<15.0	<15.0	3,620
SS-19-02	**6**	03-20-2019	ND	ND	2,262	<0.00198	<0.00198	<0.00198	<0.00397	<0.00198	<0.00198	<0.00198	<14.9	<14.9	<14.9	<14.9	<14.9	962
SS-19-03	**6**	03-20-2018	ND	ND	1,075	<0.002	<0.002	<0.002	<0.004	<0.002	<0.002	<0.002	<15.0	<15.0	<15.0	<15.0	<15.0	1,760
SS-19-04	**6**	03-20-2019	ND	ND	1,170	<0.002	<0.002	<0.002	<0.004	<0.002	<0.002	<0.002	<14.9	<14.9	<14.9	<14.9	<14.9	2,760
SS-19-05	**6**	03-20-2019	ND	ND	300	<0.00201	<0.00201	<0.00201	<0.00402	<0.00201	<0.00201	<0.00201	<15.0	<15.0	<15.0	<15.0	<15.0	54
Background	**6**	03-20-2019	ND	ND	ND	<0.002	<0.002	<0.002	<0.00399	<0.002	<0.002	<0.002	<15.0	<15.0	<15.0	<15.0	<15.0	306

VERTEX

ATTACHMENT 7

From:	Dhugal Hanton
To:	Hamlet, Robert, EMNRD; Venegas, Victoria, EMNRD (Victoria.Venegas@state.nm.us); Bratcher, Mike, EMNRD
Cc:	Callie Karrigan (cnkarrigan@marathonoil.com); Dennis Williams
Bcc:	Jason Crabtree (JCrabtree@vertex.ca)
Subject:	Notification - Liner Inspection - Marathon Oil - Fiddle Fee 24 28 23 #2H 6H 9H CTB
Date:	March 21, 2019 10:58:00 AM
Attachments:	image001.jpg

Good Afternoon,

Please accept this email as notification that Vertex Resource Services has scheduled a liner inspection at the above mentioned facility at 12:00 PM on March 23, 2019. Jason Crabtree will be performing the inspection. If you have any questions or concerns, please do not hesitate to contact me.

Thanks,
Dhugal

Dhugal Hanton B.Sc., P.Ag., SR/WA, P.Biol.
Vice President,
US Operations

Vertex Resource Services Inc.
7223 Empire Central Drive,
Houston, TX
77040

O 281-977-7886
C 832-588-0674

From:	Dennis Williams
To:	Kathlene Meadows
Subject:	FW: Fiddle Fee 2H 6H 9H CTB Spill clean up
Date:	June 8, 2019 8:36:49 AM

From: Dennis Williams
Sent: March 18, 2019 6:22 PM
To: James Amos <jamos@blm.gov>; Bratcher, Mike, EMNRD <mike.bratcher@state.nm.us>
Cc: Karrigan, Callie N. (MRO) <cnkarrigan@marathonoil.com>; icastro@marathonoil.com; Dhugal Hanton <DHanton@vertex.ca>; Jason Crabtree <JCrabtree@vertex.ca>
Subject: Fiddle Fee 2H 6H 9H CTB Spill clean up

Good afternoon.

Vertex will be onsite to supervise excavation of contaminated material and take samples on Wednesday March 20th. Work will begin by 1:00 pm and will be supervised by Jason Crabtree. If you would like to set up an on site meeting please let me know and I will be happy to facilitate.

Thank you

ATTACHMENT 8

Certificate of Analysis Summary 618408

Marathon Oil Company, Tulsa, OK

Project Name: Fiddle Fee 24 28 23 #2H 6H 9H CTB

Project Id:

Contact: Callie Karrigan

Project Location: Eddy County, New Mexico

Date Received in Lab: Thu Mar-21-19 11:30 am

Report Date: 28-MAR-19

Project Manager: Kalei Stout

Analysis Requested													
	Lab Id:	618408-001		618408-002		618408-003		618408-004		618408-005		618408-006	
	Field Id:	Fiddle Fee 2H 6H 9H SS-19-		Fiddle Fee 2H 6H 9H SS-19-		Fiddle Fee 2H 6H 9H SS-19-		Fiddle Fee 2H 6H 9H SS-19-		Fiddle Fee 2H 6H 9H SS-19-		Fiddle Fee 2H 6H 9H BG 0"	
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Mar-20-19 08:45		Mar-20-19 09:15		Mar-20-19 09:30		Mar-20-19 09:45		Mar-20-19 10:15		Mar-20-19 10:30	
BTEX by EPA 8021B	***Extracted:***	Mar-26-19 13:00		Mar-26-19 13:00		Mar-26-19 13:00		Mar-26-19 13:00		Mar-26-19 13:00		Mar-26-19 13:00	
	Analyzed:	Mar-27-19 03:34		Mar-27-19 05:46		Mar-27-19 06:05		Mar-27-19 06:24		Mar-27-19 06:43		Mar-27-19 07:02	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		<0.00199	0.00199	<0.00198	0.00198	<0.00200	0.00200	<0.00200	0.00200	<0.00201	0.00201	<0.00200	0.00200
Toluene		<0.00199	0.00199	<0.00198	0.00198	<0.00200	0.00200	<0.00200	0.00200	<0.00201	0.00201	<0.00200	0.00200
Ethylbenzene		<0.00199	0.00199	<0.00198	0.00198	<0.00200	0.00200	<0.00200	0.00200	<0.00201	0.00201	<0.00200	0.00200
m,p-Xylenes		<0.00398	0.00398	<0.00397	0.00397	<0.00400	0.00400	<0.00400	0.00400	<0.00402	0.00402	<0.00399	0.00399
o-Xylene		<0.00199	0.00199	<0.00198	0.00198	<0.00200	0.00200	<0.00200	0.00200	<0.00201	0.00201	<0.00200	0.00200
Total Xylenes		<0.00199	0.00199	<0.00198	0.00198	<0.00200	0.00200	<0.00200	0.00200	<0.00201	0.00201	<0.00200	0.00200
Total BTEX		<0.00199	0.00199	<0.00198	0.00198	<0.00200	0.00200	<0.00200	0.00200	<0.00201	0.00201	<0.00200	0.00200
Inorganic Anions by EPA 300	***Extracted:***	Mar-21-19 17:05		Mar-21-19 17:05		Mar-21-19 17:05		Mar-21-19 17:05		Mar-21-19 17:05		Mar-21-19 17:05	
	Analyzed:	Mar-22-19 01:05		Mar-22-19 01:11		Mar-22-19 01:16		Mar-22-19 01:22		Mar-22-19 09:29		Mar-22-19 01:33	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		3620	24.9	962	24.9	1760	25.2	2760	24.9	54.0	5.01	306	50.1
TPH by SW8015 Mod	***Extracted:***	Mar-23-19 11:00		Mar-23-19 11:00		Mar-23-19 11:00		Mar-23-19 11:00		Mar-25-19 10:00		Mar-25-19 10:00	
	Analyzed:	Mar-24-19 01:03		Mar-24-19 01:23		Mar-24-19 01:42		Mar-24-19 11:51		Mar-25-19 18:14		Mar-25-19 18:33	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Gasoline Range Hydrocarbons (GRO)		<15.0	15.0	<14.9	14.9	<15.0	15.0	<14.9	14.9	<15.0	15.0	<15.0	15.0
Diesel Range Organics (DRO)		<15.0	15.0	<14.9	14.9	<15.0	15.0	<14.9	14.9	<15.0	15.0	<15.0	15.0
Motor Oil Range Hydrocarbons (MRO)		<15.0	15.0	<14.9	14.9	<15.0	15.0	<14.9	14.9	<15.0	15.0	<15.0	15.0
Total TPH		<15.0	15.0	<14.9	14.9	<15.0	15.0	<14.9	14.9	<15.0	15.0	<15.0	15.0

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

Kelsey Brooks
Project Manager

Analytical Report 618408

for

Marathon Oil Company

Project Manager: Callie Karrigan

Fiddle Fee 24 28 23 #2H 6H 9H CTB

28-MAR-19

Collected By: Client

1211 W. Florida Ave
Midland TX 79701

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

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

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-18-14)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-18-18)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-18-18)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-18-4)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Phoenix Mobile (EPA Lab Code: AZ00901): Arizona (AZM757)
Xenco-Atlanta (LELAP Lab ID #04176)
Xenco-Tampa: Florida (E87429), North Carolina (483)
Xenco-Lakeland: Florida (E84098)

28-MAR-19

Project Manager: **Callie Karrigan**
Marathon Oil Company
P. O. Box 22164
Tulsa, OK 74121-2164

Reference: XENCO Report No(s): **618408**
Fiddle Fee 24 28 23 #2H 6H 9H CTB
Project Address: Eddy County, New Mexico

Callie Karrigan :

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) 618408. 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. 618408 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,

Kelsey Brooks
Project Manager

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.
Certified and approved by numerous States and Agencies.
A Small Business and Minority Status Company that delivers SERVICE and QUALITY

Houston - Dallas - Midland - San Antonio - Phoenix - Oklahoma - Latin America

Sample Cross Reference 618408

Marathon Oil Company, Tulsa, OK

Fiddle Fee 24 28 23 #2H 6H 9H CTB

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
Fiddle Fee 2H 6H 9H SS-19-01 0'	S	03-20-19 08:45		618408-001
Fiddle Fee 2H 6H 9H SS-19-02 0'	S	03-20-19 09:15		618408-002
Fiddle Fee 2H 6H 9H SS-19-03 0'	S	03-20-19 09:30		618408-003
Fiddle Fee 2H 6H 9H SS-19-04 0'	S	03-20-19 09:45		618408-004
Fiddle Fee 2H 6H 9H SS-19-05 0'	S	03-20-19 10:15		618408-005
Fiddle Fee 2H 6H 9H BG 0"	S	03-20-19 10:30		618408-006

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3083508 BTEX by EPA 8021B

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

Certificate of Analytical Results 618408

Marathon Oil Company, Tulsa, OK

Fiddle Fee 24 28 23 #2H 6H 9H CTB

Sample Id:	**Fiddle Fee 2H 6H 9H SS-19-01 0'**	Matrix:	Soil	Date Received:	03.21.19 11.30
Lab Sample Id:	618408-001	Date Collected:	03.20.19 08.45		

Analytical Method:	Inorganic Anions by EPA 300			Prep Method:	E300P
Tech:	SPC			% Moisture:	
Analyst:	SPC	Date Prep:	03.21.19 17.05	Basis:	Wet Weight
Seq Number:	3082984				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**3620**	24.9	mg/kg	03.22.19 01.05		5

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	03.23.19 11.00	Basis:	Wet Weight
Seq Number:	3083123				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	03.24.19 01.03	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	03.24.19 01.03	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	03.24.19 01.03	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	03.24.19 01.03	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	96	%	70-135	03.24.19 01.03	
o-Terphenyl	84-15-1	97	%	70-135	03.24.19 01.03	

Certificate of Analytical Results 618408

Marathon Oil Company, Tulsa, OK

Fiddle Fee 24 28 23 #2H 6H 9H CTB

Sample Id:	**Fiddle Fee 2H 6H 9H SS-19-01 0'**	Matrix:	Soil	Date Received:	03.21.19 11.30
Lab Sample Id:	618408-001	Date Collected:	03.20.19 08.45		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	03.26.19 13.00	Basis:	Wet Weight
Seq Number:	3083508				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	03.27.19 03.34	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	03.27.19 03.34	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	03.27.19 03.34	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	03.27.19 03.34	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	03.27.19 03.34	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	03.27.19 03.34	U	1
Total BTEX		<0.00199	0.00199	mg/kg	03.27.19 03.34	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	121	%	70-130	03.27.19 03.34	
1,4-Difluorobenzene	540-36-3	116	%	70-130	03.27.19 03.34	

Certificate of Analytical Results 618408

Marathon Oil Company, Tulsa, OK

Fiddle Fee 24 28 23 #2H 6H 9H CTB

Sample Id:	**Fiddle Fee 2H 6H 9H SS-19-02 0'**	Matrix:	Soil	Date Received:	03.21.19 11.30
Lab Sample Id:	618408-002	Date Collected:	03.20.19 09.15		

Analytical Method:	Inorganic Anions by EPA 300			Prep Method:	E300P
Tech:	SPC			% Moisture:	
Analyst:	SPC	Date Prep:	03.21.19 17.05	Basis:	Wet Weight
Seq Number:	3082984				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**962**	24.9	mg/kg	03.22.19 01.11		5

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	03.23.19 11.00	Basis:	Wet Weight
Seq Number:	3083123				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	03.24.19 01.23	U	1
Diesel Range Organics (DRO)	C10C28DRO	<14.9	14.9	mg/kg	03.24.19 01.23	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<14.9	14.9	mg/kg	03.24.19 01.23	U	1
Total TPH	PHC635	<14.9	14.9	mg/kg	03.24.19 01.23	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	96	%	70-135	03.24.19 01.23	
o-Terphenyl	84-15-1	96	%	70-135	03.24.19 01.23	

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Marathon Oil Company, Tulsa, OK

Fiddle Fee 24 28 23 #2H 6H 9H CTB

Sample Id:	**Fiddle Fee 2H 6H 9H SS-19-02 0'**	Matrix:	Soil	Date Received:	03.21.19 11.30
Lab Sample Id:	618408-002	Date Collected:	03.20.19 09.15		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	03.26.19 13.00	Basis:	Wet Weight
Seq Number:	3083508				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	03.27.19 05.46	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	03.27.19 05.46	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	03.27.19 05.46	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	03.27.19 05.46	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	03.27.19 05.46	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	03.27.19 05.46	U	1
Total BTEX		<0.00198	0.00198	mg/kg	03.27.19 05.46	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	110	%	70-130	03.27.19 05.46	
4-Bromofluorobenzene	460-00-4	129	%	70-130	03.27.19 05.46	

Marathon Oil Company, Tulsa, OK

Fiddle Fee 24 28 23 #2H 6H 9H CTB

Sample Id: **Fiddle Fee 2H 6H 9H SS-19-03 0'** Matrix: Soil Date Received:03.21.19 11.30

Lab Sample Id: 618408-003 Date Collected: 03.20.19 09.30

Analytical Method: Inorganic Anions by EPA 300 Prep Method: E300P

Tech: SPC % Moisture:

Analyst: SPC Date Prep: 03.21.19 17.05 Basis: Wet Weight

Seq Number: 3082984

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**1760**	25.2	mg/kg	03.22.19 01.16		5

Analytical Method: TPH by SW8015 Mod Prep Method: TX1005P

Tech: ARM % Moisture:

Analyst: ARM Date Prep: 03.23.19 11.00 Basis: Wet Weight

Seq Number: 3083123

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	03.24.19 01.42	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	03.24.19 01.42	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	03.24.19 01.42	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	03.24.19 01.42	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	95	%	70-135	03.24.19 01.42	
o-Terphenyl	84-15-1	95	%	70-135	03.24.19 01.42	

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Marathon Oil Company, Tulsa, OK

Fiddle Fee 24 28 23 #2H 6H 9H CTB

Sample Id:	**Fiddle Fee 2H 6H 9H SS-19-03 0'**	Matrix:	Soil	Date Received:	03.21.19 11.30
Lab Sample Id:	618408-003	Date Collected:	03.20.19 09.30		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	03.26.19 13.00	Basis:	Wet Weight
Seq Number:	3083508				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	03.27.19 06.05	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	03.27.19 06.05	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	03.27.19 06.05	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	03.27.19 06.05	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	03.27.19 06.05	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	03.27.19 06.05	U	1
Total BTEX		<0.00200	0.00200	mg/kg	03.27.19 06.05	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	114	%	70-130	03.27.19 06.05	
4-Bromofluorobenzene	460-00-4	120	%	70-130	03.27.19 06.05	

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Marathon Oil Company, Tulsa, OK

Fiddle Fee 24 28 23 #2H 6H 9H CTB

Sample Id:	**Fiddle Fee 2H 6H 9H SS-19-04 0'**	Matrix:	Soil	Date Received:	03.21.19 11.30
Lab Sample Id:	618408-004	Date Collected:	03.20.19 09.45		

Analytical Method:	Inorganic Anions by EPA 300			Prep Method:	E300P
Tech:	SPC			% Moisture:	
Analyst:	SPC	Date Prep:	03.21.19 17.05	Basis:	Wet Weight
Seq Number:	3082984				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**2760**	24.9	mg/kg	03.22.19 01.22		5

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	03.23.19 11.00	Basis:	Wet Weight
Seq Number:	3083123				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	03.24.19 11.51	U	1
Diesel Range Organics (DRO)	C10C28DRO	<14.9	14.9	mg/kg	03.24.19 11.51	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<14.9	14.9	mg/kg	03.24.19 11.51	U	1
Total TPH	PHC635	<14.9	14.9	mg/kg	03.24.19 11.51	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	98	%	70-135	03.24.19 11.51	
o-Terphenyl	84-15-1	97	%	70-135	03.24.19 11.51	

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Marathon Oil Company, Tulsa, OK

Fiddle Fee 24 28 23 #2H 6H 9H CTB

Sample Id:	**Fiddle Fee 2H 6H 9H SS-19-04 0'**	Matrix:	Soil	Date Received:	03.21.19 11.30
Lab Sample Id:	618408-004	Date Collected:	03.20.19 09.45		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	03.26.19 13.00	Basis:	Wet Weight
Seq Number:	3083508				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	03.27.19 06.24	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	03.27.19 06.24	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	03.27.19 06.24	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	03.27.19 06.24	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	03.27.19 06.24	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	03.27.19 06.24	U	1
Total BTEX		<0.00200	0.00200	mg/kg	03.27.19 06.24	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	120	%	70-130	03.27.19 06.24	
1,4-Difluorobenzene	540-36-3	116	%	70-130	03.27.19 06.24	

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Marathon Oil Company, Tulsa, OK

Fiddle Fee 24 28 23 #2H 6H 9H CTB

Sample Id:	**Fiddle Fee 2H 6H 9H SS-19-05 0'**	Matrix:	Soil	Date Received:	03.21.19 11.30
Lab Sample Id:	618408-005	Date Collected:	03.20.19 10.15		

Analytical Method:	Inorganic Anions by EPA 300			Prep Method:	E300P
Tech:	SPC			% Moisture:	
Analyst:	SPC	Date Prep:	03.21.19 17.05	Basis:	Wet Weight
Seq Number:	3082984				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**54.0**	5.01	mg/kg	03.22.19 09.29		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	03.25.19 10.00	Basis:	Wet Weight
Seq Number:	3083359				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	03.25.19 18.14	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	03.25.19 18.14	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	03.25.19 18.14	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	03.25.19 18.14	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	106	%	70-135	03.25.19 18.14	
o-Terphenyl	84-15-1	106	%	70-135	03.25.19 18.14	

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Marathon Oil Company, Tulsa, OK

Fiddle Fee 24 28 23 #2H 6H 9H CTB

Sample Id:	**Fiddle Fee 2H 6H 9H SS-19-05 0'**	Matrix:	Soil	Date Received:	03.21.19 11.30
Lab Sample Id:	618408-005	Date Collected:	03.20.19 10.15		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	03.26.19 13.00	Basis:	Wet Weight
Seq Number:	3083508				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	03.27.19 06.43	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	03.27.19 06.43	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	03.27.19 06.43	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	03.27.19 06.43	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	03.27.19 06.43	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	03.27.19 06.43	U	1
Total BTEX		<0.00201	0.00201	mg/kg	03.27.19 06.43	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	115	%	70-130	03.27.19 06.43	
4-Bromofluorobenzene	460-00-4	125	%	70-130	03.27.19 06.43	

Certificate of Analytical Results 618408

Marathon Oil Company, Tulsa, OK

Fiddle Fee 24 28 23 #2H 6H 9H CTB

Sample Id:	**Fiddle Fee 2H 6H 9H BG 0"**	Matrix:	Soil	Date Received:	03.21.19 11.30
Lab Sample Id:	618408-006	Date Collected:	03.20.19 10.30		

Analytical Method:	Inorganic Anions by EPA 300			Prep Method:	E300P
Tech:	SPC			% Moisture:	
Analyst:	SPC	Date Prep:	03.21.19 17.05	Basis:	Wet Weight
Seq Number:	3082984				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**306**	50.1	mg/kg	03.22.19 01.33		10

Analytical Method:	TPH by SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	03.25.19 10.00	Basis:	Wet Weight
Seq Number:	3083359				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	03.25.19 18.33	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	03.25.19 18.33	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	03.25.19 18.33	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	03.25.19 18.33	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	94	%	70-135	03.25.19 18.33	
o-Terphenyl	84-15-1	94	%	70-135	03.25.19 18.33	

Certificate of Analytical Results 618408

Marathon Oil Company, Tulsa, OK

Fiddle Fee 24 28 23 #2H 6H 9H CTB

Sample Id:	**Fiddle Fee 2H 6H 9H BG 0"**	Matrix:	Soil	Date Received:	03.21.19 11.30
Lab Sample Id:	618408-006	Date Collected:	03.20.19 10.30		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	03.26.19 13.00	Basis:	Wet Weight
Seq Number:	3083508				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	03.27.19 07.02	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	03.27.19 07.02	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	03.27.19 07.02	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	03.27.19 07.02	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	03.27.19 07.02	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	03.27.19 07.02	U	1
Total BTEX		<0.00200	0.00200	mg/kg	03.27.19 07.02	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	115	%	70-130	03.27.19 07.02	
4-Bromofluorobenzene	460-00-4	123	%	70-130	03.27.19 07.02	

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

QC Summary 618408

Marathon Oil Company

Fiddle Fee 24 28 23 #2H 6H 9H CTB

Analytical Method: **Inorganic Anions by EPA 300** Prep Method: E300P
Seq Number: 3082984 Matrix: Solid Date Prep: 03.21.19
MB Sample Id: 7674055-1-BLK LCS Sample Id: 7674055-1-BKS LCSD Sample Id: 7674055-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	251	100	248	99	90-110	1	20	mg/kg	03.21.19 22:54	

Analytical Method: **Inorganic Anions by EPA 300** Prep Method: E300P
Seq Number: 3082984 Matrix: Soil Date Prep: 03.21.19
Parent Sample Id: 618406-002 MS Sample Id: 618406-002 S MSD Sample Id: 618406-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	9.43	251	255	98	255	98	90-110	0	20	mg/kg	03.22.19 00:31	

Analytical Method: **Inorganic Anions by EPA 300** Prep Method: E300P
Seq Number: 3082984 Matrix: Soil Date Prep: 03.21.19
Parent Sample Id: 618481-001 MS Sample Id: 618481-001 S MSD Sample Id: 618481-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	27.4	248	285	104	285	104	90-110	0	20	mg/kg	03.21.19 23:11	

Analytical Method: **TPH by SW8015 Mod** Prep Method: TX1005P
Seq Number: 3083123 Matrix: Solid Date Prep: 03.23.19
MB Sample Id: 7674187-1-BLK LCS Sample Id: 7674187-1-BKS LCSD Sample Id: 7674187-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<8.00	1000	1060	106	1010	101	70-135	5	20	mg/kg	03.23.19 17:56	
Diesel Range Organics (DRO)	<8.13	1000	1160	116	1090	109	70-135	6	20	mg/kg	03.23.19 17:56	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	119		120		128		70-135	%	03.23.19 17:56
o-Terphenyl	121		118		114		70-135	%	03.23.19 17:56

MS/MSD Percent Recovery [D] = 100*(C-A) / B LCS = Laboratory Control Sample MS = Matrix Spike
Relative Percent Difference RPD = 200* | (C-E) / (C+E) | A = Parent Result B = Spike Added
LCS/LCSD Recovery [D] = 100 * (C) / [B] C = MS/LCS Result D = MSD/LCSD % Rec
Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample) E = MSD/LCSD Result

QC Summary 618408

Marathon Oil Company

Fiddle Fee 24 28 23 #2H 6H 9H CTB

Analytical Method: **TPH by SW8015 Mod** Prep Method: TX1005P
Seq Number: 3083359 Matrix: Solid Date Prep: 03.25.19
MB Sample Id: 7674329-1-BLK LCS Sample Id: 7674329-1-BKS LCSD Sample Id: 7674329-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<8.00	1000	1050	105	1050	105	70-135	0	20	mg/kg	03.25.19 11:38	
Diesel Range Organics (DRO)	<8.13	1000	1020	102	1080	108	70-135	6	20	mg/kg	03.25.19 11:38	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	105		129		128		70-135	%	03.25.19 11:38
o-Terphenyl	107		113		120		70-135	%	03.25.19 11:38

Analytical Method: **TPH by SW8015 Mod** Prep Method: TX1005P
Seq Number: 3083123 Matrix: Soil Date Prep: 03.23.19
Parent Sample Id: 618605-001 MS Sample Id: 618605-001 S MSD Sample Id: 618605-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	10100	1000	11700	160	11300	120	70-135	3	20	mg/kg	03.24.19 12:31	X
Diesel Range Organics (DRO)	11000	1000	12200	120	12000	100	70-135	2	20	mg/kg	03.24.19 12:31	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	105		120		70-135	%	03.24.19 12:31
o-Terphenyl	127		127		70-135	%	03.24.19 12:31

Analytical Method: **TPH by SW8015 Mod** Prep Method: TX1005P
Seq Number: 3083359 Matrix: Soil Date Prep: 03.25.19
Parent Sample Id: 618604-005 MS Sample Id: 618604-005 S MSD Sample Id: 618604-005 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<7.99	998	1040	104	1050	105	70-135	1	20	mg/kg	03.25.19 20:28	
Diesel Range Organics (DRO)	22.5	998	1030	101	1040	102	70-135	1	20	mg/kg	03.25.19 20:28	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	119		119		70-135	%	03.25.19 20:28
o-Terphenyl	103		101		70-135	%	03.25.19 20:28

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

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

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

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

Final 1.000

QC Summary 618408

Marathon Oil Company

Fiddle Fee 24 28 23 #2H 6H 9H CTB

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5030B

Seq Number: 3083508 Matrix: Solid Date Prep: 03.26.19

MB Sample Id: 7674408-1-BLK LCS Sample Id: 7674408-1-BKS LCSD Sample Id: 7674408-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.129	129	0.127	128	70-130	2	35	mg/kg	03.26.19 23:48	
Toluene	<0.00200	0.100	0.129	129	0.126	127	70-130	2	35	mg/kg	03.26.19 23:48	
Ethylbenzene	<0.000565	0.100	0.110	110	0.108	109	70-130	2	35	mg/kg	03.26.19 23:48	
m,p-Xylenes	<0.00101	0.200	0.219	110	0.214	108	70-130	2	35	mg/kg	03.26.19 23:48	
o-Xylene	<0.00200	0.100	0.109	109	0.107	108	70-130	2	35	mg/kg	03.26.19 23:48	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	114		106		102		70-130	%	03.26.19 23:48
4-Bromofluorobenzene	113		101		100		70-130	%	03.26.19 23:48

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5030B

Seq Number: 3083508 Matrix: Soil Date Prep: 03.26.19

Parent Sample Id: 618639-003 MS Sample Id: 618639-003 S MSD Sample Id: 618639-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.0998	0.118	118	0.105	104	70-130	12	35	mg/kg	03.27.19 00:26	
Toluene	0.000488	0.0998	0.115	115	0.102	101	70-130	12	35	mg/kg	03.27.19 00:26	
Ethylbenzene	<0.000564	0.0998	0.0949	95	0.0829	82	70-130	13	35	mg/kg	03.27.19 00:26	
m,p-Xylenes	<0.00101	0.200	0.188	94	0.165	82	70-130	13	35	mg/kg	03.27.19 00:26	
o-Xylene	0.000408	0.0998	0.0936	93	0.0820	81	70-130	13	35	mg/kg	03.27.19 00:26	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	109		109		70-130	%	03.27.19 00:26
4-Bromofluorobenzene	109		110		70-130	%	03.27.19 00:26

MS/MSD Percent Recovery [D] = 100*(C-A) / B LCS = Laboratory Control Sample MS = Matrix Spike

Relative Percent Difference RPD = 200* | (C-E) / (C+E) | A = Parent Result B = Spike Added

LCS/LCSD Recovery [D] = 100 * (C) / [B] C = MS/LCS Result D = MSD/LCSD % Rec

Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample) E = MSD/LCSD Result

Analysis Request of Chain of Custody Record

6184408

Client Name: Marathon Oil Company	**Site Manager:** Callie Karrigan
Project Name: Fiddle Fee 24 28 23 #2H 6H 9H CTB	
Project Location: (county, state) Eddy County, New Mexico	**Project #:** 19E-00614
Invoice to: Callie Karrigan (cnkarrigan@marathonoil.com)	
Receiving Laboratory: Xenco 1211 W Florida Ave Midland, TX 79701	**Sampler Signature:**

Comments:
Send Results To: Callie Karrigan (cnkarrigan@marathonoil.com); Isaac Castro (icastro@marathonoil.com); Dennis Williams (Dwilliams@vertex.ca); Dhugal Hanton (Dhanton@vertex.ca)

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING YEAR: DATE	SAMPLING TIME	MATRIX WATER	MATRIX SOIL	PRESERVATIVE METHOD HCL	PRESERVATIVE METHOD HNO_3	PRESERVATIVE METHOD ICE	# CONTAINERS	FILTERED (Y/N)	BTEX 8021B BTEX 8260B	TPH TX1005 (Ext to C35)	TPH 8015M (GRO - DRO - MRO)	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC/MS Vol. 8260B / 624	GC/MS Semi. Vol. 8270C/625	PCB's 8082 / 608	NORM	PLM (Asbestos)	Chloridem (method 300)	Chloride Sulfate TDS	General Water Chemistry (see attached list)	Anion/Cation Balance	Hold
	Fiddle Fee 2H 6H 9H SS19-01 0'	20/3/2019	8:45		x			x	2	N	X		x											x				
	Fiddle Fee 2H 6H 9H SS19-02 0'	20/3/2019	9:15		x			x	2	N	X		x											x				
	Fiddle Fee 2H 6H 9H SS19-03 0'	20/3/2019	9:30		x			x	2	N	X		x											x				
	Fiddle Fee 2H 6H 9H SS19-04 0'	20/3/2019	9:45		x			x	2	N	X		x											x				
	Fiddle Fee 2H 6H 9H SS19-05 0'	20/3/2019	10:15		x			x	2	N	X		x											x				
	Fiddle Fee 2H 6H 9H BG 0'	20/3/2019	10:30		x			x	2	N	X		x											x				

Relinquished by: Jason Crabtree	Date: 3-20-2019	Time: 1:21 PM	Received by: [signature]
Relinquished by: [signature]	Date: 3-20-19	Time: 15:30	Received by: [signature]
Relinquished by:	Date:	Time:	Received by:

Received by: [signature] Date: 3-20-2019 Time: 13:21
Received by: [signature] Date: 3/21/19 Time: 1130
Received by: Date: Time:

LAB USE ONLY
Sample Temperature
0.3 | 0.2
-0.1 | 2.8

REMARKS:

☐ **RUSH:** Same Day 24 hr 48 hr 72 hr
☐ Rush Charges Authorized
☐ Special Report Limits or TRRP Report

(Circle) HAND DELIVERED FEDEX UPS Tracking #: _____

ORIGINAL COPY

Final 1.000

ORIGIN ID:CAOA (575) 887-6245
XENCO
PAC N MAIL
910 W PIERCE ST

CARLSBAD, NM 88220
UNITED STATES US

SHIP DATE: 20MAR19
ACTWGT: 19.00 LB
CAD: 101813706/INET4100
DIMS: 15x12x15 IN

BILL RECIPIENT

TO HOLD FOR XENCO
FEDEX EXPRESS SHIP CENTER
FEDEX SHIP CENTER
3600 COUNTY RD 1276 S
MIDLAND TX 79711
(806) 794-1296 REF:
INV:
PO: DEPT:

565J1/46D3/23AD

FedEx Express

E

J181019010701uv

THU - 21 MAR HOLD
STANDARD OVERNIGHT

TRK# 0201 7747 5560 1308

HLD

MAFA

41 MAFA

TX-US LBB

After printing this label:

1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.
Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com.FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery,misdelivery,or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim.Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental,consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss.Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: Marathon Oil Company

Date/ Time Received: 03/21/2019 11:30:00 AM

Work Order #: 618408

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

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

Analyst:

PH Device/Lot#:

Checklist completed by: Brianna Teel Date: 03/21/2019

Brianna Teel

Checklist reviewed by: Mike Kimmel Date: 03/23/2019

Mike Kimmel