February 28, 2020 Vertex Project #: 20E-00140-001

Spill Closure Report: Dee Boot Fee 24 34 26 #3 #6 #7 #19 Central Tank Battery (CTB)
Unit A, Section 26, Township 24 South, Range 34 East
County: Lea
API: N/A
Tracking Numbers: NCE2003739249; NCE2003738053

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

New Mexico Oil Conservation Division – District 1 – Hobbs
1625 North French Drive
Hobbs, New Mexico 88240

Marathon Oil Permian, LLC (Marathon) retained Vertex Resource Services Inc. (Vertex) to conduct spill assessments and remediation for two produced water releases that occurred at Dee Boot Fee 24 34 26 #3 #6 #7 #19 CTB (hereafter referred to as "Dee Boot") on January 15, 2020. Marathon provided immediate notification of the larger release to New Mexico Oil Conservation Division (NM OCD) District 1 via email on January 16, 2020, and followed up with submission of two separate initial C-141 Release Notifications (Attachment 1) on January 28, 2020. The NM OCD tracking numbers for these incidents are NCE2003739249 and NCE2003738053.

This letter provides a description of the spill assessments and remediation activities, and demonstrates that closure criteria established in 19.15.29.12 *New Mexico Administrative Code (*NMAC; New Mexico Oil Conservation Division, 2018) have been met and all applicable regulations are being followed. This document is intended to serve as a final report to obtain approval from the NM OCD for closure of both releases, with the understanding that any restoration of the site required as a result of the incidents will be deferred until such time as oil and gas activities are terminated and the site is reclaimed per 19.15.29.13 NMAC.

Incident Description

On January 15, 2020, a release occurred at Marathon's Dee Boot site due to a leak at the wellhead caused by a failure in the choke, resulting in the release of approximately 29.37 barrels (bbls) of a mixture of produced water and oil onto the engineered wellpad. Upon discovery of the release, the wellhead choke was repaired. Initial spill response included a surface scrape of the affected area, followed by placement of berms around the release area to prevent additional dispersion in the event of rain. No produced water was released into sensitive areas or waterways.

A second release occurred on January 15, 2020, at Dee Boot when a seal on the water transfer pump coming off the produced water tanks failed. This incident resulted in the release of approximately 10.19 barrels (bbls) of produced water into the lined secondary containment and onto a small area of the wellpad immediately adjacent to the containment. Upon discovery, the seal on the water transfer pump was repaired to stop the release and a vacuum truck brought on-site to recover free liquids. Ten bbls of produced water were recovered from the secondary containment. The 0.19 bbls

from the area adjacent to containment were not recovered. No produced water was released into sensitive areas or waterways.

Site Characterization

The release at Dee Boot occurred on private land owned by Pitchfork Cattle Company, N 32.19502018, W 103.43590735, approximately 15 miles east-southeast of Jal, New Mexico. The legal description for the site is Unit A, Section 26, Township 24 South, Range 34 East, Lea County, New Mexico. This location is within the Permian Basin in southeast New Mexico and has historically been used for oil and gas exploration and production, and ranchland. Aerial photographs and site schematics for each release are included in Attachment 2.

Dee Boot is typical of oil and gas exploration and production sites in the western portion of the Permian Basin, and is currently used for oil and gas production, and storage. The following sections specifically describe the release area on the east-central portion of the constructed wellpad and the western edge of the wellpad where the storage tanks and heater treaters are located.

The surrounding landscape is associated with grasslands commonly found at elevations of 3,000 to 3,900 feet above sea level. The climate is semiarid with average annual precipitation ranging between 8 and 13 inches. Black grama is the dominant grass species, with bush muhly, blue grama and dropseeds also present. Shrubs species, such as yucca, javalinabush, prickly pear and mesquite are distributed sparsely throughout the region (United States Department of Agriculture, Natural Resources Conservation Service, 2020). Limited to no vegetation is allowed to grow on the compacted production wellpad.

The Geological Map of New Mexico indicates the surface geology at Dee Boot is comprised primarily of Qep – interlayed eolian sands and piedmont-slope deposits from the Holocene to middle Pleistocene ages (New Mexico Bureau of Geology and Mineral Resources, 2020). The Natural Resource Conservation Service (NRCS) Web Soil Survey characterizes the soil at the site as Berino-Cacique loamy fine sands, characterized by a shallow layer of loamy fine sand over sandy clay loam. It tends to be well-drained with low runoff and moderate available moisture levels in the soil profile (United States Department of Agriculture, Natural Resource Conservation Service, 2020). There is low potential for karst geology to be present near Dee Boot (United States Department of the Interior, Bureau of Land Management, 2020).

There is no surface water located on-site. The nearest significant watercourse, as defined in Subsection P of 19.15.17.7 NMAC, is an intermittent pond located approximately 4,420 feet east of the site (United States Department of the Interior, United States Geological Survey, 2020a). There are no continuously flowing watercourses or significant watercourses, lakebeds, sinkholes, playa lakes, or other critical water or community features as outlined in Paragraph (4) of Subsection C of 19.15.29.12 NMAC.

The nearest active well to the site is a United States Geologic Survey (USGS)-identified well from 2013 located approximately 1.1 miles to the southwest. Depth to groundwater at this well is 257 feet below ground surface (bgs; United States Department of the Interior, United States Geological Survey, 2020b). Documentation pertaining to site characterization and depth to groundwater determination is included in Attachment 3.

Closure Criteria Determination

Using site characterization information, a closure criteria determination worksheet (Attachment 3) was completed to determine if the release was subject to any of the special case scenarios outlined in Paragraph (4) of Subsection C of 19.15.29.12 NMAC.

Based on data included in the closure criteria determination worksheet, the releases at Dee Boot are not subject to the requirements of Paragraph (4) of Subsection C of 19.15.29.12 NMAC and the closure criteria for the site is determined to be associated with the following constituent concentration limits.

Table 1. Closure Criteria for Soils Impacted by a Release

Depth to Groundwater	Constituent	Limit
> 100 feet	Chloride	20,000 mg/kg
	TPH[1] (GRO + DRO + MRO)	2,500 mg/kg
	GRO + DRO	1,000 mg/kg
	BTEX[2]	50 mg/kg
	Benzene	10 mg/kg

[1] Total petroleum hydrocarbons (TPH) = gasoline range organics (GRO) + diesel range organics (DRO) + motor oil range organics (MRO)

[2] Benzene, toluene, ethyl benzene and xylenes (BTEX)

Remedial Actions

An initial spill inspection, completed on January 15, 2020, identified and mapped the boundaries of the two spill areas. The impacted area for the larger release was determined to be approximately 297 feet long and 220 feet wide, with a total affected area of 27,651 square feet. The impacted area for the smaller release where it escaped secondary containment was determined to be approximately 55 feet long and 26 feet wide, for a total affected area of 371 square feet. Sample points were identified and characterization samples were collected from each release area. Field screening was conducted using an electrical conductivity (EC) meter to estimate the level of chlorides in the soil as a preliminary delineation method. The Daily Field Report (DFR) associated with the initial site visit is included as Attachment 4.

Characterization soil samples were placed into laboratory-provided containers, preserved on ice and submitted to a National Environmental Laboratory Accreditation Program (NELAP)-approved laboratory for chemical analysis. Laboratory analyses included Method 300.0 for chlorides, Method 8021B for volatile organics, including BTEX, and EPA Method 8015 for TPH including MRO, DRO and GRO. Characterization sample analytical data are summarized in Attachment 5. Laboratory data reports and chain of custody forms are included in Attachment 6.

A GeoExplorer 7000 Series Trimble global positioning system (GPS) unit, or equivalent, was used to map the characterization sample locations. The sampling locations for the releases are presented on Figures 1 and 2 (Attachment 2). Relevant equipment and prominent features/reference points at the site are shown as well.

Closure Request

Vertex recommends no further action to address the release at Dee Boot. Laboratory analyses for the initial release characterization samples showed constituent of concern concentration levels below NM OCD Closure Criteria for areas where depth to groundwater is greater than 100 feet bgs as shown in Table 1 above. There are no anticipated risks to human, ecological or hydrological receptors associated with the release sites.

The initial surface scrape and methods used to address the releases required no backfill and no areas or vegetation off-site were affected by these releases. Vertex requests that restoration and reclamation of the spill areas be deferred until such time as the wellpad is removed and the site is reclaimed per 19.15.29.13 NMAC.

Vertex requests that the two referenced incidents (NCE2003739249; NCE2003738053) be closed as all closure requirements set forth in Subsection E of 19.15.29.12 have been met. Marathon certifies that all information in this report and the attachments is correct and that they have complied with all applicable closure requirements and conditions specified in Division rules and directives to meet NM OCD requirements to obtain closure on the January 15, 2020, releases at Dee Boot.

Should you have any questions or concerns, please do not hesitate to contact me at 505.506.0040 or ngordon@vertex.ca.

Sincerely,

Natalie Gordon
PROJECT MANAGER

Attachments

Attachment 1. NM OCD C-141 Reports
Attachment 2. Figures – Site Schematic and Characterization Sample Locations
Attachment 3. Closure Criteria for Soils Impacted by a Release Research Determination Documentation
Attachment 4. Daily Field Report(s) with Photographs
Attachment 5. Confirmatory Sample Laboratory Results
Attachment 6. Laboratory Data Reports/COCs

References

New Mexico Bureau of Geology and Mineral Resources. (2020). *Interactive Geologic Map.* Retrieved from http://geoinfo.nmt.edu.

New Mexico Oil Conservation Division. (2018). *Natural Resources and Wildlife Oil and Gas Releases*. Santa Fe, New Mexico.

United States Department of Agriculture, Natural Resources Conservation Service, (2020). *Web Soil Survey*. Retrieved from https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx.

United States Department of the Interior, Bureau of Land Management. (2020). *New Mexico Cave/Karsts*. Retrieved from https://www.blm.gov/programs/recreation/recreation-programs/caves/new-mexico.

United States Department of the Interior, United States Geological Survey. (2020a). *The National Map: National Hydrography Dataset*. Retrieved from http://nationalmap.gov/index.

United States Department of the Interior, United States Geological Survey. (2020b). *Groundwater for New Mexico: Water Levels*. Retrieved from https://nwis.waterdata.usgs.gov/nm/nwis/gwlevels?.

Limitations

This report has been prepared for the sole benefit of Marathon Oil Permian, LLC (Marathon). 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. 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

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	
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party Marathon Oil Permian LLC	OGRID 372098
Contact Name Melodie Sanjari	Contact Telephone 575-988-0561
Contact email msanjari@marathonoil.com	Incident # *(assigned by OCD)*
Contact mailing address 4111 S. Tidwell Rd., Carlsbad, NM 8220	

Location of Release Source

Latitude 32.19502018 Longitude -103.43590735
(NAD 83 in decimal degrees to 5 decimal places)

Site Name: Dee Boot Fee 24 34 26 #3 #6 #7 #19 CTB	Site Type Central Tank Battery
Date Release Discovered 1/15/2020	API# *(if applicable)* N/A

Unit Letter	Section	Township	Range	County
A	26	24S	34E	Lea

Surface Owner: ☐ State ☐ Federal ☐ Tribal ☒ Private (*Name: Pitchfork Cattle Company*)

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

Cause of Release
Operator reported a leak coming from the wellhead. The cause was a failure in the choke and resulted in the release of approximately 29.37 bbls of an oil and produced water mixture onto the engineered pad. Initial response included a surface scrape and the placement of berms around the release area as rain was projected for the rest of the week.

State of New Mexico
Oil Conservation Division

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District RP	
Facility ID	
Application ID	

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? Based on Volume
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? Yes, by MOC (Melodie Sanjari) via email on 1/16/2020 to NMOCD District 1 distribution email	

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: Melodie Sanjari Title: Environmental Professional

Signature: Melodie Sanjari Date: 1/28/2020

email: msanjari@marathonoil.com Telephone: 575-988-0561

OCD Only

Received by: _____ Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	NCE2003739249
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?	257 (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
- NA 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.

Form C-141
Page 4

State of New Mexico
Oil Conservation Division

Incident ID	NCE2003739249
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Facility ID	
Application ID	

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

Printed Name: Melodie Sanjari Title: Environmental Professional

Signature: Melodie Sanjari Date:3/2/2020

email: msanjari@marathonoil.com . Telephone: 575-988-8753 .

OCD Only

Received by: _____ Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	NCE2003739249
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Closure

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

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

☒ A scaled site and sampling diagram as described in 19.15.29.11 NMAC

☒ Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)

☒ Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)

☒ Description of remediation activities

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

Printed Name: Melodie Sanjari Title: Environmental Professional

Signature: MelodieSanjari Date: 3/2/2020

email: msanjari@marathonoil.com Telephone: 575-988-08753

OCD Only

Received by: _____ Date: _____

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

Closure Approved by: _____ Date: _____

Printed Name: _____ Title: _____

District I
1625 N. French Dr., Hobbs, NM 88240
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Release Notification

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Responsible Party Marathon Oil Permian LLC	OGRID 372098
Contact Name Melodie Sanjari	Contact Telephone 575-988-0561
Contact email msanjari@marathonoil.com	Incident # *(assigned by OCD)*
Contact mailing address 4111 S. Tidwell Rd., Carlsbad, NM 8220	

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(NAD 83 in decimal degrees to 5 decimal places)

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Date Release Discovered 1/15/2020	API# *(if applicable)* N/A

Unit Letter	Section	Township	Range	County
A	26	24S	34E	Lea

Surface Owner: ☐ State ☐ Federal ☐ Tribal ☒ Private (*Name: Pitchfork Cattle Company*)

Nature and Volume of Release

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

☐ Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
☒ Produced Water	Volume Released (bbls) 10.19	Volume Recovered (bbls) 10
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☒ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release

The seal failed on the water transfer pump coming off of the produced water tanks. Approximately 10 bbls were recovered from inside of the lined containment while approximately 0.19 bbls was released onto the engineered pad just outside of the containment. The containment and equipment have been power washed with all fluids recovered and the transfer pump has been repaired.

State of New Mexico
Oil Conservation Division

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If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?	

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☒ 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.

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Printed Name: Melodie Sanjari Title: Environmental Professional

Signature: Melodie Sanjari Date: 1/28/2020

email: msanjari@marathonoil.com Telephone: 575-988-0561

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Received by: _____ Date: _____

State of New Mexico
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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.***

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- ☒ Field data
- ☒ Data table of soil contaminant concentration data
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- ☒ Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release
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- ☒ Photographs including date and GIS information
- ☒ Topographic/Aerial maps
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Printed Name: Melodie Sanjari Title: Environmental Professional

Signature: Melodie Sanjari Date:3/2/2020

email: msanjari@marathonoil.com . Telephone: 575-988-8753 .

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Received by: _____ Date: _____

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Oil Conservation Division

Incident ID	NCE2003738053
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Application ID	

Closure

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

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

☒ A scaled site and sampling diagram as described in 19.15.29.11 NMAC

☒ NA Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)

☒ Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)

☒ Description of remediation activities

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

Printed Name: Melodie Sanjari Title: Environmental Professional

Signature: Melodie Sanjari Date:3/2/2020

email: msanjari@marathonoil.com Telephone: 575-988-08753

OCD Only

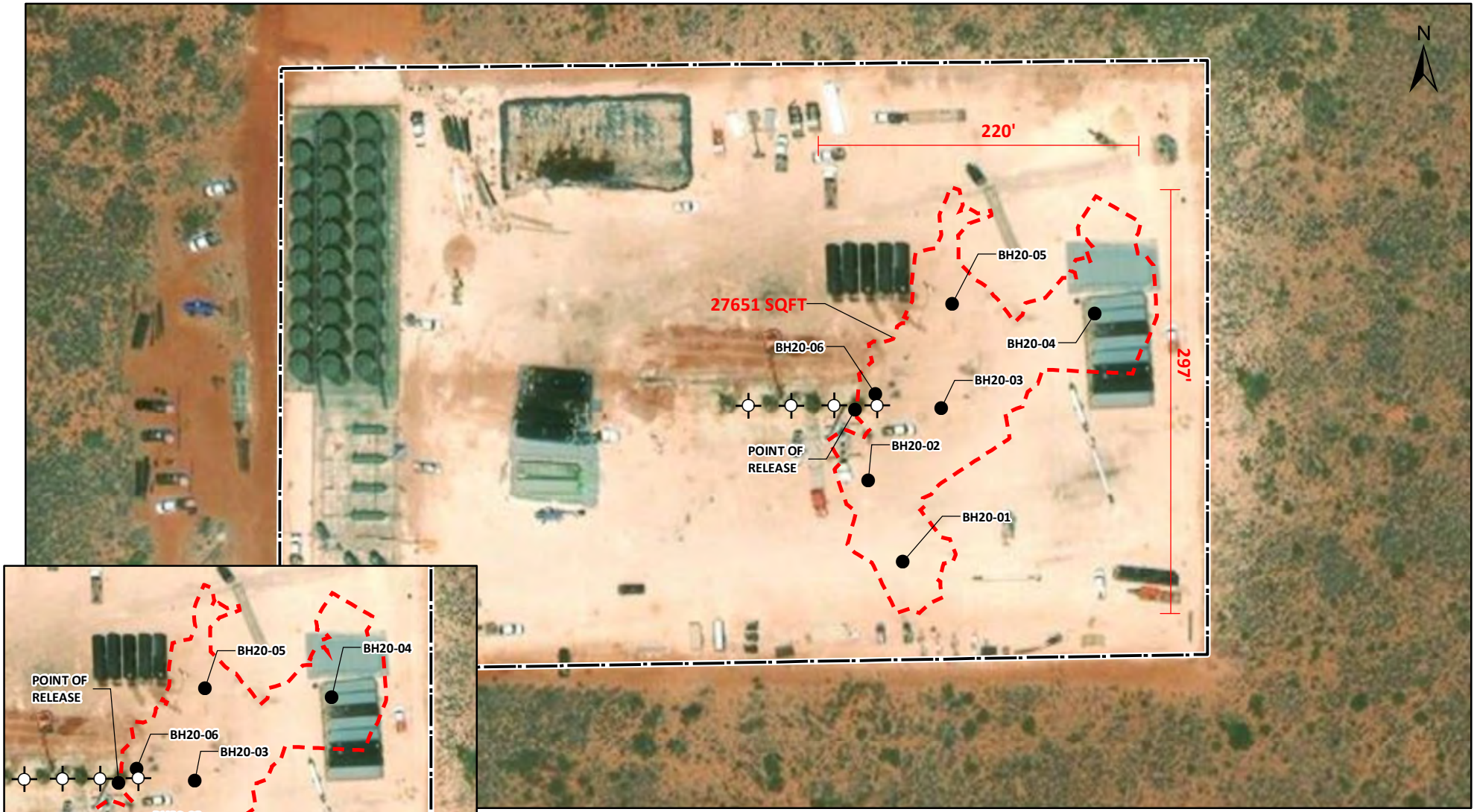
Received by: _____ Date: _____

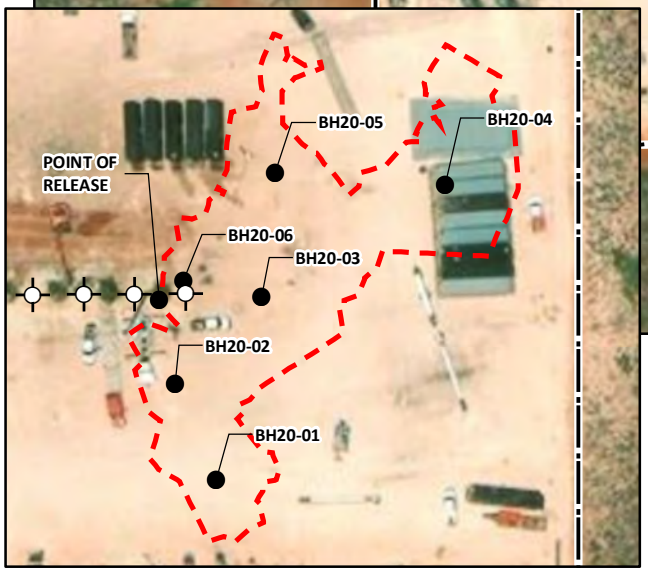
Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance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

Closure Approved by: _____ Date: _____

Printed Name: _____ Title: _____

ATTACHMENT 2





LEGEND

- WELLHEAD
- SOIL SAMPLE
- WELLPAD
- SPILL AREA

BH BOREHOLES

0 25 50 100 150 ft

SCALE 1:1,200

Notes: Aerial Image from ESRI Digital Globe 2018

Marathon Oil

Site Schematic and Characterization Sample Locations
Dee Boot Fee
24 34 26 #3 #6 #7 #19 CTB

VERTEX

DRAWN:	NM
APPROVED:	MP
DATE:	JAN 19/20

FIGURE: **1**

VERSATILITY. EXPERTISE.

LEGEND

- WELLHEAD
- SOIL SAMPLE
- WELLPAD
- SPILL AREA

BH BOREHOLES

0 25 50 100 ft

SCALE 1:762

Notes: Aerial Image from ESRI Digital Globe 2018

Marathon Oil

Site Schematic and Characterization
Sample Locations
Dee Boot Fee
24 34 26 #3 #6 #7 #19 CTB

VERTEX

DRAWN:	NM
APPROVED:	MP
DATE:	JAN 19/20

FIGURE: **2**

VERSATILITY. EXPERTISE.

ATTACHMENT 3

Table 1. Closure Criteria Determination			
Site Name: Dee Boot Fee 24 34 26 WXY #003H			
Spill Coordinates: 32.195194, -103.435324		X: 647486.04	Y: 3563144.51
Site Specific Conditions		Value	Unit
1	Depth to Groundwater	**257.00**	feet
2	Within 300 feet of any continuously flowing watercourse or any other significant watercourse	165,079	feet
3	Within 200 feet of any lakebed, sinkhole or playa lake (measured from the ordinary high-water mark)	1,909	feet
4	Within 300 feet from an occupied residence, school, hospital, institution or church	10,741	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**	10,741	feet
	ii) Within 1000 feet of any fresh water well or spring	10,741	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	1,909	feet
8	Within the area overlying a subsurface mine	No	(Y/N)
9	Within an unstable area (Karst Map)	Low	Critical High Medium Low
10	Within a 100-year Floodplain	Undetermined	year
NMAC 19.15.29.12 E (Table 1) Closure Criteria		>100'	<50' 51-100' >100'

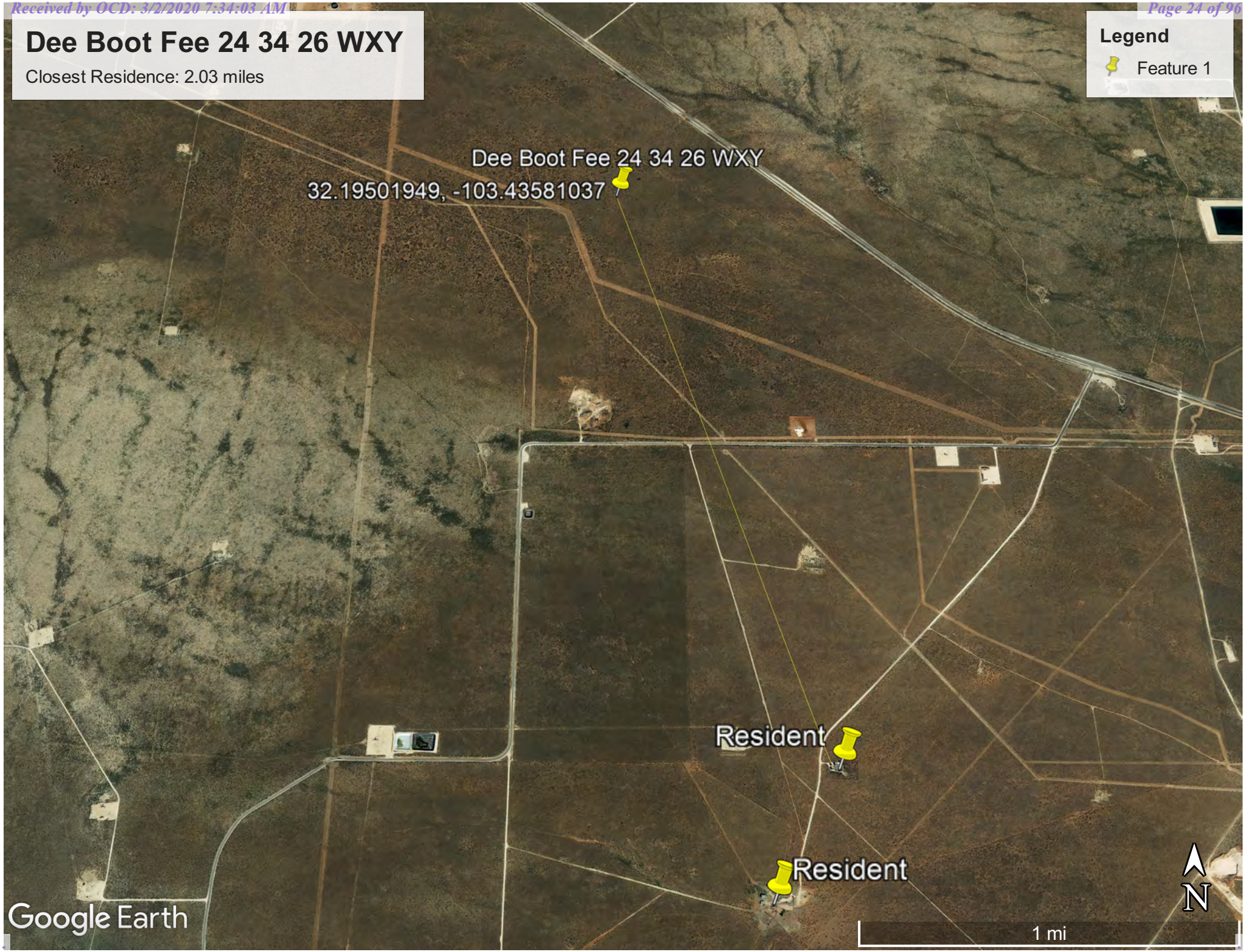
Column1
Critical
High
Medium
Low

Column1
Yes
No

<50'
51-100'
>100'

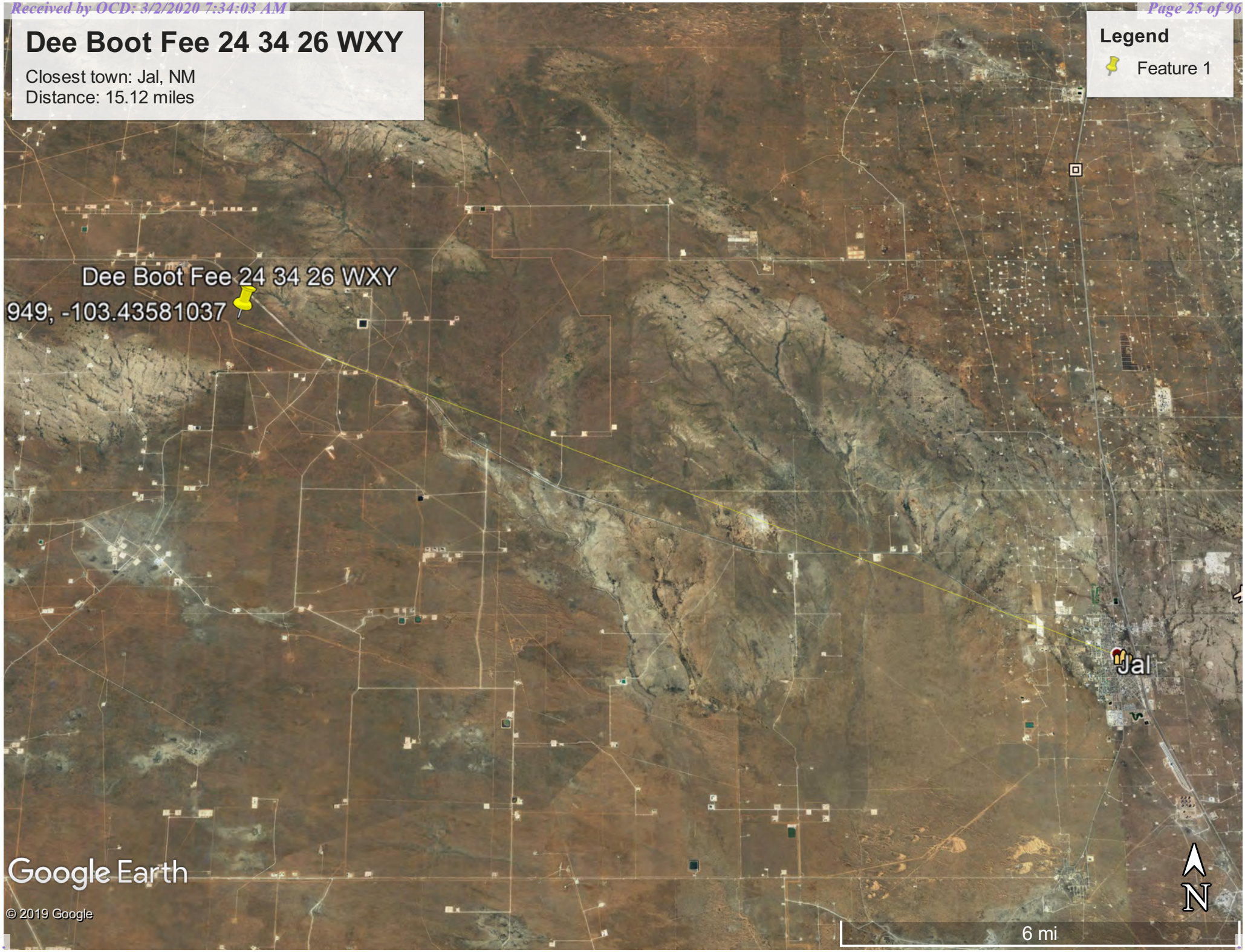
Dee Boot Fee 24 34 26 WXY

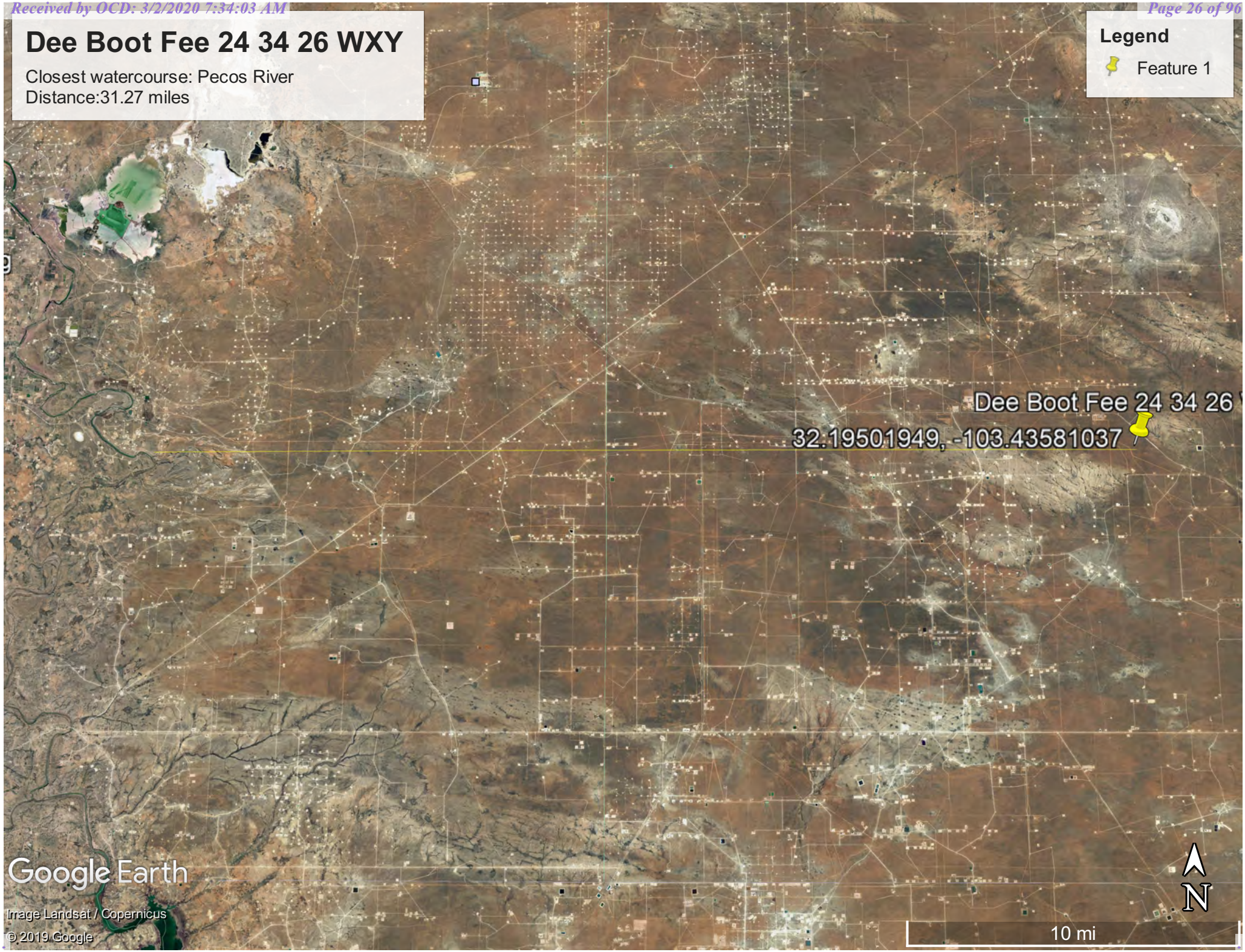
Closest Residence: 2.03 miles



Dee Boot Fee 24 34 26 WXY

Closest town: Jal, NM
Distance: 15.12 miles




Dee Boot Fee 24 34 26 WXY
Closest watercourse: Pecos River
Distance:31.27 miles
Legend
Feature 1
Dee Boot Fee 24 34 26
32.19501949, -103.43581037
Google Earth
Image Landsat / Copernicus
© 2019 Google
N
10 mi

National Water Information System: Web Interface

USGS Water Resources

Data Category: Site Information ▼ Geographic Area: United States ▼ GO

Click to hideNews Bulletins

- Introducing The Next Generation of USGS Water Data for the Nation
- Full News

USGS 321025103263601 24S.34E.35.12411

Available data for this site SUMMARY OF ALL AVAILABLE DATA ▼ GO

Well Site

DESCRIPTION:

Latitude 32°10'44.0", Longitude 103°26'31.2" NAD83
Lea County, New Mexico , Hydrologic Unit 13070007
Well depth: 257 feet
Land surface altitude: 3,409.00 feet above NGVD29.
Well completed in "Ogallala Formation" (121OGLL) local aquifer

AVAILABLE DATA:

Data Type	Begin Date	End Date	Count
Field groundwater-level measurements	1953-03-29	2013-01-16	8
Revisions	Unavailable (site:0) (timeseries:0)		

OPERATION:

Record for this site is maintained by the USGS New Mexico Water Science Center
Email questions about this site to New Mexico Water Science Center Water-Data Inquiries

---

Questions about sites/data?
Feedback on this web site
Automated retrievals
Help
Data Tips
Explanation of terms
Subscribe for system changes
News

U.S. Department of the Interior | U.S. Geological Survey
Title: NWIS Site Information for USA: Site Inventory
URL: https://waterdata.usgs.gov/nwis/inventory?agency_code=USGS&site_no=321025103263601

Page Contact Information: New Mexico Water Data Support Team
Page Last Modified: 2020-01-21 10:19:18 EST
0.41 0.39 caww02

National Water Information System: Web Interface

USGS Water Resources

Data Category: Site Information ▼ Geographic Area: United States ▼ GO

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- Full News

USGS 321039103243401 24S.35E.30.34233

Available data for this site SUMMARY OF ALL AVAILABLE DATA ▼ GO

Well Site

DESCRIPTION:

Latitude 32°10'39", Longitude 103°24'34" NAD27
Lea County, New Mexico , Hydrologic Unit 13070007
Well depth: 176 feet
Land surface altitude: 3,343 feet above NAVD88.
Well completed in "Chinle Formation" (231CHNL) local aquifer

AVAILABLE DATA:

Data Type	Begin Date	End Date	Count
Field groundwater-level measurements	1953-11-27	1970-12-08	4
Revisions	Unavailable (site:0) (timeseries:0)		

OPERATION:

Record for this site is maintained by the USGS New Mexico Water Science Center
Email questions about this site to New Mexico Water Science Center Water-Data Inquiries

---

Questions about sites/data?
Feedback on this web site
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Help
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Explanation of terms
Subscribe for system changes
News

U.S. Department of the Interior | U.S. Geological Survey
Title: NWIS Site Information for USA: Site Inventory
URL: https://waterdata.usgs.gov/nwis/inventory?agency_code=USGS&site_no=321039103243401

Page Contact Information: New Mexico Water Data Support Team
Page Last Modified: 2020-01-21 10:24:09 EST
0.31 0.27 caww01

National Water Information System: Web Interface

USGS Water Resources

Data Category: Site Information ▼ Geographic Area: United States ▼ GO

Click to hideNews Bulletins

- Introducing The Next Generation of USGS Water Data for the Nation
- Full News

USGS 321039103243402 24S.35E.30.342331

Available data for this site SUMMARY OF ALL AVAILABLE DATA ▼ GO

Well Site

DESCRIPTION:

Latitude 32°10'39", Longitude 103°24'34" NAD27
Lea County, New Mexico , Hydrologic Unit 13070007
Well depth: 176 feet
Land surface altitude: 3,343 feet above NAVD88.
Well completed in "Chinle Formation" (231CHNL) local aquifer

AVAILABLE DATA:

Data Type	Begin Date	End Date	Count
Field groundwater-level measurements	1970-12-08	1981-03-20	3
Revisions	Unavailable (site:0) (timeseries:0)		

OPERATION:

Record for this site is maintained by the USGS New Mexico Water Science Center
Email questions about this site to New Mexico Water Science Center Water-Data Inquiries

---

Questions about sites/data?
Feedback on this web site
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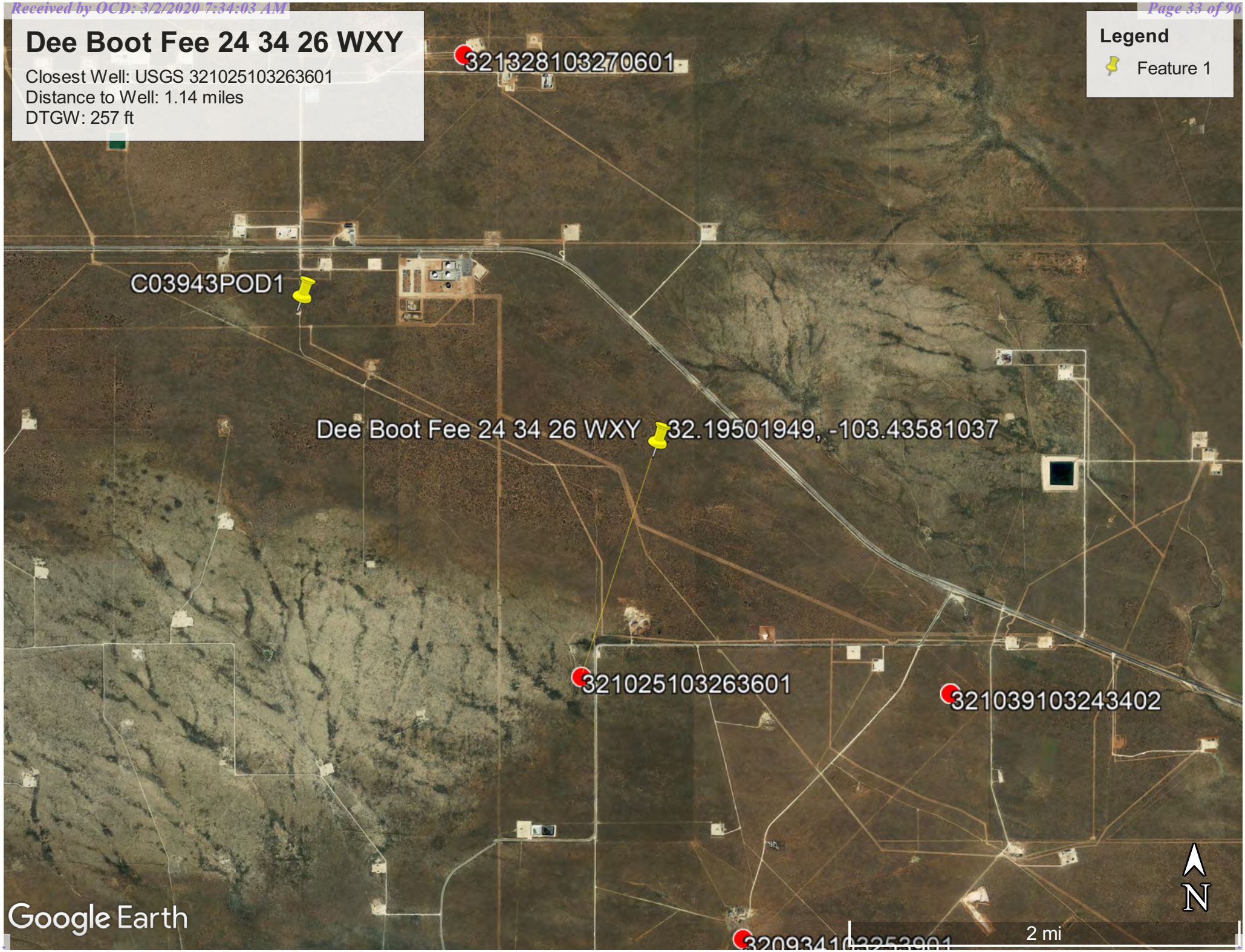
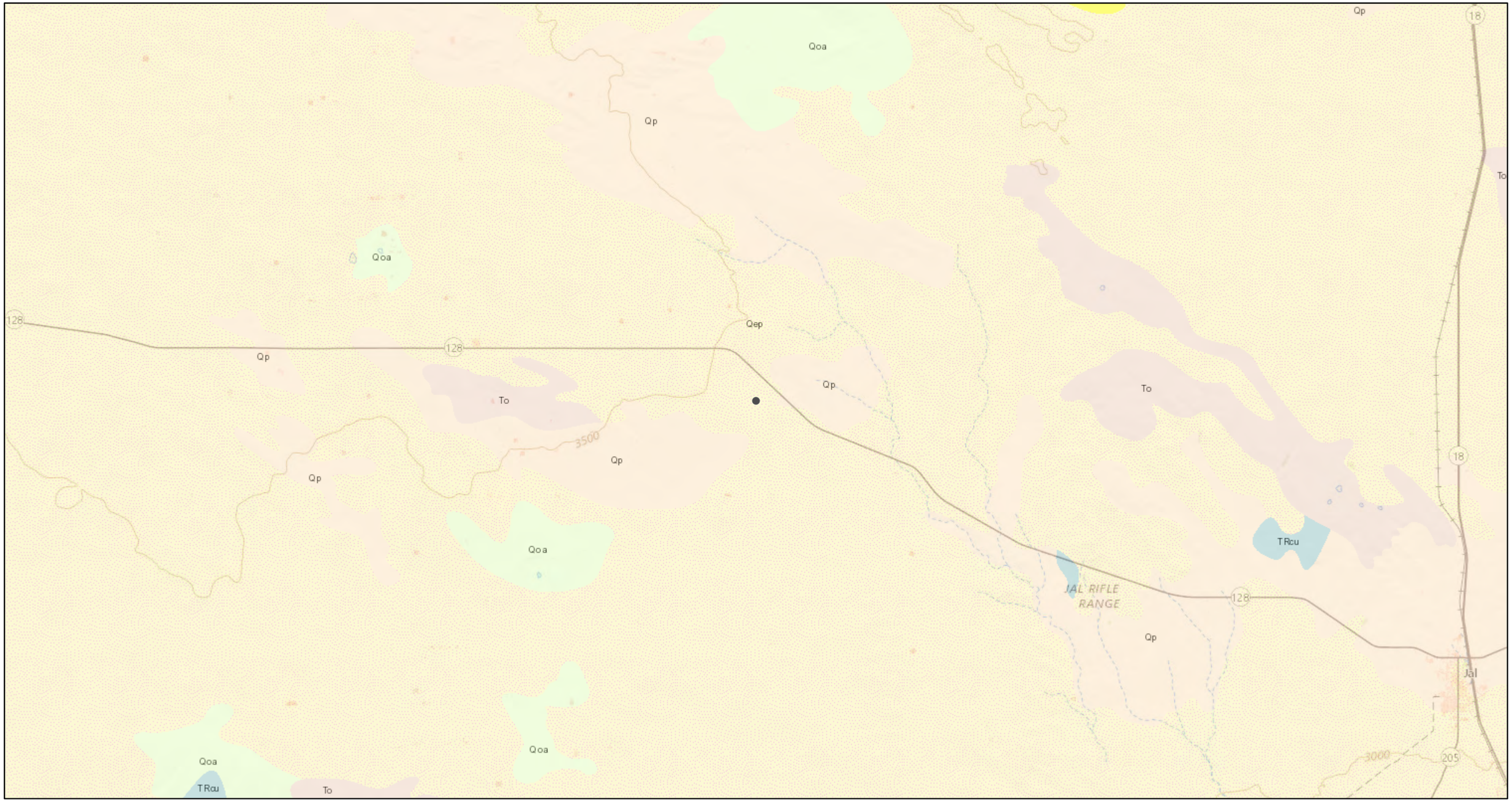
Explanation of terms
Subscribe for system changes
News

U.S. Department of the Interior | U.S. Geological Survey
Title: NWIS Site Information for USA: Site Inventory
URL: https://waterdata.usgs.gov/nwis/inventory?agency_code=USGS&site_no=321039103243402

Page Contact Information: New Mexico Water Data Support Team
Page Last Modified: 2020-01-21 10:21:57 EST
0.42 0.42 caww02


Dee Boot Fee 24 34 26 WXY
Closest Well: USGS 321025103263601
Distance to Well: 1.14 miles
DTGW: 257 ft
Legend
Feature 1
321328103270601
C03943POD1
Dee Boot Fee 24 34 26 WXY 32.19501949, -103.43581037
321025103263601
321039103243402
320934103253901
Google Earth
2 mi
N

Geology map



1/30/2020, 10:28:05 AM

1:144,448

0 1.5 3 6 mi

0 2.5 5 10 km

Faults

- Fault, Exposed
- Fault, Intermittent
- Fault, Concealed
- Shere Zone

Dikes

- <all other values>
- Dike
- Dike intruding fault
- Volcanic Vents

STATEMAP (1993 to Present) [Publications]

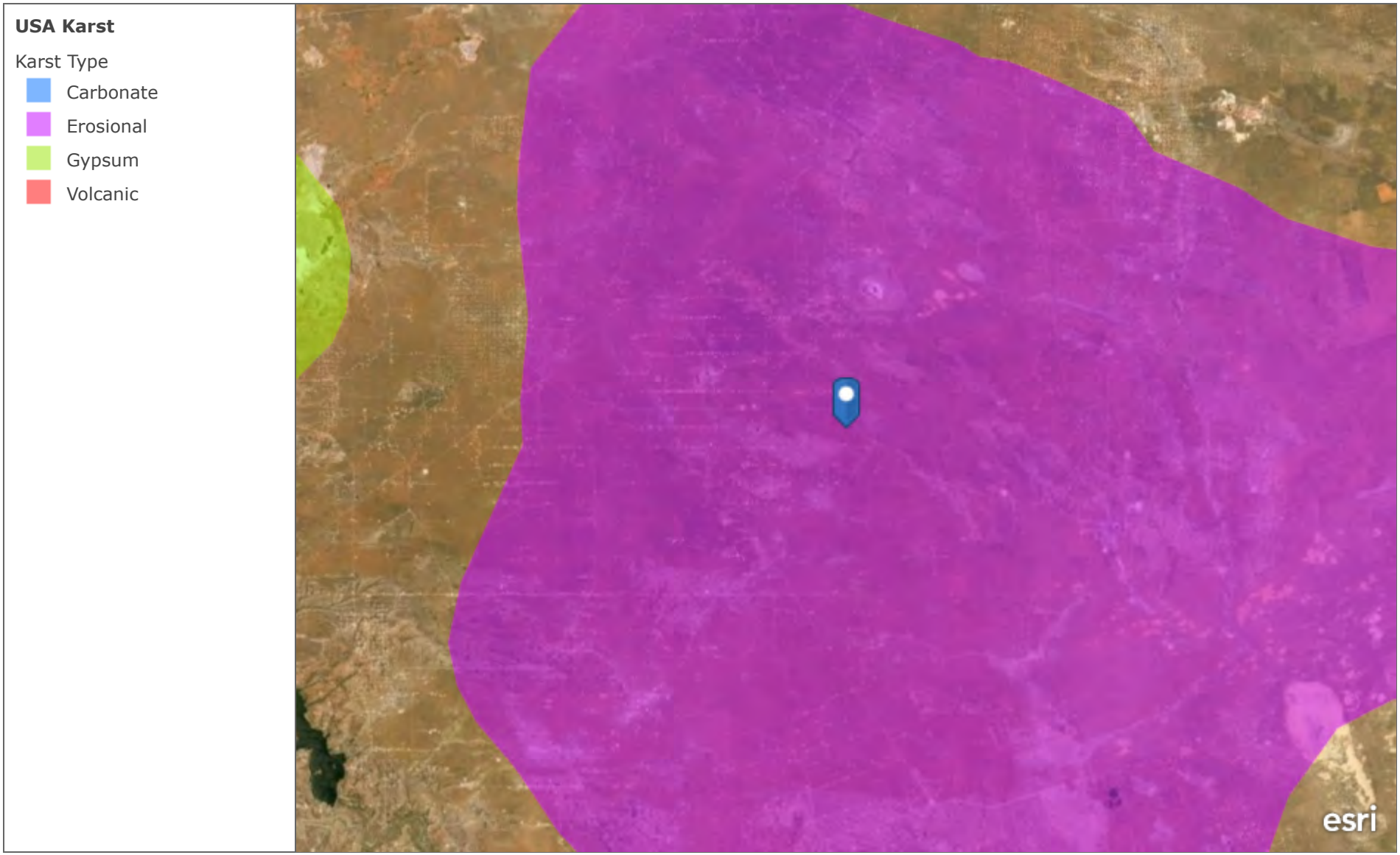
- Mapping in Complete
- Mapping in Progress

USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS

USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS Global Ecosystems; U.S. Census Bureau TIGER/Line

Web AppBuilder for ArcGIS

USA Karst



A map showing karst areas in the United States based on the U.S. Geological Survey Open-File Report 2004-1352

U.S. Geological Survey Open-File Report 2004-1352, Caves and Karst in the U.S. National Park Service, AGI Karst Map of the US. | Earthstar Geographics

New Mexico Office of the State Engineer

Point of Diversion Summary

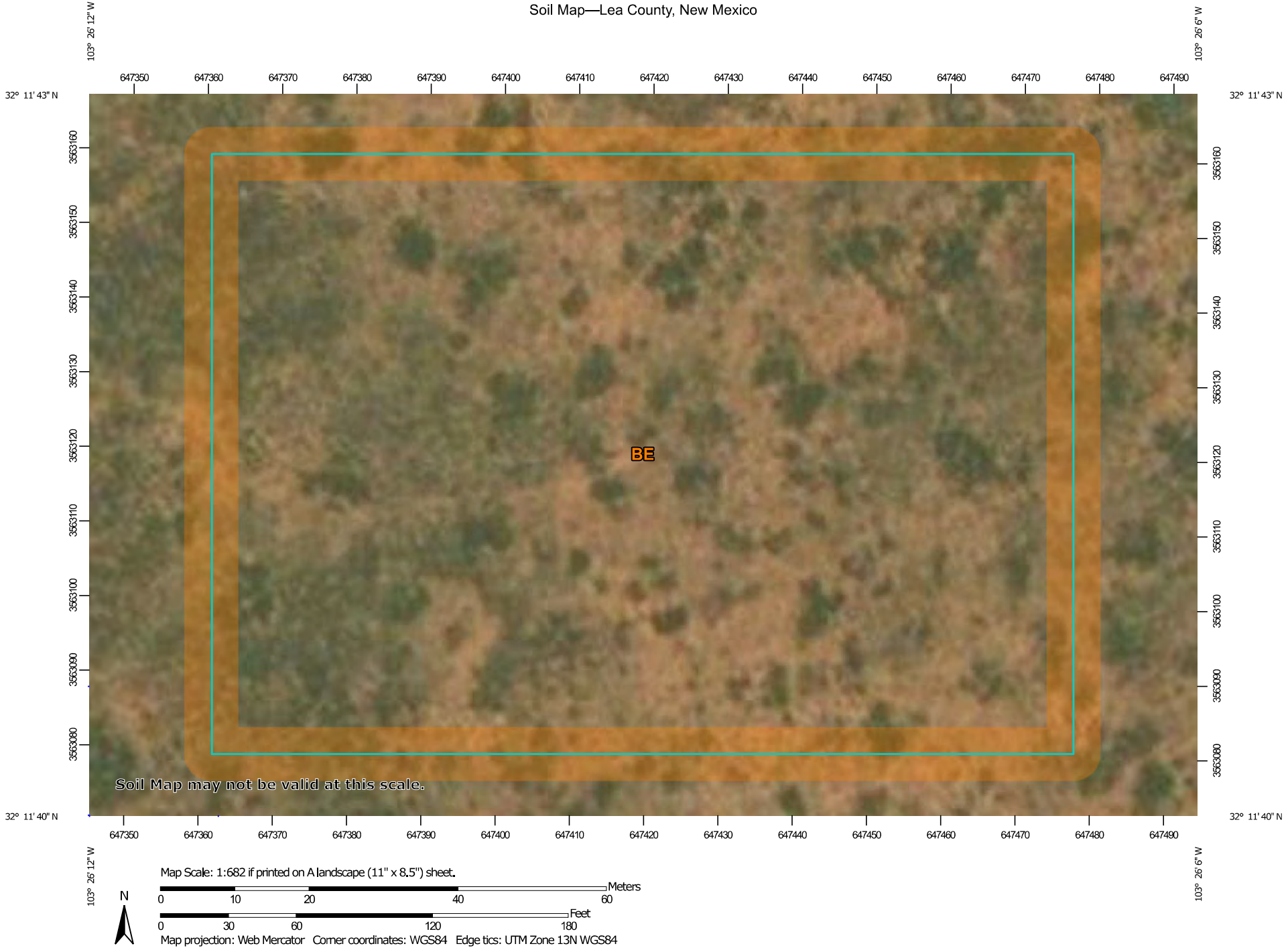
Well Tag	POD Number	(quarters are 1=NW 2=NE 3=SW 4=SE) (quarters are smallest to largest) Q64	Q16	Q4	Sec	Tws	Rng	(NAD83 UTM in meters) X	Y
	C 03943 POD1	2	4	2	21	24S	34E	644523	3564266

Driller License:	1737	**Driller Company:**	NOT FOR HIRE AT THIS TIME		
Driller Name:	JUSTIN MULLINS				
Drill Start Date:	04/21/2016	**Drill Finish Date:**	04/24/2016	**Plug Date:**	
Log File Date:	04/25/2016	**PCW Rcv Date:**		**Source:**	Shallow
Pump Type:		**Pipe Discharge Size:**		**Estimated Yield:**	5 GPM
Casing Size:	6.00	**Depth Well:**	610 feet	**Depth Water:**	431 feet

Water Bearing Stratifications:	Top	Bottom	Description
	39	431	Sandstone/Gravel/Conglomerate

Casing Perforations:	Top	Bottom
	420	480

Soil Map—Lea County, New Mexico



Map Scale: 1:682 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 10 20 40 60

Feet: 0 30 60 120 180

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 13N WGS84

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: Lea County, New Mexico
Survey Area Data: Version 16, Sep 15, 2019

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—Sep 17, 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
BE	Berino-Cacique loamy fine sands association	2.3	100.0%
Totals for Area of Interest		**2.3**	**100.0%**

Lea County, New Mexico

BE—Berino-Cacique loamy fine sands association

Map Unit Setting

National map unit symbol: dmpd
Elevation: 3,000 to 3,900 feet
Mean annual precipitation: 10 to 13 inches
Mean annual air temperature: 60 to 62 degrees F
Frost-free period: 190 to 205 days
Farmland classification: Not prime farmland

Map Unit Composition

Berino and similar soils: 50 percent
Cacique and similar soils: 40 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Berino

Setting

Landform: Plains
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy eolian deposits derived from sedimentary rock over calcareous sandy alluvium derived from sedimentary rock

Typical profile

A - 0 to 6 inches: loamy fine sand
Btk - 6 to 60 inches: sandy clay loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 40 percent
Gypsum, maximum in profile: 1 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 2.0
Available water storage in profile: Moderate (about 8.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7c
Hydrologic Soil Group: B
Ecological site: Loamy Sand (R042XC003NM)
Hydric soil rating: No

Description of Cacique

Setting

Landform: Plains
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Calcareous eolian deposits derived from sedimentary rock

Typical profile

A - 0 to 12 inches: loamy fine sand
Bt - 12 to 28 inches: sandy clay loam
Bkm - 28 to 38 inches: cemented material

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 20 to 40 inches to petrocalcic
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: 5 percent
Gypsum, maximum in profile: 1 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 2.0
Available water storage in profile: Low (about 3.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7c
Hydrologic Soil Group: C
Ecological site: Sandy (R042XC004NM)
Hydric soil rating: No

Minor Components

Maljamar

Percent of map unit: 6 percent
Ecological site: Limy Upland 16-21" PZ (R077CY028TX)
Hydric soil rating: No

Palomas

Percent of map unit: 4 percent
Ecological site: Loamy Sand (R042XC003NM)
Hydric soil rating: No

Data Source Information

Soil Survey Area: Lea County, New Mexico
Survey Area Data: Version 16, Sep 15, 2019

U.S. Fish and Wildlife Service
National Wetlands Inventory

Wetland

January 30, 2020

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.

ATTACHMENT 4

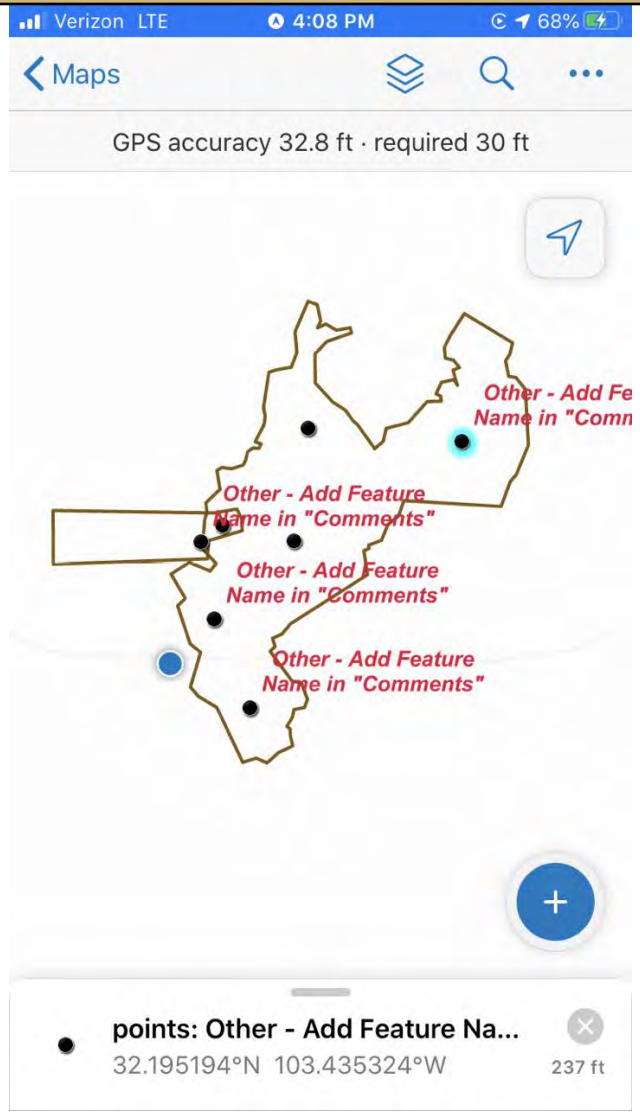
Daily Site Visit Report

Client:	Marathon Oil Permian LLC	Inspection Date:	1/15/2020
Site Location Name:	Dee Boot Fee 24 34 26 #3H 6H 7H 19H CTB	Report Run Date:	1/16/2020 1:56 PM
Project Owner:		File (Project) #:	
Project Manager:		API #:	3002544162
Client Contact Name:	Isaac Castro	Reference	
Client Contact Phone #:	(575) 988-0561		

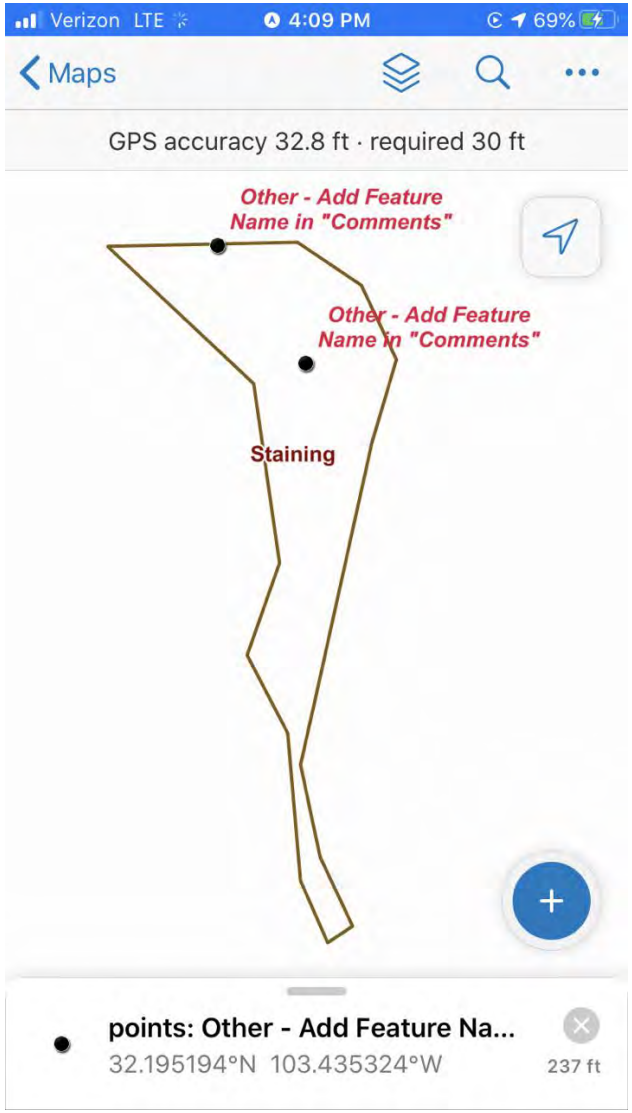
Summary of Times	
Left Office	1/15/2020 9:40 AM
Arrived at Site	1/15/2020 11:00 AM
Departed Site	
Returned to Office	

Daily Site Visit Report

Site Sketch



Daily Site Visit Report



Daily Site Visit Report

Summary of Daily Operations

12:37 Site assessment and delineation

Next Steps & Recommendations

1

Daily Site Visit Report

Site Photos

Viewing Direction: North

First spill area

Viewing Direction: West

Spill area 1

Viewing Direction: North

Spill area 1

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Monica Peppin

Signature:

VERTEX

Spill Response and Sampling

Client:	Marathon
Date:	1/16/20
Site Name:	Dee Boot Frac
Site Location:	Large Spill
Project Owner:	
Project Manager:	
Project #:	~~AE~~ 20E-00140 001

Initial Spill Information - Record on First Visit	
Spill Date:	1115120
Spill Volume:	
Spill Cause:	Frac Communication
Spill Product:	
Recovered Spill Volume:	
Recovery Method:	

Sampling

		Field Screening		EC	Data Collection (Check for Yes)			
Sample ID	Depth (ft)	VOC (PID)	PetroFlag TPH (ppm)	~~Quantab~~ (High/Low) + or -	Lab Analysis	Picture	Trimble Coordinates	Marked on Site Sketch
SS/TP/BH - Year - Number Ex. BH18-01	Ex. '2ft	Ex. 400 ppm	200 ppm	Ex. 'High +	Ex. Hydrocarbon Chloride			
L1	surf			3.32/22.8	BH20-01 11:00			
	0.5			0.19/22.9	11:05			
	1			0.04/22.3	11:10			
	2				11:15			
L2	surf			2.52/21.9	BH20-02 11:25			
	0.5			0.23/21.8	11:30			
	1			0.04/21.6	11:35			
	2			0.02/21.0	11:40			
L3	surf			3.36/21.9	BH20-03 11:50			
	0.5			0.42/22.1	11:55			
	1			0.24/22.0	12:00			
	2			0.05/22.2	12:05			
L4	surf			3.71/22.0	BH20-04 12:15			
	0.5			0.71/21.7	12:20			
	1			0.50/21.6	12:25			
	2			0.41/21.1	12:30			
L5	surf			6.24/22.5	BH20-05 12:40			
	0.5			1.48/22.2	12:45			
	1			0.51/21.8	12:50			
	2			0.07/21.9	12:55			

VERTEX

Spill Response and Sampling

Client:	Marathon
Date:	1/16/20
Site Name:	Dee Boot Fee
Site Location:	Large Spill
Project Owner:	
Project Manager:	
Project #:	

Initial Spill Information - Record on First Visit

Spill Date:	
Spill Volume:	
Spill Cause:	
Spill Product:	
Recovered Spill Volume:	
Recovery Method:	

Sampling

		Field Screening		EC	Data Collection (Check for Yes)			
Sample ID	Depth (ft)	VOC (PID)	PetroFlag TPH (ppm)	~~Quantab~~ (High/Low) + or -	Lab Analysis	Picture	Trimble Coordinates	Marked on Site Sketch
SS/TP/BH - Year - Number Ex. BH18-01	Ex. '2ft	Ex. 400 ppm	200 ppm	Ex. 'High +	Ex. Hydrocarbon Chloride 1:05			
LL	surf			2.80/23.6	BH20-06 1:05			
	0.5			0.79/23.6	1:10			
	1			0.24/23.4	1:15			
	2			0.05/22.9	1:20			

VERTEX

Spill Response and Sampling

Client:	Marathon
Date:	1/16/20
Site Name:	Dee Boot Fee
Site Location:	Small Spill
Project Owner:	
Project Manager:	
Project #:	

Initial Spill Information - Record on First Visit

Spill Date:	1/15/20
Spill Volume:	
Spill Cause:	Blown Seal
Spill Product:	
Recovered Spill Volume:	
Recovery Method:	

Sampling

		Field Screening		EC	Data Collection (Check for Yes)			
Sample ID	Depth (ft)	VOC (PID)	PetroFlag TPH (ppm)	~~Quantab~~ (High/Low) + or -	Lab Analysis	Picture	Trimble Coordinates	Marked on Site Sketch
SS/TP/BH - Year - Number Ex. BH18-01	Ex. '2ft	Ex. 400 ppm	200 ppm	Ex. 'High +	Ex. Hydrocarbon Chloride			
L1	surf			4.23/22.6	BH20-01 1:30			
	0.5			0.17/23.1	1:35			
	1			0.04/23.1	1:40			
	2			0.06/23.1	1:45			

120 miles

9:00 AM 1/15 Marathon 32.19502156, -103.43610129
Dee Boot Fee 24 34 26 WXY #31H 6H 719
API 30-025-44162 19E-00614
9-15 bbls ?
2 in containment 1 out of containment
Get White line completed
12:30
L1 ~~1:30~~ Delineate
12:45
L2 ~~1:00~~ Characterize
L3 1:00 ~~1:30~~ TPH, & Chlorides, PID
L4 1:15 Grab BG sample
L5 1:30 NO DTGW
L6 1:45 – Prep unit & supplies
31 & 128 Travel 39 miles
Turn Right on CR
Travel 1.8 miles
Turn right on lease road Battle Axe pit
follow to right 1 mile
Dead ends at lease
11:00 AM on location
Mapped Spill areas
POR
Wescom scraping areas to clean up
before bad weather
Took initial samples after surface
Scrape of 2-3 inches in.
On Second Spill behind tanks from pump
Excavation crew already dug out area.
Large spill caused by communication from
Frac job not too far away.

mileage
1673

Leave site
[redacted] pm
4:36

1691
1730

1/15 Dee Boot Fee 24 34 26 LXY 3H 6H 7H 19H

- Wescom completed Emergency 811 call to start spill clean up.
- Scraped 2-3 inches on most of spill area but around wellhead up to 6 inches
- Took samples after scrape completed.
- On smaller spill Wescom used skidsteer to dig out area to complete clean up.
- used tape measure to know where starting point is of collecting samples
- Client specifically asked to send in all samples and hold the 2' for initial sampling.
- L1 - L6 samples are across large spill area for delineation initial sampling.
- Took photos of area before emergency scrape took place on both spills and after. Sent to email for availability to load → File in share drive.
- Labeled small spill seperately per Marathon Rep stated it would be reported as 2 seperate spills
- Wescom foreman told M. Sanjari they would put liner down with berm and cover contaminated soil for possible rain to contain contamints from spreading further across pad

OCD Permitting

30-025-44162 DEE BOOT FEE 24 34 26 WXY #003H [321271]

General Well Information

Operator:	[372098] MARATHON OIL PERMIAN LLC		
Status:	Active	Direction:	Horizontal
Well Type:	Gas	Multi-Lateral:	No
Work Type:	New	Mineral Owner:	Private
		Surface Owner:	Private
Surface Location:	A-26-24S-34E 271 FNL 1205 FEL		
Lat/Long:	32.19502155,-103.43610129 NAD83		
GL Elevation:	3446		
KB Elevation:			
DF Elevation:		Sing/Mult Compl:	Single
		Potash Waiver:	False

Proposed Formation and/or Notes

WOLFCAMP

Depths

Proposed:	17200	True Vertical Depth:	12583
Measured Vertical Depth:	17496	Plugback Measured:	0

Formation Tops

Formation	Top	Producing	Method Obtained

Event Dates

Initial APD Approval:	11/03/2017		
Most Recent APD Approval:	04/16/2018	Current APD Expiration:	11/07/2019
APD Cancellation:			
APD Extension Approval:			
Spud:	03/26/2018	Gas Capture Plan Received:	11/06/2017
Approved Temporary Abandonment:		TA Expiration:	
Shut In:			
Plug and Abandoned Intent Received:		PNR Expiration:	
Well Plugged:		Last MIT/BHT:	
Site Release:			
Last Inspection:			

History

Effective Date	Property	Well Number	Operator	C-101 Work Type	Well Type	Well Status	Apd Cancelled	Plug Date
04/16/2018	[321271] DEE BOOT FEE 24 34 26 WXY	#003H	[372098] MARATHON OIL PERMIAN LLC	New	Gas	Active		
11/07/2017	[319816] KNIFE FIGHT FEE 24 34 26 WXY	#003H	[372098] MARATHON OIL PERMIAN LLC	New	Gas	New		

Comments

Quick
- Genera
- History
- Comme
- Operat
- Pits
- Casing
- Well Cc
- Financi
- Compli
- Inciden
- Orders
- Produc
- Transp
- Points

Assoc
- Well Fil
- Well Lo
- Well Ad

New S
- New Fa
- New In
- New Or
- New Pi
- New Sp
- New Ta
- New W

ATTACHMENT 5

Client Name: Marathon Oil Permian, LLC
Site Name: Dee Boot Fee 24 34 26 #3 #6 #7 #19 CTB
NM OCD Incident Tracking Number: NCE2003738053
Project #: 20E-00140-01
Lab Report: 2001733

Table 2. Release Characterization Sampling - Depth to Groundwater > 100 ft.

Sample Description			Field Screening			Petroleum Hydrocarbons							Inorganic
						Volatile		Extractable					
Sample ID	Depth (ft)	Sample Date	Volatile Organic Compounds (PID)	Extractable Organic Compounds (Petro Flag)	Inorganics (Quantab - High/Low)	Benzene	BTEX (Total)	Gasoline Range Organics (GRO)	Diesel Range Organics (DRO)	Motor Oil Range Organics (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)
BH20-01	0	January 16, 2020	-	-	4,230	<0.024	<0.216	<4.8	<9.3	<47	<14.1	<61.1	6,700
BH20-01	0.5	January 16, 2020	-	-	170	<0.024	<0.212	<4.7	<9.4	<47	<14.1	<61.1	180

"-" indicates not assessed/analyzed
Bold and shaded indicates exceedance outside of applied action level

Client Name: Marathon Oil Permian, LLC
Site Name: Dee Boot Fee 24 34 26 #3 #6 #7 #19 CTB
NM OCD Incident Tracking Number: NCE2003739249
Project #: 20E-00140-01
Lab Report: 2001730

Table 3. Release Characterization Sampling - Depth to Groundwater >100 ft

Sample Description			Field Screening			Petroleum Hydrocarbons							Inorganic
						Volatile		Extractable					
Sample ID	Depth (ft)	Sample Date	Volatile Organic Compounds (PID)	Extractable Organic Compounds (Petro Flag)	Inorganics (Quantab - High/Low)	Benzene	BTEX (Total)	Gasoline Range Organics (GRO)	Diesel Range Organics (DRO)	Motor Oil Range Organics (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)
BH20-01	0	January 16, 2020	-	-	3,230	<0.024	<0.213	<4.7	40	<47	40	40	4,900
BH20-01	0.5	January 16, 2020	-	-	190	<0.025	<0.225	<5.0	<9.3	<47	<14.3	<61.3	110
BH20-01	1	January 16, 2020	-	-	40	<0.024	<0.220	<4.9	<9.7	<49	<14.6	<63.6	<60
BH20-02	0	January 16, 2020	-	-	2,520	<0.025	<0.221	<4.9	<9.5	<47	<14.4	<61.4	4,400
BH20-02	0.5	January 16, 2020	-	-	230	<0.024	<0.216	<4.8	<9.0	<45	<13.8	<58.8	140
BH20-02	1	January 16, 2020	-	-	40	<0.025	<0.224	<5.0	<8.7	<44	<13.7	<57.7	<60
BH20-03	0	January 16, 2020	-	-	3,360	<0.023	<0.207	<4.6	35	<49	35	35	5,200
BH20-03	0.5	January 16, 2020	-	-	420	<0.025	<0.224	<5.0	<9.6	<48	<14.6	<62.6	320
BH20-03	1	January 16, 2020	-	-	240	<0.024	<0.219	<4.9	<9.5	<47	<14.4	<61.4	250
BH20-04	0	January 16, 2020	-	-	3,710	<0.024	<0.213	<4.7	72	210	72	282	5,700
BH20-04	0.5	January 16, 2020	-	-	710	<0.024	<0.217	<4.8	<9.2	<46	<14.0	<60.0	680
BH20-04	1	January 16, 2020	-	-	500	<0.024	<0.216	<4.8	<8.5	<43	<13.3	<56.3	360
BH20-05	0	January 16, 2020	-	-	6,240	<0.024	<0.216	<4.8	<9.4	78	<14.2	78	7,000
BH20-05	0.5	January 16, 2020	-	-	1,480	<0.024	<0.212	<4.7	<9.9	<50	<14.6	<64.6	2,200
BH20-05	1	January 16, 2020	-	-	510	<0.025	<0.224	<5.0	<9.5	<47	<14.5	<61.5	560
BH20-06	0	January 16, 2020	-	-	2,800	<0.120	<1.08	<24.0	660	<49	660	660	4,400
BH20-06	0.5	January 16, 2020	-	-	790	<0.025	<0.224	<5.0	33	<50	33	33	1,100
BH20-06	1	January 16, 2020	-	-	240	<0.025	<0.221	<4.9	<9.7	<48	<14.6	<62.6	200

"-" indicates not assessed/analyzed
Bold and shaded indicates exceedance outside of applied action level

ATTACHMENT 6

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

January 24, 2020

Melodie Sanjari

Marathon Oil Company
4111 Tidwell Road
Carlsbad, NM 88220
TEL: (575) 297-0956
FAX:

RE: Dec Boot Fee 24 34 26 WXY WH OrderNo.: 2001730

Dear Melodie Sanjari:

Hall Environmental Analysis Laboratory received 23 sample(s) on 1/18/2020 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman

Laboratory Manager

4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2001730**
Date Reported: **1/24/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Project: Dec Boot Fee 24 34 26 WXY WH
Lab ID: 2001730-001 **Matrix:** SOIL

Client Sample ID: BH20-01 0'
Collection Date: 1/16/2020 11:00:00 AM
Received Date: 1/18/2020 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	4900	300		mg/Kg	100	1/22/2020 7:32:55 PM	49955
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**	
Diesel Range Organics (DRO)	40	9.3		mg/Kg	1	1/21/2020 10:26:57 AM	49922
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	1/21/2020 10:26:57 AM	49922
Surr: DNOP	103	55.1-146		%Rec	1	1/21/2020 10:26:57 AM	49922
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	1/22/2020 1:31:16 AM	49912
Surr: BFB	83.1	66.6-105		%Rec	1	1/22/2020 1:31:16 AM	49912
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.024		mg/Kg	1	1/22/2020 1:31:16 AM	49912
Toluene	ND	0.047		mg/Kg	1	1/22/2020 1:31:16 AM	49912
Ethylbenzene	ND	0.047		mg/Kg	1	1/22/2020 1:31:16 AM	49912
Xylenes, Total	ND	0.095		mg/Kg	1	1/22/2020 1:31:16 AM	49912
Surr: 4-Bromofluorobenzene	91.8	80-120		%Rec	1	1/22/2020 1:31:16 AM	49912

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2001730**
Date Reported: **1/24/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Project: Dec Boot Fee 24 34 26 WXY WH
Lab ID: 2001730-002 **Matrix:** SOIL

Client Sample ID: BH20-01 0.5'
Collection Date: 1/16/2020 11:05:00 AM
Received Date: 1/18/2020 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CJS**	
Chloride	110	60		mg/Kg	20	1/21/2020 7:43:40 PM	49955
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**	
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	1/21/2020 11:39:52 AM	49922
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	1/21/2020 11:39:52 AM	49922
Surr: DNOP	68.9	55.1-146		%Rec	1	1/21/2020 11:39:52 AM	49922
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	1/22/2020 2:41:16 AM	49912
Surr: BFB	81.7	66.6-105		%Rec	1	1/22/2020 2:41:16 AM	49912
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.025		mg/Kg	1	1/22/2020 2:41:16 AM	49912
Toluene	ND	0.050		mg/Kg	1	1/22/2020 2:41:16 AM	49912
Ethylbenzene	ND	0.050		mg/Kg	1	1/22/2020 2:41:16 AM	49912
Xylenes, Total	ND	0.10		mg/Kg	1	1/22/2020 2:41:16 AM	49912
Surr: 4-Bromofluorobenzene	94.4	80-120		%Rec	1	1/22/2020 2:41:16 AM	49912

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2001730**
Date Reported: **1/24/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Project: Dec Boot Fee 24 34 26 WXY WH
Lab ID: 2001730-003 **Matrix:** SOIL

Client Sample ID: BH20-01 1'
Collection Date: 1/16/2020 11:10:00 AM
Received Date: 1/18/2020 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CJS**	
Chloride	ND	60		mg/Kg	20	1/21/2020 7:56:00 PM	49955
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**	
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	1/21/2020 12:04:13 PM	49922
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	1/21/2020 12:04:13 PM	49922
Surr: DNOP	86.0	55.1-146		%Rec	1	1/21/2020 12:04:13 PM	49922
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	1/22/2020 3:51:09 AM	49912
Surr: BFB	80.7	66.6-105		%Rec	1	1/22/2020 3:51:09 AM	49912
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.024		mg/Kg	1	1/22/2020 3:51:09 AM	49912
Toluene	ND	0.049		mg/Kg	1	1/22/2020 3:51:09 AM	49912
Ethylbenzene	ND	0.049		mg/Kg	1	1/22/2020 3:51:09 AM	49912
Xylenes, Total	ND	0.098		mg/Kg	1	1/22/2020 3:51:09 AM	49912
Surr: 4-Bromofluorobenzene	92.0	80-120		%Rec	1	1/22/2020 3:51:09 AM	49912

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2001730**
Date Reported: **1/24/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Project: Dec Boot Fee 24 34 26 WXY WH
Lab ID: 2001730-004 **Matrix:** SOIL

Client Sample ID: BH20-02 0'
Collection Date: 1/16/2020 11:25:00 AM
Received Date: 1/18/2020 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	4400	150		mg/Kg	50	1/22/2020 8:09:58 PM	49955
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**	
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	1/21/2020 12:28:36 PM	49922
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	1/21/2020 12:28:36 PM	49922
Surr: DNOP	89.6	55.1-146		%Rec	1	1/21/2020 12:28:36 PM	49922
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	1/22/2020 4:14:25 AM	49912
Surr: BFB	77.1	66.6-105		%Rec	1	1/22/2020 4:14:25 AM	49912
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.025		mg/Kg	1	1/22/2020 4:14:25 AM	49912
Toluene	ND	0.049		mg/Kg	1	1/22/2020 4:14:25 AM	49912
Ethylbenzene	ND	0.049		mg/Kg	1	1/22/2020 4:14:25 AM	49912
Xylenes, Total	ND	0.098		mg/Kg	1	1/22/2020 4:14:25 AM	49912
Surr: 4-Bromofluorobenzene	88.0	80-120		%Rec	1	1/22/2020 4:14:25 AM	49912

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2001730**
Date Reported: **1/24/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Client Sample ID: BH20-02 0.5
Project: Dec Boot Fee 24 34 26 WXY WH
Collection Date: 1/16/2020 11:30:00 AM
Lab ID: 2001730-005 **Matrix:** SOIL
Received Date: 1/18/2020 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CJS**	
Chloride	140	60		mg/Kg	20	1/21/2020 9:10:06 PM	49955
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**	
Diesel Range Organics (DRO)	ND	9.0		mg/Kg	1	1/21/2020 12:52:51 PM	49922
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	1/21/2020 12:52:51 PM	49922
Surr: DNOP	80.2	55.1-146		%Rec	1	1/21/2020 12:52:51 PM	49922
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	1/22/2020 8:31:10 PM	49912
Surr: BFB	86.0	66.6-105		%Rec	1	1/22/2020 8:31:10 PM	49912
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.024		mg/Kg	1	1/22/2020 8:31:10 PM	49912
Toluene	ND	0.048		mg/Kg	1	1/22/2020 8:31:10 PM	49912
Ethylbenzene	ND	0.048		mg/Kg	1	1/22/2020 8:31:10 PM	49912
Xylenes, Total	ND	0.096		mg/Kg	1	1/22/2020 8:31:10 PM	49912
Surr: 4-Bromofluorobenzene	96.3	80-120		%Rec	1	1/22/2020 8:31:10 PM	49912

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2001730**
Date Reported: **1/24/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Project: Dec Boot Fee 24 34 26 WXY WH
Lab ID: 2001730-006 **Matrix:** SOIL

Client Sample ID: BH20-02 1
Collection Date: 1/16/2020 11:35:00 AM
Received Date: 1/18/2020 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CJS**	
Chloride	ND	60		mg/Kg	20	1/21/2020 9:22:27 PM	49955
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**	
Diesel Range Organics (DRO)	ND	8.7		mg/Kg	1	1/21/2020 1:17:17 PM	49922
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	1/21/2020 1:17:17 PM	49922
Surr: DNOP	90.9	55.1-146		%Rec	1	1/21/2020 1:17:17 PM	49922
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	1/22/2020 8:54:38 PM	49912
Surr: BFB	84.3	66.6-105		%Rec	1	1/22/2020 8:54:38 PM	49912
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.025		mg/Kg	1	1/22/2020 8:54:38 PM	49912
Toluene	ND	0.050		mg/Kg	1	1/22/2020 8:54:38 PM	49912
Ethylbenzene	ND	0.050		mg/Kg	1	1/22/2020 8:54:38 PM	49912
Xylenes, Total	ND	0.099		mg/Kg	1	1/22/2020 8:54:38 PM	49912
Surr: 4-Bromofluorobenzene	95.3	80-120		%Rec	1	1/22/2020 8:54:38 PM	49912

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2001730**
Date Reported: **1/24/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Project: Dec Boot Fee 24 34 26 WXY WH
Lab ID: 2001730-008 **Matrix:** SOIL

Client Sample ID: BH20-03 0
Collection Date: 1/16/2020 11:50:00 AM
Received Date: 1/18/2020 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	5200	300		mg/Kg	100	1/22/2020 8:22:19 PM	49955
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**	
Diesel Range Organics (DRO)	35	9.7		mg/Kg	1	1/21/2020 1:41:06 PM	49922
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	1/21/2020 1:41:06 PM	49922
Surr: DNOP	94.5	55.1-146		%Rec	1	1/21/2020 1:41:06 PM	49922
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	1/22/2020 9:18:03 PM	49912
Surr: BFB	83.8	66.6-105		%Rec	1	1/22/2020 9:18:03 PM	49912
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.023		mg/Kg	1	1/22/2020 9:18:03 PM	49912
Toluene	ND	0.046		mg/Kg	1	1/22/2020 9:18:03 PM	49912
Ethylbenzene	ND	0.046		mg/Kg	1	1/22/2020 9:18:03 PM	49912
Xylenes, Total	ND	0.092		mg/Kg	1	1/22/2020 9:18:03 PM	49912
Surr: 4-Bromofluorobenzene	93.1	80-120		%Rec	1	1/22/2020 9:18:03 PM	49912

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2001730**
Date Reported: **1/24/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Project: Dec Boot Fee 24 34 26 WXY WH
Lab ID: 2001730-009 **Matrix:** SOIL

Client Sample ID: BH20-03 0.5
Collection Date: 1/16/2020 11:55:00 AM
Received Date: 1/18/2020 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CJS**	
Chloride	320	60		mg/Kg	20	1/21/2020 9:47:08 PM	49955
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**	
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	1/21/2020 2:05:33 PM	49922
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	1/21/2020 2:05:33 PM	49922
Surr: DNOP	81.7	55.1-146		%Rec	1	1/21/2020 2:05:33 PM	49922
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	1/22/2020 9:41:27 PM	49912
Surr: BFB	83.7	66.6-105		%Rec	1	1/22/2020 9:41:27 PM	49912
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.025		mg/Kg	1	1/22/2020 9:41:27 PM	49912
Toluene	ND	0.050		mg/Kg	1	1/22/2020 9:41:27 PM	49912
Ethylbenzene	ND	0.050		mg/Kg	1	1/22/2020 9:41:27 PM	49912
Xylenes, Total	ND	0.099		mg/Kg	1	1/22/2020 9:41:27 PM	49912
Surr: 4-Bromofluorobenzene	95.0	80-120		%Rec	1	1/22/2020 9:41:27 PM	49912

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2001730**
Date Reported: **1/24/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Project: Dec Boot Fee 24 34 26 WXY WH
Lab ID: 2001730-010 **Matrix:** SOIL

Client Sample ID: BH20-03 1
Collection Date: 1/16/2020 12:00:00 PM
Received Date: 1/18/2020 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CJS**	
Chloride	250	60		mg/Kg	20	1/21/2020 9:59:29 PM	49955
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**	
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	1/21/2020 10:56:49 AM	49922
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	1/21/2020 10:56:49 AM	49922
Surr: DNOP	75.4	55.1-146		%Rec	1	1/21/2020 10:56:49 AM	49922
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	1/22/2020 10:04:55 PM	49912
Surr: BFB	83.2	66.6-105		%Rec	1	1/22/2020 10:04:55 PM	49912
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.024		mg/Kg	1	1/22/2020 10:04:55 PM	49912
Toluene	ND	0.049		mg/Kg	1	1/22/2020 10:04:55 PM	49912
Ethylbenzene	ND	0.049		mg/Kg	1	1/22/2020 10:04:55 PM	49912
Xylenes, Total	ND	0.097		mg/Kg	1	1/22/2020 10:04:55 PM	49912
Surr: 4-Bromofluorobenzene	95.0	80-120		%Rec	1	1/22/2020 10:04:55 PM	49912

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2001730**
Date Reported: **1/24/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Project: Dec Boot Fee 24 34 26 WXY WH
Lab ID: 2001730-012 **Matrix:** SOIL

Client Sample ID: BH20-04 0
Collection Date: 1/16/2020 12:15:00 PM
Received Date: 1/18/2020 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	5700	300		mg/Kg	100	1/22/2020 8:34:39 PM	49955
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**	
Diesel Range Organics (DRO)	72	9.1		mg/Kg	1	1/21/2020 11:20:45 AM	49922
Motor Oil Range Organics (MRO)	210	46		mg/Kg	1	1/21/2020 11:20:45 AM	49922
Surr: DNOP	100	55.1-146		%Rec	1	1/21/2020 11:20:45 AM	49922
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	1/22/2020 10:28:17 PM	49912
Surr: BFB	81.4	66.6-105		%Rec	1	1/22/2020 10:28:17 PM	49912
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.024		mg/Kg	1	1/22/2020 10:28:17 PM	49912
Toluene	ND	0.047		mg/Kg	1	1/22/2020 10:28:17 PM	49912
Ethylbenzene	ND	0.047		mg/Kg	1	1/22/2020 10:28:17 PM	49912
Xylenes, Total	ND	0.095		mg/Kg	1	1/22/2020 10:28:17 PM	49912
Surr: 4-Bromofluorobenzene	89.6	80-120		%Rec	1	1/22/2020 10:28:17 PM	49912

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2001730**
Date Reported: **1/24/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Client Sample ID: BH20-04 0.5
Project: Dec Boot Fee 24 34 26 WXY WH
Collection Date: 1/16/2020 12:20:00 PM
Lab ID: 2001730-013 **Matrix:** SOIL **Received Date:** 1/18/2020 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CJS**	
Chloride	680	60		mg/Kg	20	1/21/2020 10:24:09 PM	49955
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**	
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	1/21/2020 3:42:30 PM	49922
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	1/21/2020 3:42:30 PM	49922
Surr: DNOP	106	55.1-146		%Rec	1	1/21/2020 3:42:30 PM	49922
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	1/22/2020 10:51:37 PM	49912
Surr: BFB	84.4	66.6-105		%Rec	1	1/22/2020 10:51:37 PM	49912
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.024		mg/Kg	1	1/22/2020 10:51:37 PM	49912
Toluene	ND	0.048		mg/Kg	1	1/22/2020 10:51:37 PM	49912
Ethylbenzene	ND	0.048		mg/Kg	1	1/22/2020 10:51:37 PM	49912
Xylenes, Total	ND	0.097		mg/Kg	1	1/22/2020 10:51:37 PM	49912
Surr: 4-Bromofluorobenzene	95.6	80-120		%Rec	1	1/22/2020 10:51:37 PM	49912

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2001730**
Date Reported: **1/24/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Project: Dec Boot Fee 24 34 26 WXY WH
Lab ID: 2001730-014 **Matrix:** SOIL

Client Sample ID: BH20-04 1
Collection Date: 1/16/2020 12:25:00 PM
Received Date: 1/18/2020 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CJS**	
Chloride	360	60		mg/Kg	20	1/21/2020 10:36:29 PM	49955
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**	
Diesel Range Organics (DRO)	ND	8.5		mg/Kg	1	1/21/2020 12:08:25 PM	49922
Motor Oil Range Organics (MRO)	ND	43		mg/Kg	1	1/21/2020 12:08:25 PM	49922
Surr: DNOP	98.6	55.1-146		%Rec	1	1/21/2020 12:08:25 PM	49922
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	1/22/2020 11:14:57 PM	49912
Surr: BFB	84.5	66.6-105		%Rec	1	1/22/2020 11:14:57 PM	49912
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.024		mg/Kg	1	1/22/2020 11:14:57 PM	49912
Toluene	ND	0.048		mg/Kg	1	1/22/2020 11:14:57 PM	49912
Ethylbenzene	ND	0.048		mg/Kg	1	1/22/2020 11:14:57 PM	49912
Xylenes, Total	ND	0.096		mg/Kg	1	1/22/2020 11:14:57 PM	49912
Surr: 4-Bromofluorobenzene	93.5	80-120		%Rec	1	1/22/2020 11:14:57 PM	49912

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2001730**
Date Reported: **1/24/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Project: Dec Boot Fee 24 34 26 WXY WH
Lab ID: 2001730-016 **Matrix:** SOIL

Client Sample ID: BH20-05 0
Collection Date: 1/16/2020 12:40:00 PM
Received Date: 1/18/2020 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	7000	300		mg/Kg	100	1/22/2020 8:47:00 PM	49955
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**	
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	1/21/2020 12:32:17 PM	49922
Motor Oil Range Organics (MRO)	78	47		mg/Kg	1	1/21/2020 12:32:17 PM	49922
Surr: DNOP	95.4	55.1-146		%Rec	1	1/21/2020 12:32:17 PM	49922
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	1/23/2020 12:25:01 AM	49912
Surr: BFB	81.6	66.6-105		%Rec	1	1/23/2020 12:25:01 AM	49912
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.024		mg/Kg	1	1/23/2020 12:25:01 AM	49912
Toluene	ND	0.048		mg/Kg	1	1/23/2020 12:25:01 AM	49912
Ethylbenzene	ND	0.048		mg/Kg	1	1/23/2020 12:25:01 AM	49912
Xylenes, Total	ND	0.096		mg/Kg	1	1/23/2020 12:25:01 AM	49912
Surr: 4-Bromofluorobenzene	92.7	80-120		%Rec	1	1/23/2020 12:25:01 AM	49912

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2001730**
Date Reported: **1/24/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Project: Dec Boot Fee 24 34 26 WXY WH
Lab ID: 2001730-017 **Matrix:** SOIL

Client Sample ID: BH20-05 0.5
Collection Date: 1/16/2020 12:45:00 PM
Received Date: 1/18/2020 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CJS**	
Chloride	2200	60		mg/Kg	20	1/21/2020 11:25:52 PM	49955
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**	
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	1/21/2020 12:56:07 PM	49922
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	1/21/2020 12:56:07 PM	49922
Surr: DNOP	80.3	55.1-146		%Rec	1	1/21/2020 12:56:07 PM	49922
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	1/23/2020 12:48:16 AM	49912
Surr: BFB	82.6	66.6-105		%Rec	1	1/23/2020 12:48:16 AM	49912
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.024		mg/Kg	1	1/23/2020 12:48:16 AM	49912
Toluene	ND	0.047		mg/Kg	1	1/23/2020 12:48:16 AM	49912
Ethylbenzene	ND	0.047		mg/Kg	1	1/23/2020 12:48:16 AM	49912
Xylenes, Total	ND	0.094		mg/Kg	1	1/23/2020 12:48:16 AM	49912
Surr: 4-Bromofluorobenzene	94.1	80-120		%Rec	1	1/23/2020 12:48:16 AM	49912

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2001730**
Date Reported: **1/24/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Project: Dec Boot Fee 24 34 26 WXY WH
Lab ID: 2001730-018 **Matrix:** SOIL

Client Sample ID: BH20-05 1
Collection Date: 1/16/2020 12:50:00 PM
Received Date: 1/18/2020 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CJS**	
Chloride	560	60		mg/Kg	20	1/21/2020 11:38:12 PM	49955
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**	
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	1/21/2020 1:19:56 PM	49922
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	1/21/2020 1:19:56 PM	49922
Surr: DNOP	74.0	55.1-146		%Rec	1	1/21/2020 1:19:56 PM	49922
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	1/23/2020 1:11:35 AM	49912
Surr: BFB	82.6	66.6-105		%Rec	1	1/23/2020 1:11:35 AM	49912
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.025		mg/Kg	1	1/23/2020 1:11:35 AM	49912
Toluene	ND	0.050		mg/Kg	1	1/23/2020 1:11:35 AM	49912
Ethylbenzene	ND	0.050		mg/Kg	1	1/23/2020 1:11:35 AM	49912
Xylenes, Total	ND	0.099		mg/Kg	1	1/23/2020 1:11:35 AM	49912
Surr: 4-Bromofluorobenzene	94.2	80-120		%Rec	1	1/23/2020 1:11:35 AM	49912

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2001730**
Date Reported: **1/24/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Client Sample ID: BH20-06 0
Project: Dec Boot Fee 24 34 26 WXY WH
Collection Date: 1/16/2020 1:05:00 PM
Lab ID: 2001730-020 **Matrix:** SOIL **Received Date:** 1/18/2020 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst:	**CAS**
Chloride	4400	150		mg/Kg	50	1/23/2020 3:54:14 PM	49969
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst:	**CLP**
Diesel Range Organics (DRO)	660	9.8		mg/Kg	1	1/21/2020 1:43:14 PM	49922
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	1/21/2020 1:43:14 PM	49922
Surr: DNOP	94.8	55.1-146		%Rec	1	1/21/2020 1:43:14 PM	49922
EPA METHOD 8015D: GASOLINE RANGE						Analyst:	**NSB**
Gasoline Range Organics (GRO)	ND	24	D	mg/Kg	5	1/23/2020 1:34:50 AM	49912
Surr: BFB	83.0	66.6-105	D	%Rec	5	1/23/2020 1:34:50 AM	49912
EPA METHOD 8021B: VOLATILES						Analyst:	**NSB**
Benzene	ND	0.12	D	mg/Kg	5	1/23/2020 1:34:50 AM	49912
Toluene	ND	0.24	D	mg/Kg	5	1/23/2020 1:34:50 AM	49912
Ethylbenzene	ND	0.24	D	mg/Kg	5	1/23/2020 1:34:50 AM	49912
Xylenes, Total	ND	0.48	D	mg/Kg	5	1/23/2020 1:34:50 AM	49912
Surr: 4-Bromofluorobenzene	94.3	80-120	D	%Rec	5	1/23/2020 1:34:50 AM	49912

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2001730**
Date Reported: **1/24/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Project: Dec Boot Fee 24 34 26 WXY WH
Lab ID: 2001730-021 **Matrix:** SOIL

Client Sample ID: BH20-06 0.5
Collection Date: 1/16/2020 1:10:00 PM
Received Date: 1/18/2020 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	1100	60		mg/Kg	20	1/22/2020 11:31:24 AM	49969
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**	
Diesel Range Organics (DRO)	33	10		mg/Kg	1	1/21/2020 2:07:00 PM	49922
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	1/21/2020 2:07:00 PM	49922
Surr: DNOP	73.4	55.1-146		%Rec	1	1/21/2020 2:07:00 PM	49922
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	1/23/2020 5:49:24 PM	49912
Surr: BFB	84.7	66.6-105		%Rec	1	1/23/2020 5:49:24 PM	49912
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.025		mg/Kg	1	1/23/2020 5:49:24 PM	49912
Toluene	ND	0.050		mg/Kg	1	1/23/2020 5:49:24 PM	49912
Ethylbenzene	ND	0.050		mg/Kg	1	1/23/2020 5:49:24 PM	49912
Xylenes, Total	ND	0.099		mg/Kg	1	1/23/2020 5:49:24 PM	49912
Surr: 4-Bromofluorobenzene	95.6	80-120		%Rec	1	1/23/2020 5:49:24 PM	49912

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2001730**
Date Reported: **1/24/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Client Sample ID: BH20-06 1
Project: Dec Boot Fee 24 34 26 WXY WH
Collection Date: 1/16/2020 1:15:00 PM
Lab ID: 2001730-022 **Matrix:** SOIL
Received Date: 1/18/2020 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	200	60		mg/Kg	20	1/22/2020 11:43:44 AM	49969
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**	
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	1/21/2020 2:30:55 PM	49922
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	1/21/2020 2:30:55 PM	49922
Surr: DNOP	92.7	55.1-146		%Rec	1	1/21/2020 2:30:55 PM	49922
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	1/23/2020 7:23:08 PM	49912
Surr: BFB	85.2	66.6-105		%Rec	1	1/23/2020 7:23:08 PM	49912
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.025		mg/Kg	1	1/23/2020 7:23:08 PM	49912
Toluene	ND	0.049		mg/Kg	1	1/23/2020 7:23:08 PM	49912
Ethylbenzene	ND	0.049		mg/Kg	1	1/23/2020 7:23:08 PM	49912
Xylenes, Total	ND	0.098		mg/Kg	1	1/23/2020 7:23:08 PM	49912
Surr: 4-Bromofluorobenzene	96.0	80-120		%Rec	1	1/23/2020 7:23:08 PM	49912

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2001730**

24-Jan-20

Client: Marathon Oil Company

Project: Dec Boot Fee 24 34 26 WXY WH

Sample ID: **MB-49955** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**

Client ID: **PBS** Batch ID: **49955** RunNo: **65961**

Prep Date: **1/21/2020** Analysis Date: **1/21/2020** SeqNo: **2265356** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-49955** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**

Client ID: **LCSS** Batch ID: **49955** RunNo: **65961**

Prep Date: **1/21/2020** Analysis Date: **1/21/2020** SeqNo: **2265357** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	15	1.5	15.00	0	99.0	90	110			

Sample ID: **MB-49969** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**

Client ID: **PBS** Batch ID: **49969** RunNo: **65978**

Prep Date: **1/22/2020** Analysis Date: **1/22/2020** SeqNo: **2266714** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-49969** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**

Client ID: **LCSS** Batch ID: **49969** RunNo: **65978**

Prep Date: **1/22/2020** Analysis Date: **1/22/2020** SeqNo: **2266715** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	92.3	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2001730**

24-Jan-20

Client: Marathon Oil Company

Project: Dec Boot Fee 24 34 26 WXY WH

Sample ID: **MB-49922**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **49922**	RunNo: **65939**
Prep Date: **1/20/2020**	Analysis Date: **1/21/2020**	SeqNo: **2264613** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	9.0		10.00		90.1	55.1	146			

Sample ID: **LCS-49922**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **49922**	RunNo: **65939**
Prep Date: **1/20/2020**	Analysis Date: **1/21/2020**	SeqNo: **2264614** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	52	10	50.00	0	104	63.9	124			
Surr: DNOP	4.1		5.000		81.8	55.1	146			

Sample ID: **2001730-001AMS**	SampType: **MS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH20-01 0'**	Batch ID: **49922**	RunNo: **65939**
Prep Date: **1/20/2020**	Analysis Date: **1/21/2020**	SeqNo: **2264619** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	79	8.8	44.25	40.06	88.4	47.4	136			
Surr: DNOP	4.3		4.425		97.6	55.1	146			

Sample ID: **2001730-001AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH20-01 0'**	Batch ID: **49922**	RunNo: **65939**
Prep Date: **1/20/2020**	Analysis Date: **1/21/2020**	SeqNo: **2264620** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	94	9.4	46.99	40.06	115	47.4	136	17.2	43.4	
Surr: DNOP	4.7		4.699		100	55.1	146	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2001730**

24-Jan-20

Client: Marathon Oil Company

Project: Dec Boot Fee 24 34 26 WXY WH

Sample ID: **mb-49912**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**							
Client ID: **PBS**	Batch ID: **49912**	RunNo: **65947**							
Prep Date: **1/20/2020**	Analysis Date: **1/22/2020**	SeqNo: **2265011**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	830		1000		83.1	66.6	105			

Sample ID: **lcs-49912**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**							
Client ID: **LCSS**	Batch ID: **49912**	RunNo: **65947**							
Prep Date: **1/20/2020**	Analysis Date: **1/22/2020**	SeqNo: **2265012**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	91.2	80	120			
Surr: BFB	910		1000		90.9	66.6	105			

Sample ID: **2001730-001ams**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**							
Client ID: **BH20-01 0'**	Batch ID: **49912**	RunNo: **65947**							
Prep Date: **1/20/2020**	Analysis Date: **1/22/2020**	SeqNo: **2265014**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	4.9	24.44	0	103	69.1	142			
Surr: BFB	900		977.5		92.1	66.6	105			

Sample ID: **2001730-001amsd**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**							
Client ID: **BH20-01 0'**	Batch ID: **49912**	RunNo: **65947**							
Prep Date: **1/20/2020**	Analysis Date: **1/22/2020**	SeqNo: **2265015**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	4.8	24.13	0	106	69.1	142	1.46	20	
Surr: BFB	890		965.3		92.5	66.6	105	0	0	

Sample ID: **mb-49978**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**							
Client ID: **PBS**	Batch ID: **49978**	RunNo: **66017**							
Prep Date: **1/22/2020**	Analysis Date: **1/23/2020**	SeqNo: **2267664**	Units: **%Rec**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	890		1000		88.5	66.6	105			

Sample ID: **lcs-49978**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**							
Client ID: **LCSS**	Batch ID: **49978**	RunNo: **66017**							
Prep Date: **1/22/2020**	Analysis Date: **1/23/2020**	SeqNo: **2267665**	Units: **%Rec**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	990		1000		99.4	66.6	105			

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2001730**

24-Jan-20

Client: Marathon Oil Company

Project: Dec Boot Fee 24 34 26 WXY WH

Sample ID: **mb-49912**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **49912**	RunNo: **65947**
Prep Date: **1/20/2020**	Analysis Date: **1/22/2020**	SeqNo: **2265042** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.95		1.000		95.2	80	120			

Sample ID: **LCS-49912**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **49912**	RunNo: **65947**
Prep Date: **1/20/2020**	Analysis Date: **1/22/2020**	SeqNo: **2265043** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.93	0.025	1.000	0	93.2	80	120			
Toluene	0.97	0.050	1.000	0	96.9	80	120			
Ethylbenzene	0.95	0.050	1.000	0	95.1	80	120			
Xylenes, Total	2.9	0.10	3.000	0	96.8	80	120			
Surr: 4-Bromofluorobenzene	0.94		1.000		94.3	80	120			

Sample ID: **2001730-002ams**	SampType: **MS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH20-01 0.5'**	Batch ID: **49912**	RunNo: **65947**
Prep Date: **1/20/2020**	Analysis Date: **1/22/2020**	SeqNo: **2265046** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.90	0.024	0.9690	0	93.1	78.5	119			
Toluene	0.95	0.048	0.9690	0.01365	96.2	75.7	123			
Ethylbenzene	0.95	0.048	0.9690	0	97.7	74.3	126			
Xylenes, Total	2.9	0.097	2.907	0.01932	97.9	72.9	130			
Surr: 4-Bromofluorobenzene	0.91		0.9690		93.9	80	120			

Sample ID: **2001730-002amsd**	SampType: **MSD**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH20-01 0.5'**	Batch ID: **49912**	RunNo: **65947**
Prep Date: **1/20/2020**	Analysis Date: **1/22/2020**	SeqNo: **2265047** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.98	0.025	0.9960	0	98.5	78.5	119	8.40	20	
Toluene	1.0	0.050	0.9960	0.01365	100	75.7	123	6.80	20	
Ethylbenzene	1.0	0.050	0.9960	0	102	74.3	126	6.64	20	
Xylenes, Total	3.1	0.10	2.988	0.01932	103	72.9	130	7.36	20	
Surr: 4-Bromofluorobenzene	0.95		0.9960		95.6	80	120	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2001730**
24-Jan-20

Client: Marathon Oil Company
Project: Dec Boot Fee 24 34 26 WXY WH

Sample ID: **mb-49978**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**							
Client ID: **PBS**	Batch ID: **49978**	RunNo: **66017**							
Prep Date: **1/22/2020**	Analysis Date: **1/23/2020**	SeqNo: **2267696**	Units: **%Rec**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.0		1.000		99.9	80	120			

Sample ID: **LCS-49978**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**							
Client ID: **LCSS**	Batch ID: **49978**	RunNo: **66017**							
Prep Date: **1/22/2020**	Analysis Date: **1/23/2020**	SeqNo: **2267697**	Units: **%Rec**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.0		1.000		103	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: **MARATHON OIL COMPA** Work Order Number: **2001730** RcptNo: **1**

Received By: **Erin Melendrez** **1/18/2020 10:00:00 AM**

Completed By: **Isaiah Ortiz** **1/20/2020 8:20:42 AM**

Reviewed By: 1/20/20

Chain of Custody

1. Is Chain of Custody sufficiently complete? Yes ☑ No ☐ Not Present ☐
2. How was the sample delivered? Courier

Log In

3. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
5. Sample(s) in proper container(s)? Yes ☑ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
8. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA? Yes ☐ No ☐ NA ☑
10. Were any sample containers received broken? Yes ☐ No ☑

    # of preserved bottles checked for pH: ____ (<2 or >12 unless noted)
    Adjusted? ____
    Checked by: YG 1/20/20
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
13. Is it clear what analyses were requested? Yes ☑ No ☐
14. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

    Person Notified: ____ Date: ____
    By Whom: ____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
    Regarding: ____
    Client Instructions: ____

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.9	Good	Not Present			

Chain-of-Custody Record

Client: ~~Vortex~~ Marathon

Mailing Address:

Phone #:

email or Fax#:

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time: 5 Day
☑ Standard ☐ Rush

Project Name: Dee Boot for 24 3426 WXY WH

Project #: 20E-00140 001

Project Manager: Natalie Gordon

Sampler: MJP

On Ice: ☑ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): 2.8+0.1(CF)=2.9(°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2001730	(BTEX) MTBE / TMB's (8021)	TPH 8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	(Cl), F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
1/16	11:00	Soil	BH20-01 0'	402	ice	-001	✓	✓					✓			
	11:05		BH20-01 0.5'			-002	✓	✓					✓			
	11:10		BH20-01 1'			-003	✓	✓					✓			
	11:25		BH20-02 0'			-004	✓	✓					✓			
	11:30		BH20-02 0.5			-005	✓	✓					✓			
	11:35		BH20-02 1			-006	✓	✓					✓			
	11:40		BH20-02 2			-007	PLEASE HOLD									
	11:50		BH20-03 0			-008	✓	✓					✓			
	11:55		BH20-03 0.5			-009	✓	✓					✓			
	12:00		BH20-03 1			-010	✓	✓					✓			
	12:05		BH20-03 2			-011	PLEASE HOLD									
							✓	✓					✓			

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
1/17/20	1400				1-17-2020	1400
1-17-20	1900			Courier	1/18/20	1000

Remarks:
CC: Natalie Gordon

Direct Bill Marathon

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Chain-of-Custody Record

Client: Marathon

Mailing Address:

Phone #:

email or Fax#:

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time: 5 Day
☑ Standard ☐ Rush

Project Name: Dee Boot Fee 24 34 26 WXY WH

Project #: 20E-00140 001

Project Manager: Natalie Gordon

Sampler: MJP

On Ice: ☒ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): 2.8+0.1(CF)=2.9(°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2001730	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
1/16	12:15	Soil	BH20-04 0	4oz	ice	-012	✓	✓					✓			
	12:20		BH20-04 0.5			-013	✓	✓					✓			
	12:25		BH20-04 1			-014	✓	✓					✓			
	12:30		BH20-04 2			-015	PLEASE HOLD									
	12:40		BH20-05 0			-016	✓	✓					✓			
	12:45		BH20-05 0.5			-017	✓	✓					✓			
	12:50		BH20-05 1			-018	✓	✓					✓			
	12:55		BH20-05 2			-019	PLEASE HOLD									
	1:05		BH20-06 0			-020	✓	✓					✓			
	1:10		BH20-06 0.5			-021	✓	✓					✓			
	1:15		BH20-06 1			-022	✓	✓					✓			
	1:20		BH20-06 2			-023	PLEASE HOLD									

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
1/17/20	1400				1-17-2020	1400
1-17-20	1900			Courier	1/18/20	1000

Remarks:
CC: Natalie Gordon

Direct Bill Marathon

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

January 24, 2020

Melodie Sanjari

Marathon Oil Company
4111 Tidwell Road
Carlsbad, NM 88220
TEL: (575) 297-0956
FAX:

RE: Dec Boot Fee 24 34 26 TB OrderNo.: 2001733

Dear Melodie Sanjari:

Hall Environmental Analysis Laboratory received 4 sample(s) on 1/18/2020 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman

Laboratory Manager

4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2001733**
Date Reported: **1/24/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Project: Dec Boot Fee 24 34 26 TB
Lab ID: 2001733-001 **Matrix:** SOIL

Client Sample ID: BH20-01 0'
Collection Date: 1/16/2020 1:30:00 PM
Received Date: 1/18/2020 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **CAS**	
Chloride	6700	300		mg/Kg	100	1/23/2020 4:06:38 PM	49969
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**	
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	1/21/2020 2:54:46 PM	49922
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	1/21/2020 2:54:46 PM	49922
Surr: DNOP	94.2	55.1-146		%Rec	1	1/21/2020 2:54:46 PM	49922
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	1/23/2020 7:46:35 PM	49912
Surr: BFB	88.1	66.6-105		%Rec	1	1/23/2020 7:46:35 PM	49912
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.024		mg/Kg	1	1/23/2020 7:46:35 PM	49912
Toluene	ND	0.048		mg/Kg	1	1/23/2020 7:46:35 PM	49912
Ethylbenzene	ND	0.048		mg/Kg	1	1/23/2020 7:46:35 PM	49912
Xylenes, Total	ND	0.096		mg/Kg	1	1/23/2020 7:46:35 PM	49912
Surr: 4-Bromofluorobenzene	99.0	80-120		%Rec	1	1/23/2020 7:46:35 PM	49912

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2001733**
Date Reported: **1/24/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil Company
Client Sample ID: BH20-01 0.5
Project: Dec Boot Fee 24 34 26 TB
Collection Date: 1/16/2020 1:35:00 PM
Lab ID: 2001733-002 **Matrix:** SOIL **Received Date:** 1/18/2020 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	180	60		mg/Kg	20	1/22/2020 12:57:50 PM	49969
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**	
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	1/21/2020 3:18:35 PM	49922
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	1/21/2020 3:18:35 PM	49922
Surr: DNOP	95.1	55.1-146		%Rec	1	1/21/2020 3:18:35 PM	49922
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	1/23/2020 8:10:01 PM	49912
Surr: BFB	84.3	66.6-105		%Rec	1	1/23/2020 8:10:01 PM	49912
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.024		mg/Kg	1	1/23/2020 8:10:01 PM	49912
Toluene	ND	0.047		mg/Kg	1	1/23/2020 8:10:01 PM	49912
Ethylbenzene	ND	0.047		mg/Kg	1	1/23/2020 8:10:01 PM	49912
Xylenes, Total	ND	0.094		mg/Kg	1	1/23/2020 8:10:01 PM	49912
Surr: 4-Bromofluorobenzene	95.2	80-120		%Rec	1	1/23/2020 8:10:01 PM	49912

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2001733**
24-Jan-20

Client: Marathon Oil Company
Project: Dec Boot Fee 24 34 26 TB

Sample ID: **MB-49969** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS** Batch ID: **49969** RunNo: **65978**
Prep Date: **1/22/2020** Analysis Date: **1/22/2020** SeqNo: **2266714** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-49969** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS** Batch ID: **49969** RunNo: **65978**
Prep Date: **1/22/2020** Analysis Date: **1/22/2020** SeqNo: **2266715** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	92.3	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2001733**
24-Jan-20

Client: Marathon Oil Company
Project: Dec Boot Fee 24 34 26 TB

Sample ID: **MB-49922** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **49922** RunNo: **65939**
Prep Date: **1/20/2020** Analysis Date: **1/21/2020** SeqNo: **2264613** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	9.0		10.00		90.1	55.1	146			

Sample ID: **LCS-49922** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **49922** RunNo: **65939**
Prep Date: **1/20/2020** Analysis Date: **1/21/2020** SeqNo: **2264614** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	52	10	50.00	0	104	63.9	124			
Surr: DNOP	4.1		5.000		81.8	55.1	146			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2001733**

24-Jan-20

Client: Marathon Oil Company

Project: Dec Boot Fee 24 34 26 TB

Sample ID: **mb-49912**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **49912**	RunNo: **65947**
Prep Date: **1/20/2020**	Analysis Date: **1/22/2020**	SeqNo: **2265011** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	830		1000		83.1	66.6	105			

Sample ID: **lcs-49912**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **49912**	RunNo: **65947**
Prep Date: **1/20/2020**	Analysis Date: **1/22/2020**	SeqNo: **2265012** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	91.2	80	120			
Surr: BFB	910		1000		90.9	66.6	105			

Sample ID: **mb-49978**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **49978**	RunNo: **66017**
Prep Date: **1/22/2020**	Analysis Date: **1/23/2020**	SeqNo: **2267664** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	890		1000		88.5	66.6	105			

Sample ID: **lcs-49978**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **49978**	RunNo: **66017**
Prep Date: **1/22/2020**	Analysis Date: **1/23/2020**	SeqNo: **2267665** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	990		1000		99.4	66.6	105			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2001733**

24-Jan-20

Client: Marathon Oil Company

Project: Dec Boot Fee 24 34 26 TB

Sample ID: **mb-49912** SampType: **MBLK** TestCode: **EPA Method 8021B: Volatiles**

Client ID: **PBS** Batch ID: **49912** RunNo: **65947**

Prep Date: **1/20/2020** Analysis Date: **1/22/2020** SeqNo: **2265042** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.95		1.000		95.2	80	120			

Sample ID: **LCS-49912** SampType: **LCS** TestCode: **EPA Method 8021B: Volatiles**

Client ID: **LCSS** Batch ID: **49912** RunNo: **65947**

Prep Date: **1/20/2020** Analysis Date: **1/22/2020** SeqNo: **2265043** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.93	0.025	1.000	0	93.2	80	120			
Toluene	0.97	0.050	1.000	0	96.9	80	120			
Ethylbenzene	0.95	0.050	1.000	0	95.1	80	120			
Xylenes, Total	2.9	0.10	3.000	0	96.8	80	120			
Surr: 4-Bromofluorobenzene	0.94		1.000		94.3	80	120			

Sample ID: **mb-49978** SampType: **MBLK** TestCode: **EPA Method 8021B: Volatiles**

Client ID: **PBS** Batch ID: **49978** RunNo: **66017**

Prep Date: **1/22/2020** Analysis Date: **1/23/2020** SeqNo: **2267696** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.0		1.000		99.9	80	120			

Sample ID: **LCS-49978** SampType: **LCS** TestCode: **EPA Method 8021B: Volatiles**

Client ID: **LCSS** Batch ID: **49978** RunNo: **66017**

Prep Date: **1/22/2020** Analysis Date: **1/23/2020** SeqNo: **2267697** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.0		1.000		103	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: **MARATHON OIL COMPA** Work Order Number: **2001733** RcptNo: 1

Received By: **Erin Melendrez** **1/18/2020 10:00:00 AM**

Completed By: **Isaiah Ortiz** **1/20/2020 9:01:30 AM**

Reviewed By: YG 1/20/20

Chain of Custody

1. Is Chain of Custody sufficiently complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	Courier		

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA?	Yes ☐	No ☐	NA ☑
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: JR 1/20/20

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date: _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.9	Good	Not Present			

Chain-of-Custody Record

Client: ~~Vertex~~ Marathon

Mailing Address:

Phone #:

email or Fax#:

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time: 5 Day
☑ Standard ☐ Rush

Project Name: Dee Boot Fee 24 34 26 TB

Project #: 20E-00140 001

Project Manager: Natalie Gordon

Sampler: MJP

On Ice: ☒ Yes ☐ No

# of Coolers: 1

Cooler Temp (including CF): 2.8+0.1(CF)=2.9(°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2001733	BTEX	MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	(Cl) F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
1/16	1:30	soil	BH20-01 0'	4 oz	ice	-001 ~~-024~~		✓	✓					✓			
1/16	1:35	↓	BH20-01 0.5	↓	↓	-002 ~~-025~~		✓	✓					✓			
1/16	1:40	↓	BH20-01 1	↓	↓	-003 ~~-026~~		P	L	E	A	S	E	H	O	L	D
1/16	1:45	↓	BH20-01 2	↓	↓	004 ~~-027~~		P	L	E	A	S	E	H	O	L	D
~~#~~																	

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
1/17/20	1400				1-17-2020	1400
1-17-20	1900			Courier	1/18/20	1000

Remarks: CC Natalie Gordon
Direct Bill
Marathon

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.