Form C-141
Page 6

State of New Mexico
Oil Conservation Division

Incident ID	nCH1827843022
District RP	
Facility ID	
Application ID	

Closure

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

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

[x] A scaled site and sampling diagram as described in 19.15.29.11 NMAC

[X] 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

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

[x] 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: Dale Woodall Title: EHS Professional

Signature: Dale Woodall Date: 5/5/2023

email: dale.woodall@dvn.com Telephone: 405-318-4697

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: Brittany Hall Date: 6/30/2023

Printed Name: Brittany Hall Title: Environmental Specialist

May 28, 2021 Vertex Project #: 20E-00141-022

Spill Closure Report: Black Mamba 15 State Com 2H
Unit D, Section 15, Township 23 South, Range 33 East
County: Lea
API: 30-025-40173
Tracking Number: NRM2003436831

Prepared For: Devon Energy Production Company
6488 Seven Rivers Highway
Artesia, New Mexico 88210

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

Devon Energy Production Company (Devon) retained Vertex Resource Services Inc. (Vertex) to conduct a spill assessment and remediation for an oil and produced water release that occurred at Black Mamba 15 State Com 2H, API 30-025-40173 (hereafter referred to as "Black Mamba"). Devon provided notification of the spill to New Mexico Oil Conservation Division (NM OCD) District 1, and the Bureau of Land Management (BLM), who own the land, via submission of an initial C-141 Release Notification (Attachment 1) on February 3, 2020. The NMOCD tracking number assigned to this incident is NRM2003436831.

This letter provides a description of the spill assessment and remediation activities. It 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 NM OCD for closure of this release.

Incident Description

On September 1, 2019, a release occurred at Devon's Black Mamba site when a polished rod liner separated at the packing joint. This incident resulted in the release of approximately 12 barrels (bbls) of produced water and 3 bbls of oil onto the pad next to the pumping unit. No containment devices, berms or dikes were used; however, the spill extent was limited to the wellpad on-site.

Site Characterization

The release at Black Mamba occurred on federally owned land, N 32.3115883, W 103.5666428, approximately 25 miles west of Eunice, New Mexico. The legal description for the site is Unit D, Section 15, Township 23 South, Range 33 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 rangeland. An aerial photograph and site schematic are included in Attachment 2 (Figure 1).

Black Mamba 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 environment and ecology in the immediate vicinity of the constructed wellpad where the release occurred.

The surrounding landscape has historically been associated with upland plains and the tops of low ridges and mesas at elevations of 3,000 to 6,500 feet above sea level. The climate is semiarid, with average annual precipitation ranging between 10 and 16 inches. The plant community has historically been grassland dominated by black grama, with dropseeds and bluestem grasses and scattered shinnery oak and sand sage. Heavy grazing has led to an increase in shrubs, especially mesquite and creosote bush. Litter and, to a lesser extent, bare ground make up a significant portion of ground cover (United States Department of Agriculture, Natural Resources Conservation Service, 2020). Limited to no vegetation is allowed to grow on the compacted wellpad.

The Geological Map of New Mexico indicates the surface geology at Black Mamba is in the middle of piedmont deposits (Holocene to lower Pleistecene) characterized by interlayed eolian sand and piedmont deposits, and To – Ogallala Formation (lower Pliocene to middle Miocene) comprised of alluvial and eolian deposits, and petrocalcic soils of the southern High Plains (New Mexico Bureau of Geology and Mineral Resources, 2020). The Natural Resources Conservation Service Web Soil Survey characterizes the soil at the site as on the cusp of Pyote and Maljamar fine sands and Simona-Upton complex, predominantly found on plains, and comprised of fine sand over deep layers of sandy clay loam and loamy sand. It tends to be well-drained with low runoff and moderate available moisture levels in the soil profile (United States Department of Agriculture, Natural Resources Conservation Service, 2020). There is low potential for karst geology to be present near Black Mamba (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 stream located approximately 2,100 feet northwest of the site. There are no continuously flowing watercourses or significant watercourses, lakebeds, sinkholes, playa lakes, or other critical water or community features near Black Mamba as outlined in Paragraph (4) of Subsection C of 19.15.29.12 NMAC.

The nearest active well to Black Mamba is a United States Geological Survey (USGS)-identified well from 2012 located approximately 1.05 miles east of the site. Depth to groundwater at this well is 18 feet below ground surface (bgs; United States Department of the Interior, United States Geological Survey, 2020). A New Mexico Office of the State Engineer well from 2010, with a depth to groundwater of 140 feet bgs, is in the same vicinity as the USGS well (New Mexico Office of the State Engineer, New Mexico Water Rights Reporting System, 2020). The shallowest depth to groundwater identified near Black Mamba is from a 1995 USGS well located approximately 2 miles northeast of the site with a depth of 165 feet bgs (United States Department of the Interior, United States Geological Survey, 2020). The Chevron Texaco Depth to Ground Water Map for Lea County confirms that depth to groundwater in the vicinity of Black Mamba is between 100 and 200 feet bgs (Chevron Texaco, 2005). 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 release at Black Mamba is not subject to the requirements of Paragraph (4) of Subsection C of 19.15.29.12 NMAC. As the nearest groundwater well newer than 25 years old is farther than 0.5 miles from the release site, the depth to groundwater at Black Mamba cannot be accurately determined and the closure criteria for the site are 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
<50 feet	Chloride	600 mg/kg
	TPH[1] (GRO + DRO + MRO)	100 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 by Vertex on September 1, 2020, used field screening methods to identify and map the boundaries of the release. An electroconductivity (EC) probe was used to approximate the level of chlorides present in the soil of the release area. The initial data obtained during the field screening process were used to horizontally and vertically delineate the release footprint. The release area was determined to be approximately 195 feet long by 138 feet wide; the total impacted area was approximately 9,383 square feet. An aerial photograph and site schematic for this release are included in Attachment 2. Field screening results are summarized in the Daily Field Report (DFR) associated with the initial inspection visit (Attachment 4). A selection of the initial characterization soil samples was submitted for laboratory analysis to confirm the delineation effort. Based on the field screening and laboratory analyses data presented in Table 1 (Attachment 5), the level of chlorides and TPH present on the wellpad exceeded closure criteria for locations where depth to groundwater is less than 50 feet bgs.

On February 2, 2021, Vertex provided 48-hour notification of confirmation sampling to NM OCD District 1 and the BLM, as required by Subparagraph (a) of Paragraph (1) of Subsection D 19.15.29.12 NMAC and Subparagraph (a) of Paragraph (5) of Subsection A 19.15.29.11 NMAC, respectively (Attachment 6). Remediation activities were conducted on February 4, 2021, with Vertex personnel guiding the excavation of impacted soils, which were removed to a depth of 0.5 feet bgs and transported by a licensed hauler for disposal at an approved waste management facility. Total excavation area can be seen in Figure 3 (Attachment 2) and details of field screening results for this and all subsequent site visits can be found in the DFRs (Attachment 4).

At the pumping unit, Vertex collected 15 five-point composite confirmatory samples from the area where the release occurred. Each composite sample was representative of no more than 200 square feet per the alternate sampling method outlined in Subparagraph (c) of Paragraph (1) of Subsection D 19.15.29.12 NMAC, which does not require prior NM OCD approval. The composite samples were placed into laboratory-provided containers, preserved on ice, and submitted to a National Environmental Laboratory Accreditation Program-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. Confirmatory sample analytical data are summarized in Table 2 (Attachment 6). Laboratory data reports and chain of custody forms are included in Attachment 7.

A GeoExplorer 7000 Series Trimble global positioning system (GPS) unit, or equivalent, was used to map the approximate center of each of the five-point composite samples. The confirmation sampling locations are presented on Figure 2 (Attachment 2). Relevant equipment and prominent features/reference points at the site are mapped as well.

Closure Request

Vertex recommends no additional remediation action to address the release at Black Mamba. Laboratory analyses of the confirmation samples showed constituents of concern concentration levels below NM OCD Closure Criteria for areas where depth to groundwater is presumed less than 50 feet bgs as presented in Table 1. There are no anticipated risks to human, ecological or hydrological receptors associated with the release site.

Vertex requests that this incident (NRM2003436831) be closed as all closure requirements set forth in Subsection E of 19.15.29.12 NMAC have been met. Devon 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 September 1, 2019 release at Black Mamba.

Should you have any questions or concerns, please do not hesitate to contact the undersigned at 575.661.9880 or dhanton@vertex.ca.

Sincerely,

Dhugal Hanton
VICE PRESIDENT, US OPERATIONS

Attachments

Attachment 1. NM OCD C-141 Release Notification
Attachment 2. Figures
Attachment 3. Closure Criteria for Soils Impacted by a Release Research Determination Documentation
Attachment 4. Daily Field Report(s) with Photographs
Attachment 5. Characterization and Confirmatory Sample Field Screen and Laboratory Results
Attachment 6. Required 48-hr Notification of Confirmatory Sampling to Regulatory Agencies
Attachment 7. Laboratory Data Reports and Chain of Custody Forms

References

Chevron Texaco. (2005). *Lea County Depth to Ground Water, Water Wells, Facilities.*

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

New Mexico Office of the State Engineer, New Mexico Water Rights Reporting System. (2020). Water Column/Average Depth to Water Report. Retrieved from http://nmwrrs.ose.state.nm.us/nmwrrs/waterColumn.html

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

New Mexico Water Rights Reporting System. (2020). *Water Column/Average Depth to Water Report.* Retrieved from http://nmwrrs.ose.state.nm.us/nmwrrs/waterColumn.html.

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

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

United States Fish and Wildlife Service. (2020). *National Wetlands Inventory*. Retrieved from https://www.fws.gov/wetlands/Data/Mapper.html

Limitations

This report has been prepared for the sole benefit of Devon Energy Production Company (Devon). 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 Devon. 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	NRM2003436831
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

7EVY2-191212-C-1410

Responsible Party Devon Energy Production Company	OGRID 6137
Contact Name Amanda T. Davis	Contact Telephone 575-748-0176
Contact email amanda.davis@dvn.com	Incident # *(assigned by OCD)*
Contact mailing address 6488 Seven Rivers HWY	

Location of Release Source

Latitude 32.3115883 Longitude -103.5666428

(NAD 83 in decimal degrees to 5 decimal places)

Site Name Black Mamba 15 State Com #002H	Site Type Oil
Date Release Discovered 9/1/2019	API# *(if applicable)* 30-025-40173

Unit Letter	Section	Township	Range	County
D	15	23S	33E	Lea

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

Nature and Volume of Release

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

■ Crude Oil	Volume Released (bbls) 2.76	Volume Recovered (bbls) 2.76
■ Produced Water	Volume Released (bbls) 12	Volume Recovered (bbls) 12
	Is the concentration of total dissolved solids (TDS) in the produced water >10,000 mg/l?	☐ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release	Polish rod liner separated at packing joint causing fluid release. All fluid stayed on location. Spill area 40'x25'x1"

Form C-141
Page 2

State of New Mexico
Oil Conservation Division

Incident ID	NRM2003436831
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?
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?	

Initial Response

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

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

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

Spill was not in containment the use of berms or dikes, absorbent pad or other containment devices were not used.

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: Kendra DeHoyos Title: EHS Associate

Signature: Kendra DeHoyos Date: 9/11/2019

email: kendra.dehoyos@dvn.com Telephone: 575-748-3371

OCD Only

Received by: Ramona Marcus Date: 02/03/2020

State of New Mexico
Oil Conservation Division

Incident ID	nCH1827843022
District RP	
Facility ID	
Application ID	

Closure

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

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

[x] A scaled site and sampling diagram as described in 19.15.29.11 NMAC

[X] 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

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

[x] 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: Dale Woodall Title: EHS Professional

Signature: Dale Woodall Date: 5/5/2023

email: dale.woodall@dvn.com Telephone: 405-318-4697

OCD Only

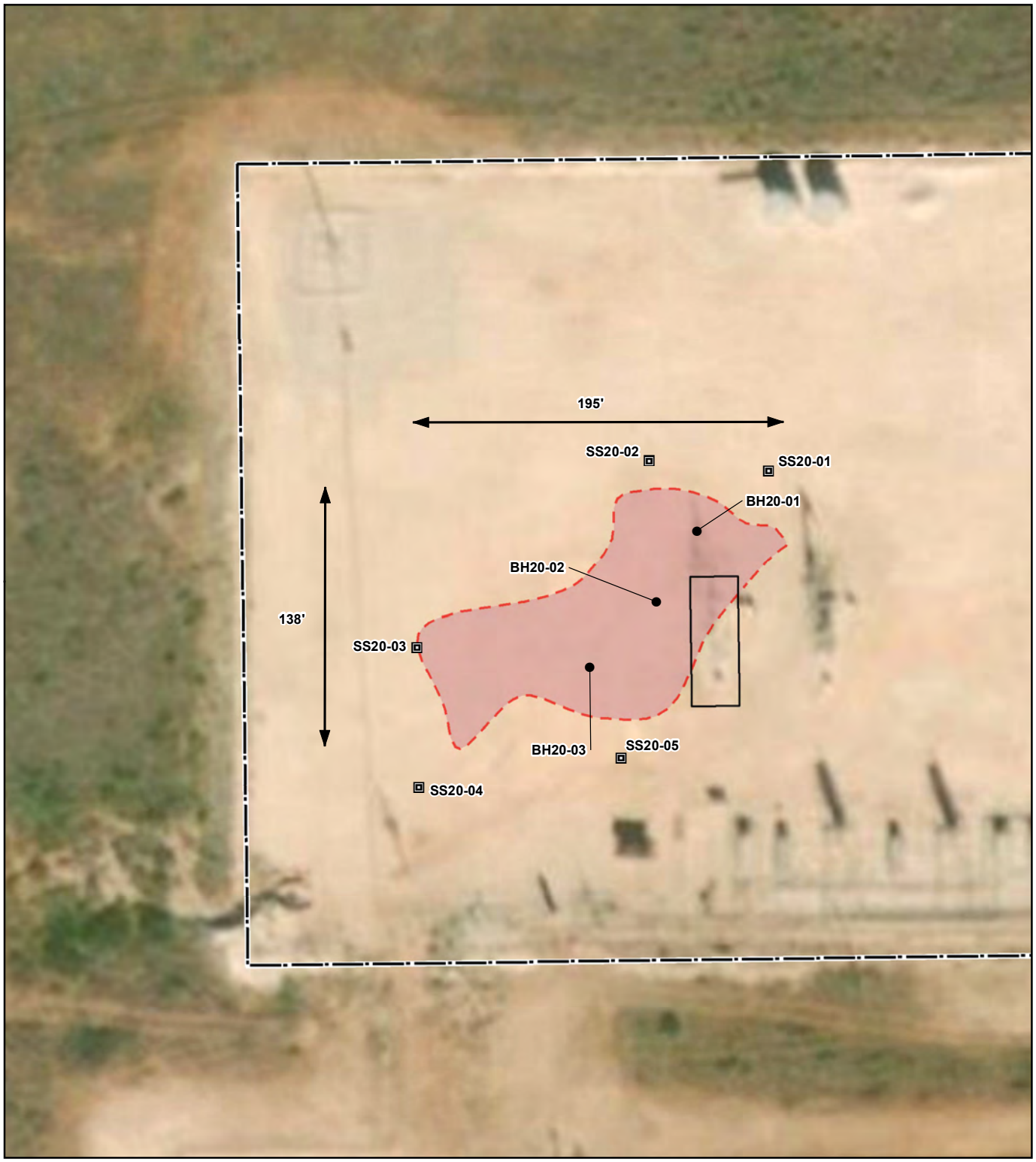
Received by: _____ Date: _____

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



Base Sample
Surface Sample
Pumpjack
Approximate Lease Boundary
Approximate Spill Extent (~ 9,383 sq.ft.)

VERTEX

0 10 20 40 ft.

NAD 1983 UTM Zone 13N
Date: Sep 08/20

Map Center:
Lat: 32.311598,
Long:-103.566948

N

Site Schematic and Characterization Sampling Locations
Black Mamba 15 State Com 2H

FIGURE: 1

devon

Geospatial data presented in this figure may be derived from external sources and Vertex does not assume any liability for inaccuracies. This figure is intended for reference use only and is not certified for legal, survey, or engineering purposes.

Note: Imagery from ESRI, 2019.

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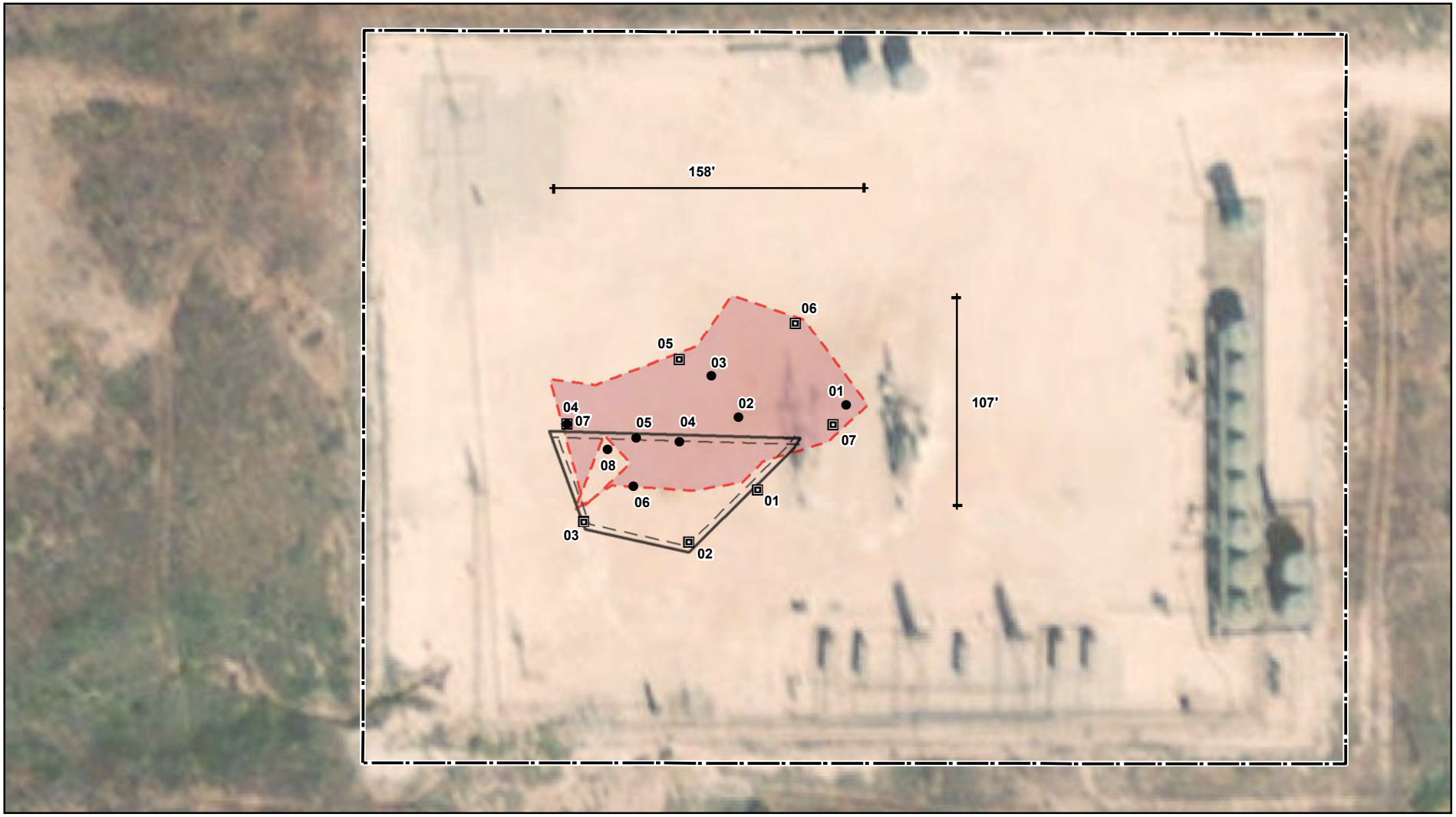
Document Path: \\vtx-s-fs01.corp.internal\shared\vps\04 - Geomatics\1-Projects\ US PROJECTS\Devon Energy Corporation\20E-00141\022 - Black Mamba 15\Fig 1 Black Mamba 15 Initial Characterization (20E-00141-022).mxd



Base Sample (Prefixed by "BS21-")

Soil Sample (Prefixed by "SS21-")

Approximate Lease Boundary

Approximate Spill Extent (8,825 sq. ft.)

Excavation

VERTEX

0 12.5 25 50 Feet

Map Center:
Lat/Long: 32.311566, -103.566767

NAD 1983 UTM Zone 13N
Date: Feb 11/21

N

Confirmatory Sampling Locations
Black Mamba 15 State Com 2H

FIGURE:
2

devon

Geospatial data presented in this figure may be derived from external sources and Vertex does not assume any liability for inaccuracies. This figure is intended for reference use only and is not certified for legal, survey, or engineering purposes.

Note: Basemap imagery from ESRI, 2019.

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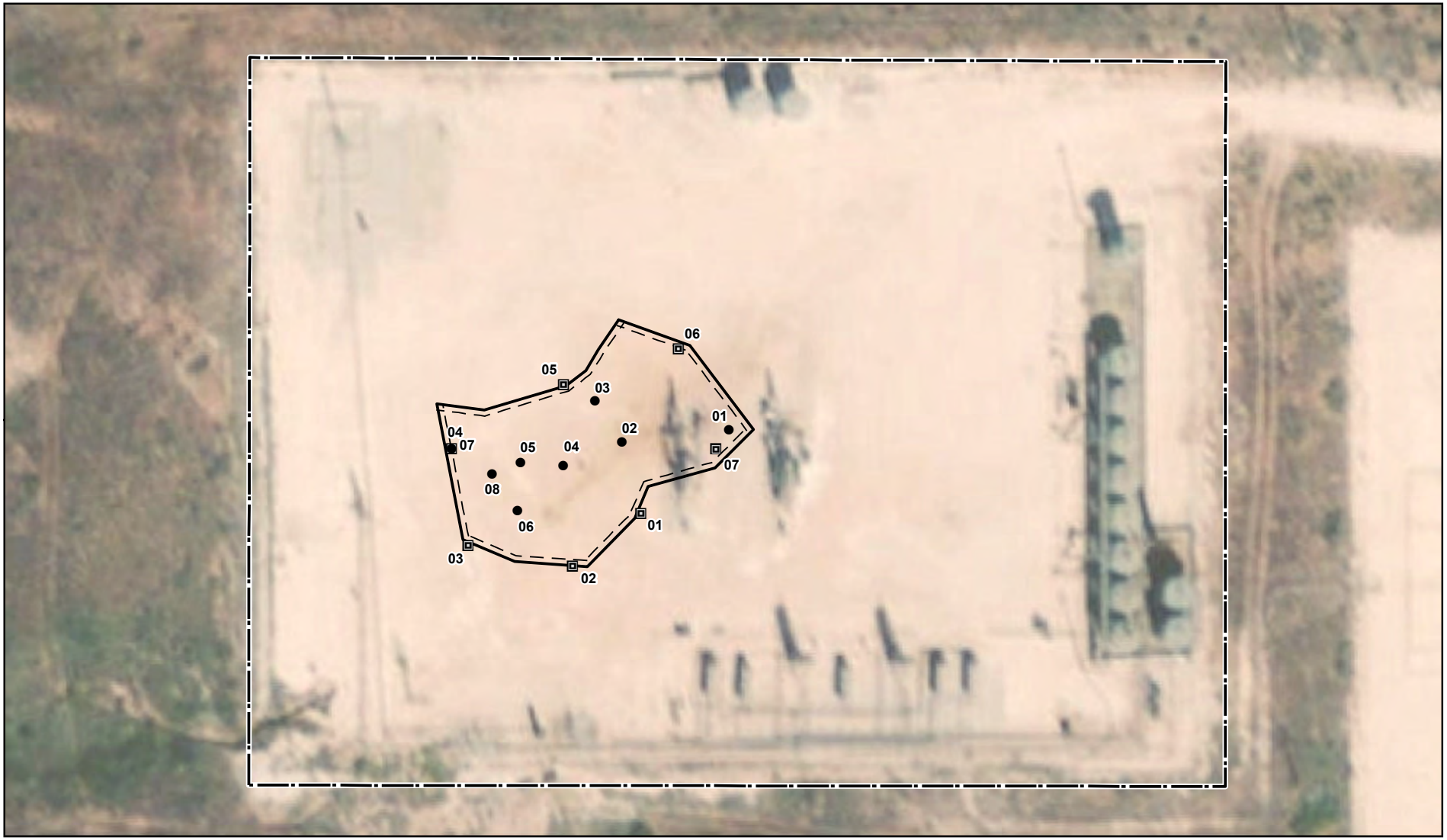
Document Path: G:\1-Projects_US PROJECTS\Devon Energy Corporation\20E-00141\022 - Black Mamba 15\Figure 2 Confirmatory Schematic Black Mamba 15 State 2H.mxd



● Base Sample (Prefixed by "BS21-")

▣ Soil Sample (Prefixed by "SS21-")

Approximate Lease Boundary

Excavation

VERTEX

0 12.5 25 50 Feet

Map Center:
Lat/Long: 32.311582, -103.566586

NAD 1983 UTM Zone 13N
Date: Mar 04/21

N

Confirmatory Schematic
Black Mamba 15 State 2H

FIGURE:
2

devon

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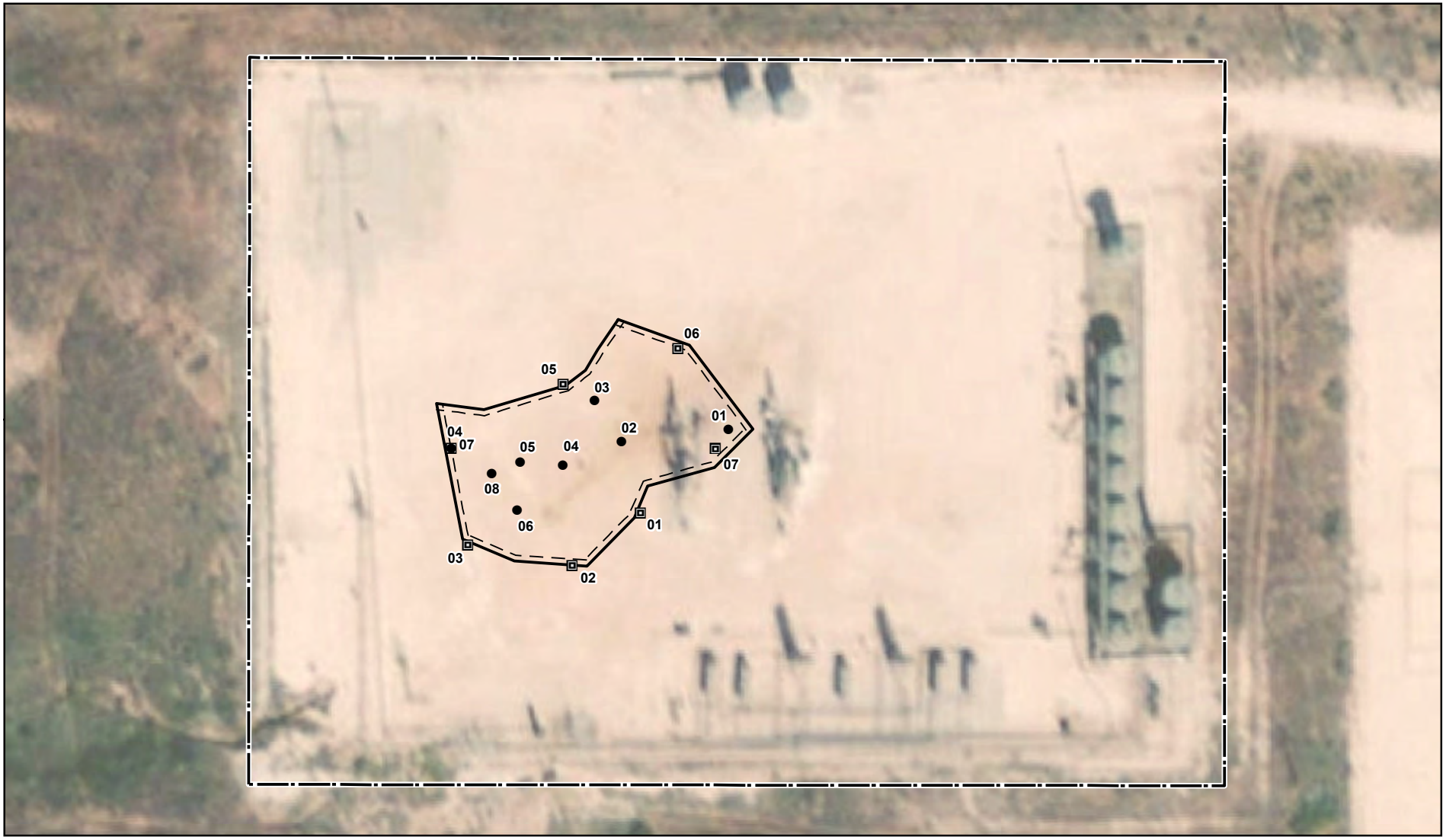
Note: Basemap imagery from ESRI, 2019.

VERSATILITY. EXPERTISE.

Document Path: G:\1-Projects_US PROJECTS\Devon Energy Corporation\20E-00141\022 - Black Mamba 15\Figure 2 Confirmatory Schematic Black Mamba 15 State 2H.mxd



● Base Sample (Prefixed by "BS21-")

▣ Soil Sample (Prefixed by "SS21-")

Approximate Lease Boundary

Excavation

VERTEX

0 12.5 25 50 Feet

Map Center:
Lat/Long: 32.311582, -103.566586

NAD 1983 UTM Zone 13N
Date: Mar 04/21

N

Confirmatory Schematic Black Mamba 15 State Com 2H

FIGURE:
3

devon

Geospatial data presented in this figure may be derived from external sources and Vertex does not assume any liability for inaccuracies. This figure is intended for reference use only and is not certified for legal, survey, or engineering purposes.

Note: Basemap imagery from ESRI, 2019.

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Document Path: G:\1-Projects_US PROJECTS\Devon Energy Corporation\20E-00141\022 - Black Mamba 15\Figure 2 Confirmatory Schematic Black Mamba 15 State 2H.mxd

ATTACHMENT 3

Table 1. Closure Criteria Determination				
Site Name: Black Mamba 15 State Com 2H				
Spill Coordinates:		X: 32.31160	Y: -103.56660	
Site Specific Conditions		Value	Unit	Reference
1	Depth to Groundwater	**358**	feet	1
2	Within 300 feet of any continuously flowing watercourse or any other significant watercourse	2119	feet	2
3	Within 200 feet of any lakebed, sinkhole or playa lake (measured from the ordinary high-water mark)	4469	feet	3
4	Within 300 feet from an occupied residence, school, hospital, institution or church	16339	feet	4
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**	5436	feet	5
	ii) Within 1000 feet of any fresh water well or spring	5436	feet	5
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)	6
7	Within 300 feet of a wetland	15988	feet	7
8	Within the area overlying a subsurface mine	No	(Y/N)	8
9	Within an unstable area (Karst Map)	Low	Critical High Medium Low	9
10	Within a 100-year Floodplain	undetermined	year	10
NMAC 19.15.29.12 E (Table 1) Closure Criteria		>100'	<50' 51-100' >100'	

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

(A CLW##### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)

(R=POD has been replaced, O=orphaned, C=the file is closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters) (In feet)

POD Number	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
C 03582 POD1	C	LE	4	1	1	14	23S	33E	636583	3575666	1657	590		
C 02277	CUB	LE	2	3	4	20	23S	33E	632663	3572970*	3691	550	400	150
C 02278	CUB	LE	3	4	2	28	23S	33E	634484	3571989*	3914	650	400	250
C 02280	CUB	LE	3	2	4	28	23S	33E	634489	3571586*	4314	650	400	250
C 02283	CUB	LE	4	2	2	26	23S	33E	637896	3572431*	4541	325	225	100
C 02282	CUB	LE	3	1	1	25	23S	33E	638098	3572436*	4671	325	225	100
C 02275	CUB	LE	3	3	2	19	23S	33E	630843	3573557*	4707	650	400	250
C 02281	CUB	LE	3	4	4	28	23S	33E	634495	3571183*	4715	545	400	145
C 02279	CUB	LE	3	4	3	28	23S	33E	633691	3571173*	4866	650	400	250
C 04353 POD1	CUB	ED	4	2	2	24	23S	33E	639474	3574098	4872	603	330	273
C 02276	CUB	LE	3	1	4	19	23S	33E	630848	3573154*	4914	650	400	250

Average Depth to Water: **358 feet**
Minimum Depth: **225 feet**
Maximum Depth: **400 feet**

Record Count: 11

UTMNAD83 Radius Search (in meters):

Easting (X): 634938.48 **Northing (Y):** 3575877.39 **Radius:** 5000

***UTM location was derived from PLSS - see Help**

New Mexico Office of the State Engineer

Wells with Well Log Information

(A CLW##### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)

(R=POD has been replaced, O=orphaned, C=the file is closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)

(quarters are smallest to largest)

(NAD83 UTM in meters)

(in feet)

POD Number	POD Sub-basin Code	County	Source	q 6416	q 4	q	Sec	Tws	Rng	X	Y	Distance	Start Date	Finish Date	Log File Date	Depth Well	Depth Water	Driller	License Number
C 03582 POD1	C	LE	Shallow	4	1	1	14	23S	33E	636583	3575666	1657	10/01/2012	10/18/2012	11/21/2012	590		NORRIS, JOHN D. (LD)	1682
C 04353 POD1	CUB	ED	Shallow	4	2	2	24	23S	33E	639474	3574098	4872	11/04/2019	11/13/2019	01/29/2020	603	330	JUSTIN MULLINS	1737

Record Count: 2

UTMNAD83 Radius Search (in meters):

Easting (X): 634938.48 **Northing (Y):** 3575877.39 **Radius:** 5000

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 321611103321601 23S.33E.26.42100

Available data for this site SUMMARY OF ALL AVAILABLE DATA GO

Well Site

DESCRIPTION:

Latitude 32°16'28.0", Longitude 103°32'15.6" NAD83
Lea County, New Mexico , Hydrologic Unit 13070007
Well depth: 190 feet
Land surface altitude: 3,641 feet above NAVD88.
Well completed in "Chinle Formation" (231CHNL) local aquifer

AVAILABLE DATA:

Data Type	Begin Date	End Date	Count
Field groundwater-level measurements	1972-09-21	2015-12-18	6
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

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

Accessibility Plug-Ins FOIA Privacy Policies and Notices

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=321611103321601

Page Contact Information: New Mexico Water Data Support Team
Page Last Modified: 2020-06-09 16:12:41 EDT
0.4 0.39 caww02

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 321746103352301 23S.33E.17.42331

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

Well Site

DESCRIPTION:

Latitude 32°17'46", Longitude 103°35'23" NAD27
Lea County, New Mexico , Hydrologic Unit 13070007
Well depth: 550 feet
Land surface altitude: 3,699 feet above NAVD88.
Well completed in "Santa Rosa Sandstone" (231SNRS) local aquifer

AVAILABLE DATA:

Data Type	Begin Date	End Date	Count
Field groundwater-level measurements	1972-09-21	1976-12-08	2
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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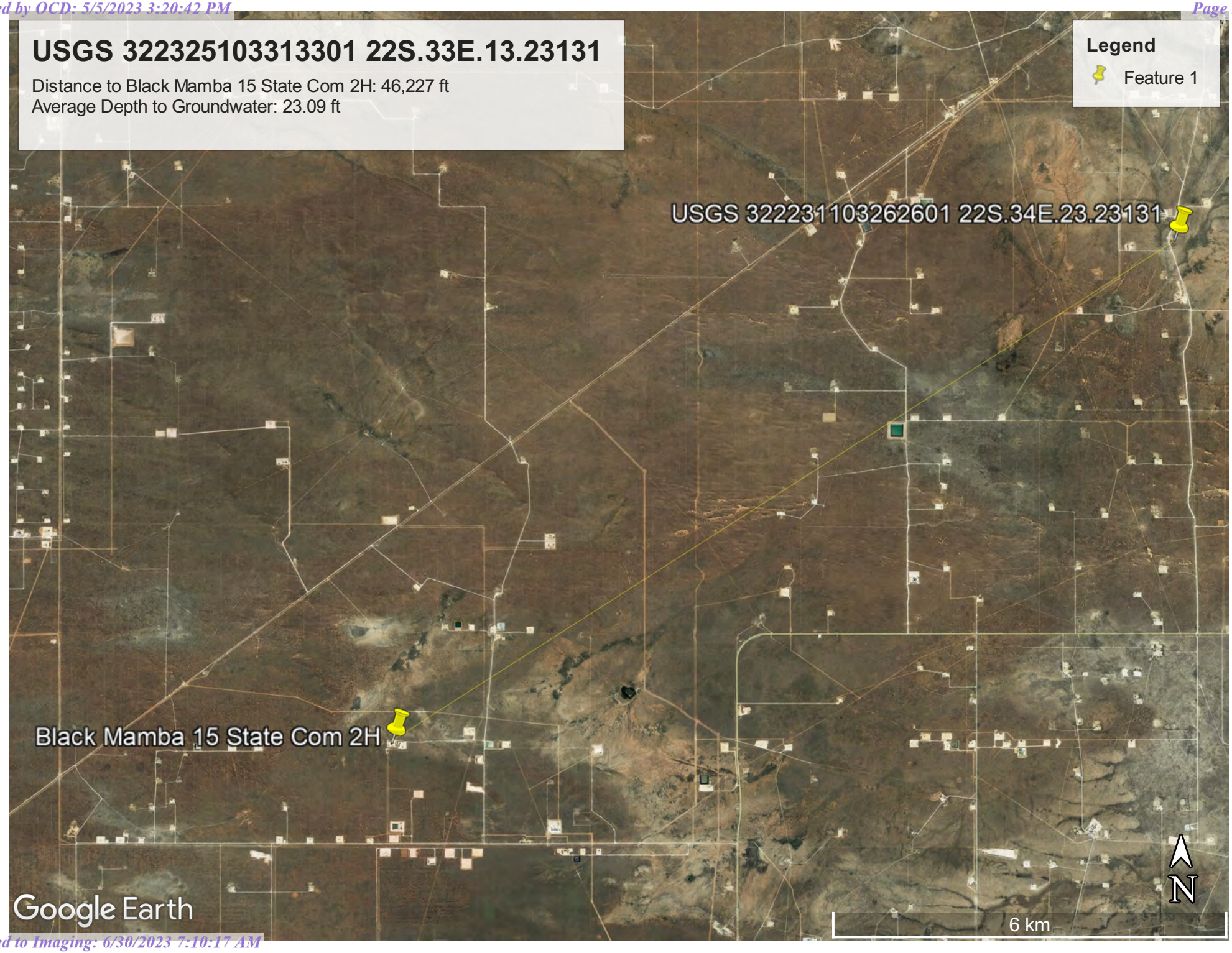
U.S. Department of the Interior | U.S. Geological Survey

Title: NWIS Site Information for USA: Site Inventory
URL: https://waterdata.usgs.gov/nwis/inventory?agency_code=USGS&site_no=321746103352301

Page Contact Information: New Mexico Water Data Support Team
Page Last Modified: 2020-06-09 16:08:41 EDT
0.4 0.4 caww02


USGS 322325103313301 22S.33E.13.23131
Distance to Black Mamba 15 State Com 2H: 46,227 ft
Average Depth to Groundwater: 23.09 ft
Legend
Feature 1
USGS 322231103262601 22S.34E.23.23131
Black Mamba 15 State Com 2H
Google Earth
6 km
N

New Mexico Office of the State Engineer

Point of Diversion Summary

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters)

Well Tag	POD Number	Q64	Q16	Q4	Sec	Tws	Rng	X	Y
	C 03582 POD1	4	1	1	14	23S	33E	636583	3575666

Driller License: 1682 **Driller Company:** HUNGRY HORSE, LLC.

Driller Name: NORRIS, JOHN D. (LD)

Drill Start Date:	10/01/2012	**Drill Finish Date:**	10/18/2012	**Plug Date:**	
Log File Date:	11/21/2012	**PCW Rcv Date:**		**Source:**	Shallow
Pump Type:		**Pipe Discharge Size:**		**Estimated Yield:**	
Casing Size:	6.00	**Depth Well:**	590 feet	**Depth Water:**	

Water Bearing Stratifications:

Top	Bottom	Description
18	65	Sandstone/Gravel/Conglomerate
80	95	Shale/Mudstone/Siltstone
95	110	Sandstone/Gravel/Conglomerate
110	230	Shale/Mudstone/Siltstone
230	236	Sandstone/Gravel/Conglomerate
236	310	Shale/Mudstone/Siltstone
310	362	Shale/Mudstone/Siltstone
362	383	Shale/Mudstone/Siltstone
383	391	Sandstone/Gravel/Conglomerate
391	410	Shale/Mudstone/Siltstone
410	416	Sandstone/Gravel/Conglomerate
416	513	Shale/Mudstone/Siltstone
513	520	Sandstone/Gravel/Conglomerate
520	590	Shale/Mudstone/Siltstone

Casing Perforations:

Top	Bottom
0	590

8/26/20 6:00 PM POINT OF DIVERSION SUMMARY

Black Mamba 15 St Com 2H

6/9/2020, 2:24:42 PM

1:9,028

0 0.07 0.15 0.3 mi

0 0.15 0.3 0.6 km

OSE District Boundary

OSE Points of Diversion

- Active
- Pending
- Change Location of Well
- Capped
- Plugged
- Incomplete
- Unknown

Conveyances

- Acequia
- Acequia Tunnel
- Canal
- Channel
- Closed Drain
- Community Ditch
- Connector
- Culvert
- Ditch
- Diversion Weir
- Drain
- Feeder
- Interior Drain
- Lateral
- Pipe
- Wasteway
- Other
- Unknown

Esri, HERE, Garmin, (c) OpenStreetMap contributors, Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community, OSE GIS, Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and

New Mexico Office of the State Engineer

Active & Inactive Points of Diversion

(with Ownership Information)

(acre ft per annum)

(R=POD has been replaced and no longer serves this file, C=the file is closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)

(quarters are smallest to largest)

(NAD83 UTM in meters)

WR File Nbr	Sub basin	Use	Diversion	Owner	County	POD Number	Well Tag	Code	Grant	Source	q q q 6416	4	Sec	Tws	Rng	X	Y	Distance
C 03582	C	STK	3	LIMESTONE BASIN PROPERTIES	LE	C 03582 POD1				Shallow	4 1 1		14	23S	33E	636582	3575666	1657
C 03562	C	STK	3	LIMESTONE BASIN PROPERTIES	LE	C 03562 POD1					3 2 4		17	23S	33E	632747	3574765	2457
C 04159	CUB	EXP	0	HUGHES PROPERTIES LLC	LE	C 04159 POD1	NA				1 3 2		20	23S	33E	632542	3573716	3226
C 03563	C	STK	3	LIMESTONE BASIN PROPERTIES	LE	C 03563 POD1					2 1 3		12	23S	33E	638315	3576592	3451
C 02277	CUB	COM	64.5	HUGHES PROPERTIES LLC	LE	C 02277				Shallow	2 3 4		20	23S	33E	632663	3572970*	3691
C 02278	CUB	COM	64.5	BRININSTOOL XL RANCH LLC	LE	C 02278				Shallow	3 4 2		28	23S	33E	634484	3571989*	3914
C 02280	CUB	COM	64.5	HUGHES PROPERTIES LLC	LE	C 02280				Shallow	3 2 4		28	23S	33E	634489	3571586*	4314
C 02283	CUB	STK	4.8	HUGHES PROPERTIES LLC	LE	C 02283					4 2 2		26	23S	33E	637896	3572431*	4541
C 02282	CUB	STK	4.8	HUGHES PROPERTIES LLC	LE	C 02282					3 1 1		25	23S	33E	638098	3572436*	4671
C 02275	CUB	COM	64.5	HUGHES PROPERTIES LLC	LE	C 02275				Shallow	3 3 2		19	23S	33E	630843	3573557*	4707
C 02281	CUB	COM	11.3	BRININSTOOL XL RANCH LLC	LE	C 02281				Shallow	3 4 4		28	23S	33E	634495	3571183*	4715
C 02279	CUB	COM	64.5	BRININSTOOL XL RANCH LLC	LE	C 02279				Shallow	3 4 3		28	23S	33E	633691	3571173*	4866
C 04353	CUB	EXP	0	HUGHES PROPERTIES LLC	ED	C 04353 POD1	NA			Shallow	4 2 2		24	23S	33E	639474	3574098	4872
C 02276	CUB	COM	64.5	BRININSTOOL XL RANCH LLC	LE	C 02276				Shallow	3 1 4		19	23S	33E	630848	3573154*	4914

***UTM location was derived from PLSS - see Help**

Record Count: 14

UTMNAD83 Radius Search (in meters):

Easting (X): 634938.48 **Northing (Y):** 3575877.39 **Radius:** 5000

Sorted by: Distance

U.S. Fish and Wildlife Service
National Wetlands Inventory

Black Mamba 15 2H: Watercourse 2,119 ft

February 6, 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.

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

U.S. Fish and Wildlife Service
National Wetlands Inventory

Black Mamba 15 2H: Pond 4,469 ft

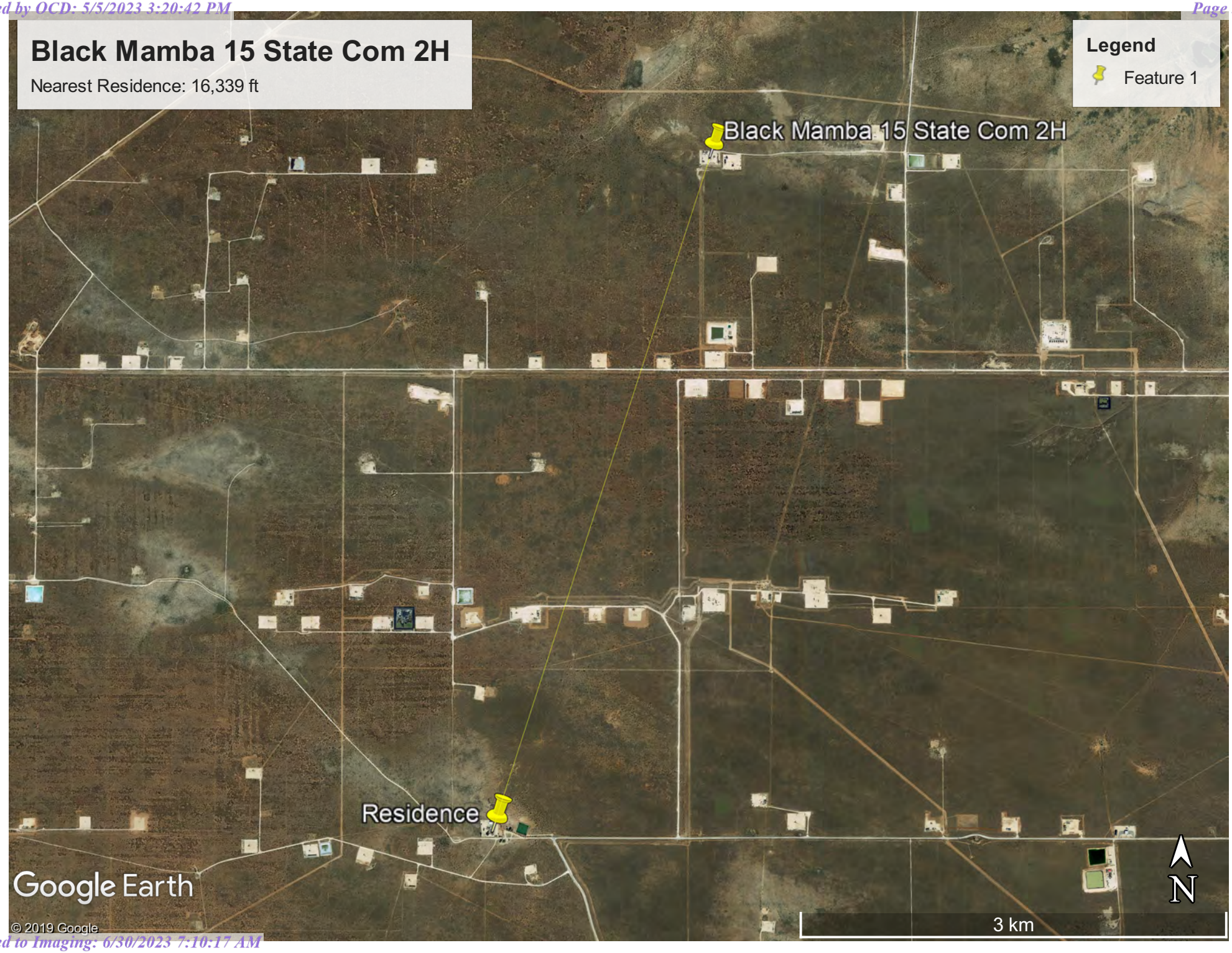
February 6, 2020

Wetlands

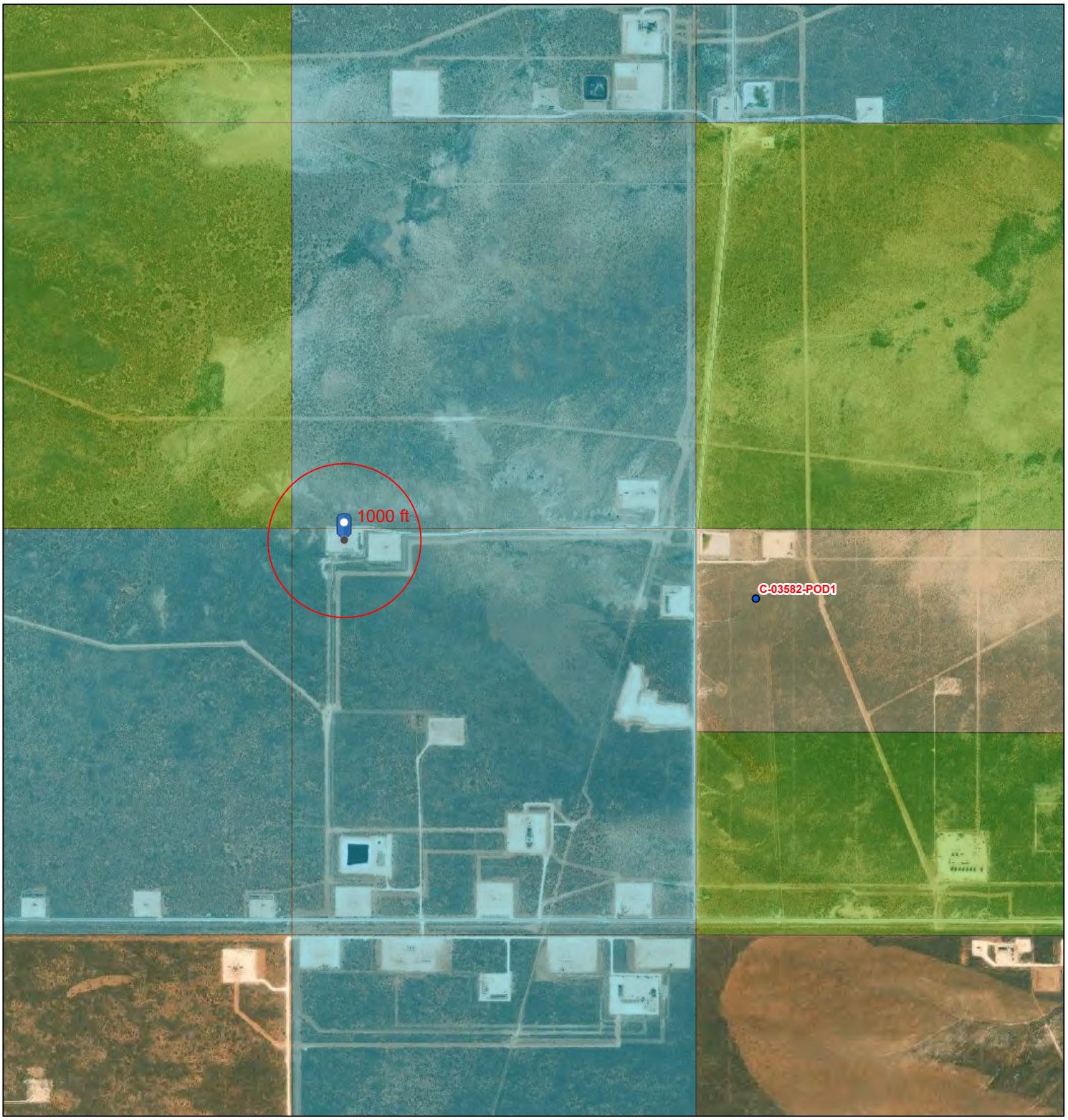
- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

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.

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper


Black Mamba 15 State Com 2H
Nearest Residence: 16,339 ft
Legend
Feature 1
Black Mamba 15 State Com 2H
Residence
Google Earth
© 2019 Google
N
3 km

PODs near Black Mamba



5/4/2021, 10:03:52 AM

GIS WATERS PODs

- Active
- OSE District Boundary

New Mexico State Trust Lands

- Subsurface Estate
- Surface Estate
- Both Estates
- SiteBoundaries

1:18,056

0 0.17 0.35 0.7 mi

0 0.28 0.55 1.1 km

Esri, HERE, iPC, U.S. Department of Energy Office of Legacy Management, Esri, HERE, Garmin, iPC, Maxar

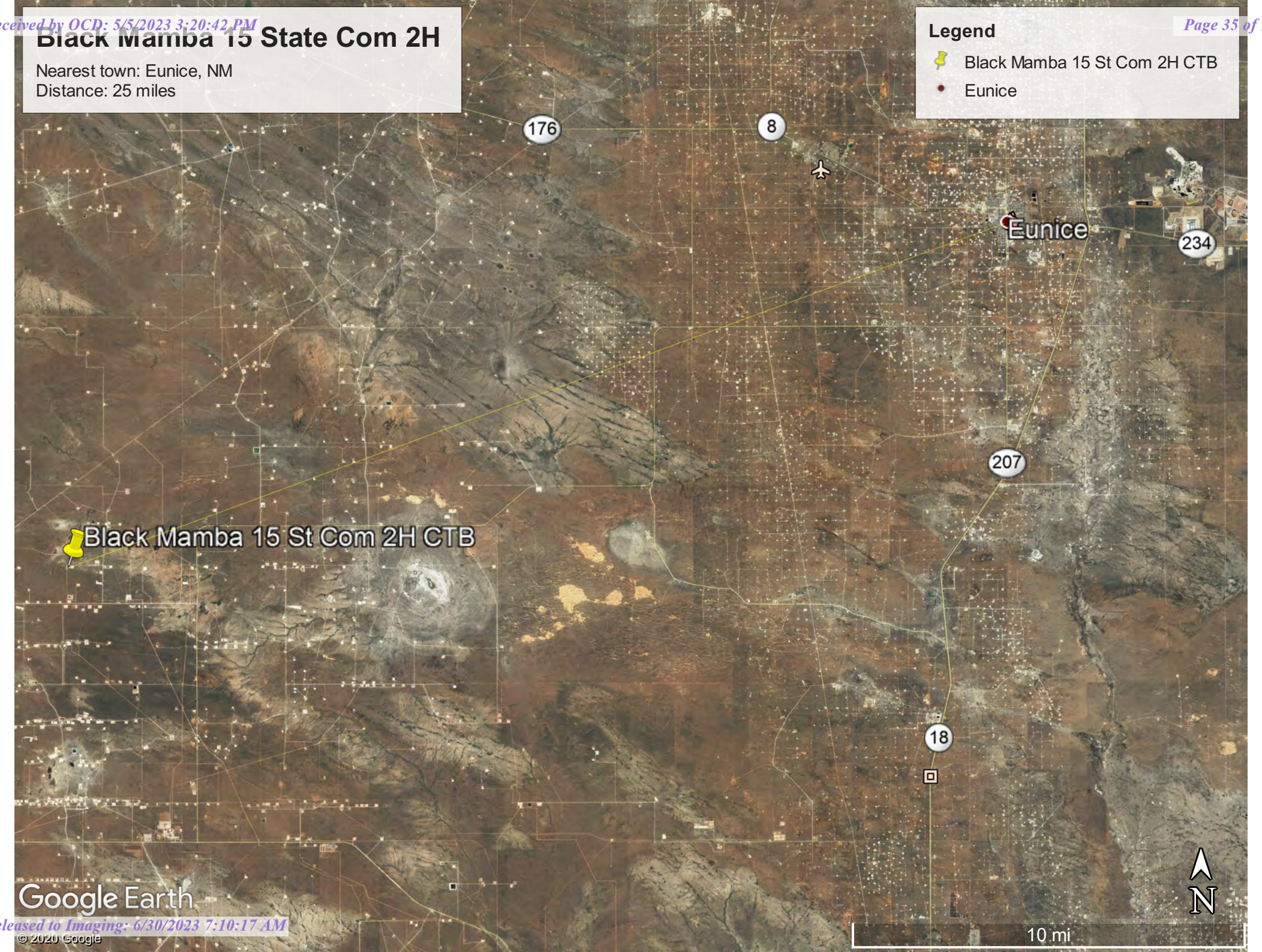
Printed from Public Web Map
Unofficial Map from OSE POD Locations Web Application

Black Mamba 15 State Com 2H

Nearest town: Eunice, NM
Distance: 25 miles

Legend

- Black Mamba 15 St Com 2H CTB
- Eunice



U.S. Fish and Wildlife Service
National Wetlands Inventory

Black Mamba 15 2H: Wetland 15,988 ft

February 6, 2020

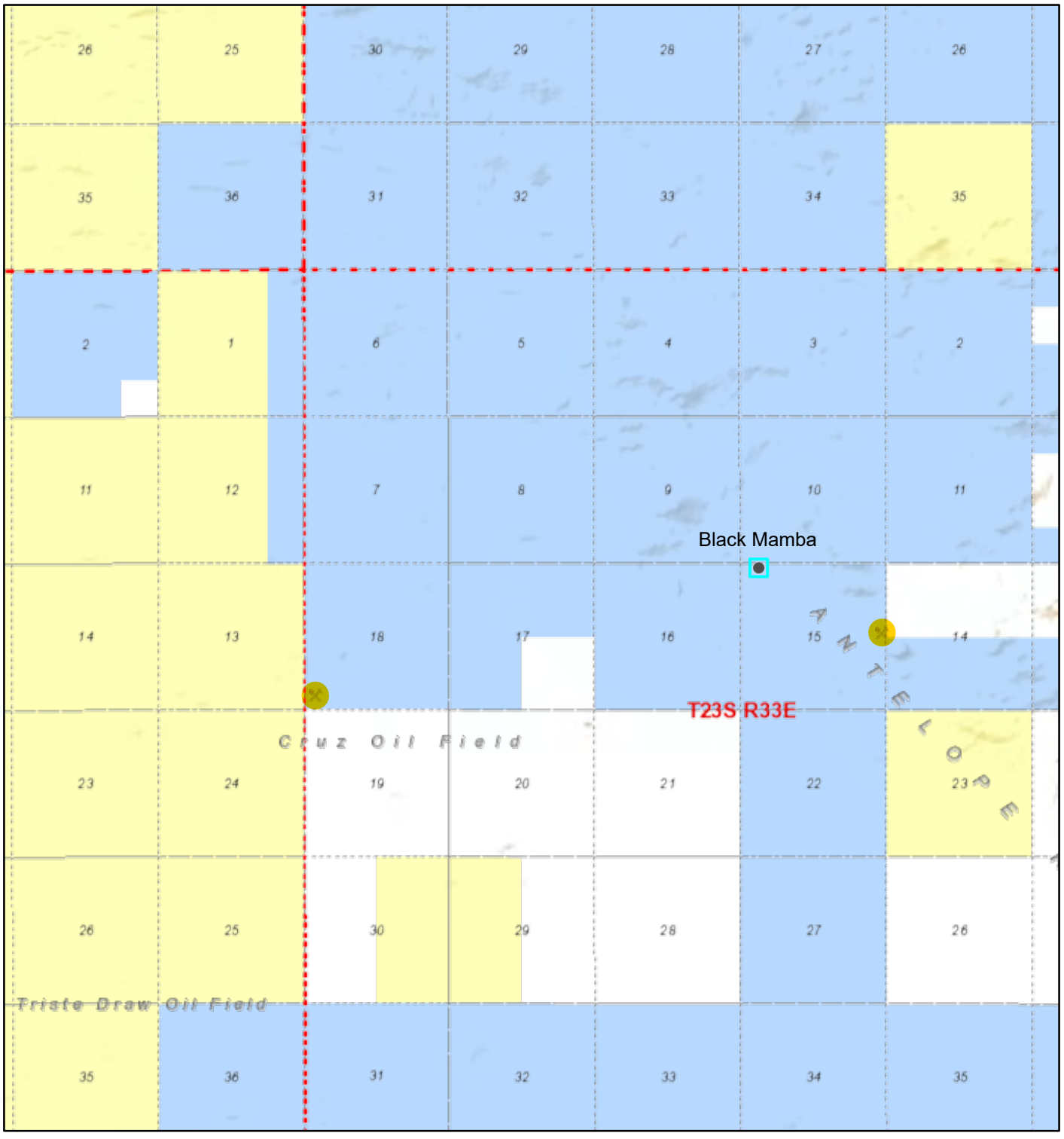
Wetlands

- 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.

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

Active Mines Near Black Mamba 15 State 2H



2/6/2020, 4:16:49 PM

1:72,224

0 0.5 1 2 mi

0 0.75 1.5 3 km

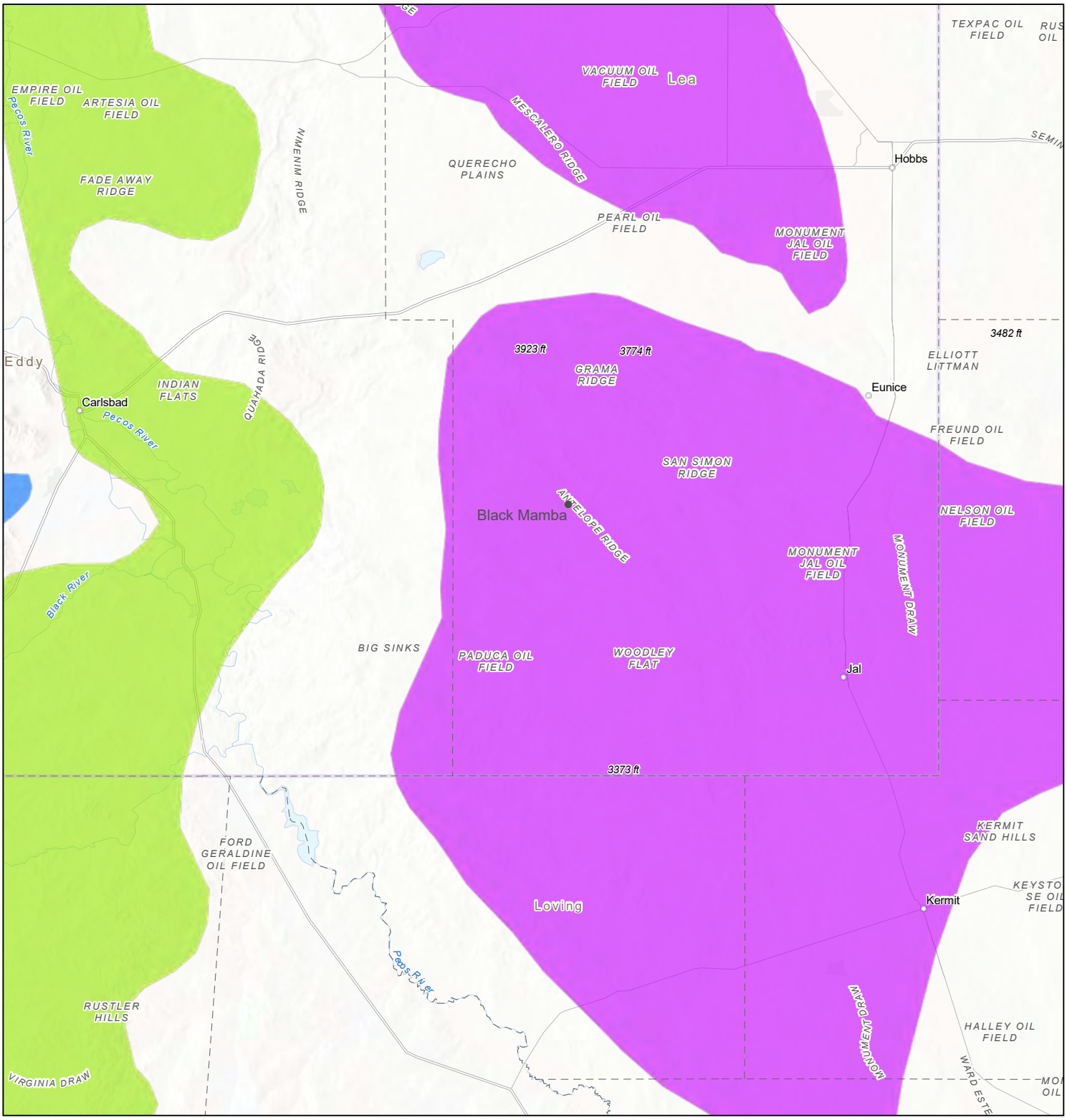
Registered Mines

Aggregate, Stone etc.

U.S. Bureau of Land Management - New Mexico State Office, Sources: Esri, USGS, NOAA, Sources: Esri, Garmin, USGS, NPS

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

Black Mamba Karst Potential



5/4/2021

1:577,791

0 5 10 20 mi

0 5 10 20 km

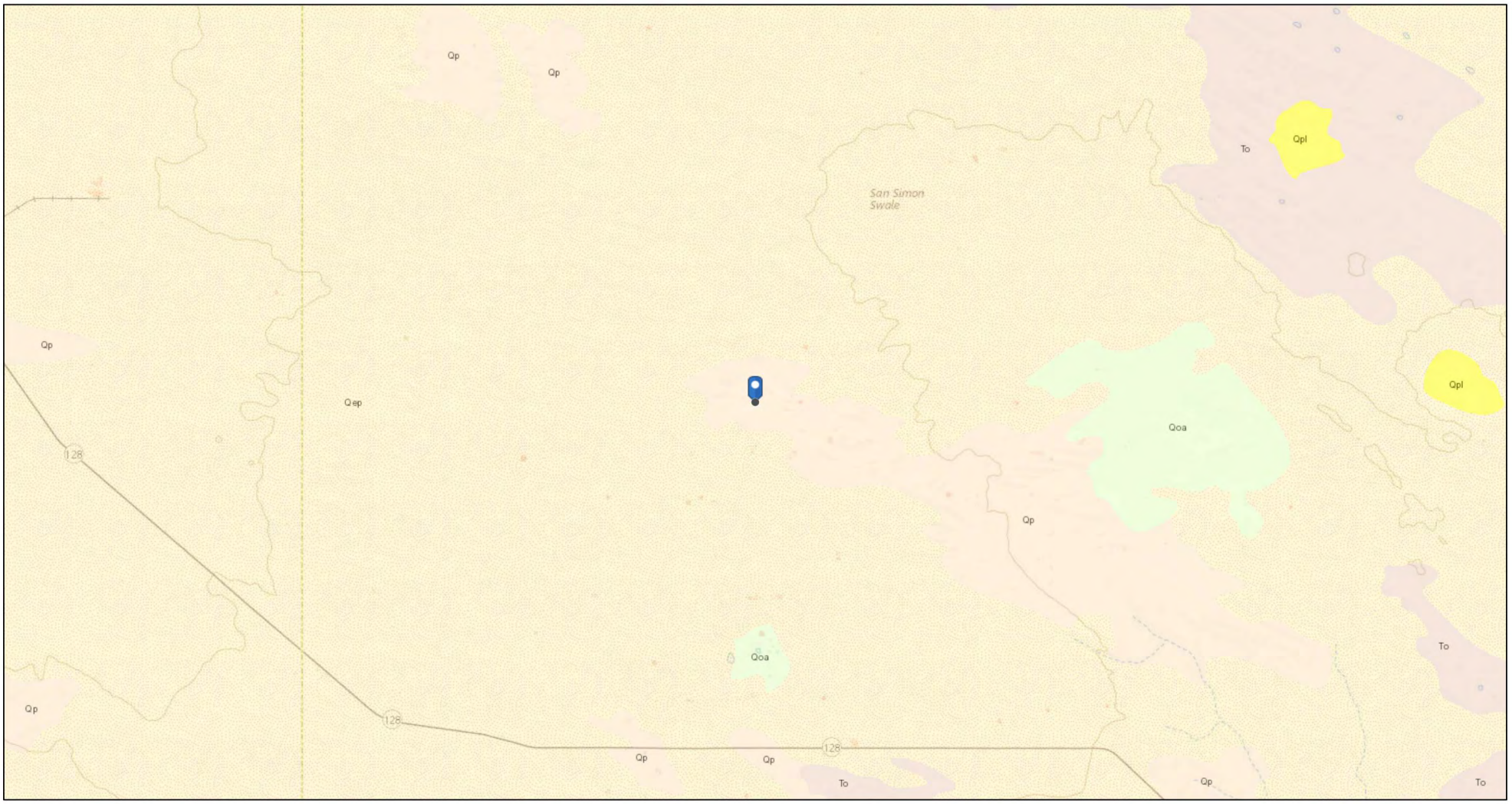
USA Karst

Karst Type

- Carbonate
- Erosional
- Gypsum
- Volcanic

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., Texas Parks & Wildlife, Esri, HERE, Garmin, SafeGraph, FAO, METI/NASA, USGS, EPA, NPS, Esri, CGIAR, USGS

Black Mamba 15 State Com 2H



6/9/2020, 2:17:52 PM

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

Web AppBuilder for ArcGIS

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

National Flood Hazard Layer FIRMette

Legend

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

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

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

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

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

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

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

N

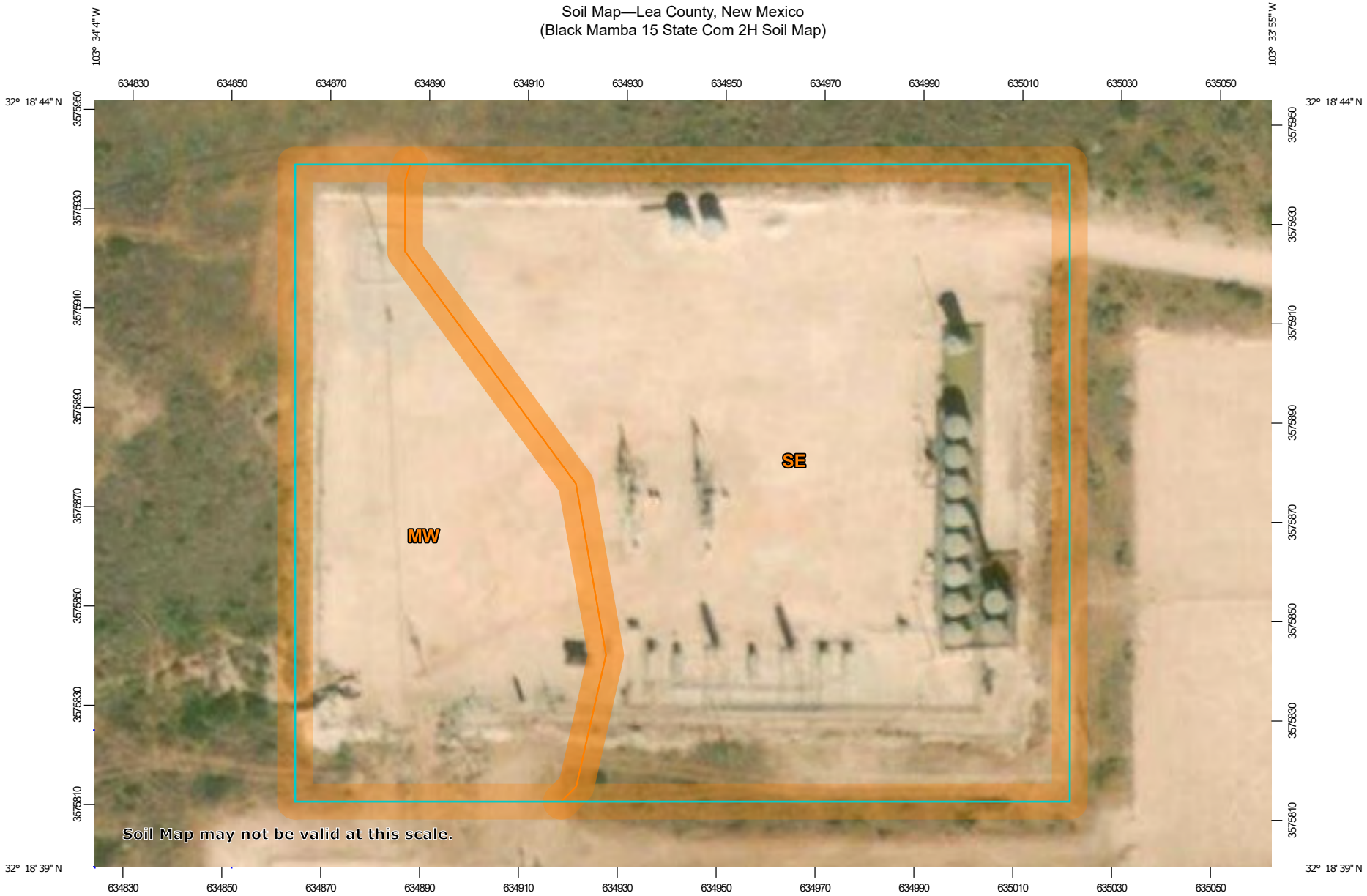
The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

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

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 2/6/2020 at 6:31:26 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

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

Soil Map—Lea County, New Mexico
(Black Mamba 15 State Com 2H Soil Map)



Soil Map—Lea County, New Mexico
(Black Mamba 15 State Com 2H Soil Map)

MAP LEGEND

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

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

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: 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
MW	Mobeetie-Potter association, 1 to 15 percent slopes	1.5	30.1%
SE	Simona fine sandy loam, 0 to 3 percent slopes	3.5	69.9%
Totals for Area of Interest		**5.0**	**100.0%**

Lea County, New Mexico

MW—Mobeetie-Potter association, 1 to 15 percent slopes

Map Unit Setting

National map unit symbol: dmqh
Elevation: 3,000 to 6,500 feet
Mean annual precipitation: 10 to 16 inches
Mean annual air temperature: 48 to 62 degrees F
Frost-free period: 110 to 205 days
Farmland classification: Not prime farmland

Map Unit Composition

Mobeetie and similar soils: 70 percent
Potter and similar soils: 24 percent
Minor components: 6 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Mobeetie

Setting

Landform: Draws, escarpments
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Calcareous sandy alluvium derived from sedimentary rock

Typical profile

A - 0 to 4 inches: fine sandy loam
Bw - 4 to 24 inches: fine sandy loam
Bk - 24 to 60 inches: fine sandy loam

Properties and qualities

Slope: 1 to 10 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): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 15 percent
Gypsum, maximum in profile: 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 7.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: A
Ecological site: Sandy 16-21" PZ (R077CY035TX)
Hydric soil rating: No

Description of Potter

Setting

Landform: Draws, escarpments
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Calcareous alluvium and/or calcareous eolian deposits derived from sedimentary rock

Typical profile

A - 0 to 4 inches: gravelly fine sandy loam
BCk - 4 to 14 inches: extremely cobbly loam

Properties and qualities

Slope: 5 to 15 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Medium
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: 70 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: Very low (about 0.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: B
Ecological site: Very Shallow 16-21" PZ (R077CY037TX)
Hydric soil rating: No

Minor Components

Maljamar

Percent of map unit: 2 percent
Ecological site: Loamy Sand (R042XC003NM)
Hydric soil rating: No

Stony rock land
Percent of map unit: 1 percent
Ecological site: Shallow (R042XC025NM)
Hydric soil rating: No

Ustifluvents
Percent of map unit: 1 percent
Landform: Drainageways
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Ecological site: Draw (R042XC008NM)
Hydric soil rating: Yes

Pyote
Percent of map unit: 1 percent
Ecological site: Loamy Sand (R042XC003NM)
Hydric soil rating: No

Mansker
Percent of map unit: 1 percent
Ecological site: Limy Upland 16-21" PZ (R077CY028TX)
Hydric soil rating: No

Data Source Information

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

Lea County, New Mexico

SE—Simona fine sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: dmr2
Elevation: 3,000 to 4,200 feet
Mean annual precipitation: 10 to 15 inches
Mean annual air temperature: 58 to 62 degrees F
Frost-free period: 190 to 205 days
Farmland classification: Not prime farmland

Map Unit Composition

Simona and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Simona

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 8 inches: fine sandy loam
Bk - 8 to 16 inches: gravelly fine sandy loam
Bkm - 16 to 26 inches: cemented material

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 7 to 20 inches to petrocalcic
Natural drainage class: Well drained
Runoff class: Very 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: 35 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: Very low (about 2.0 inches)

Interpretive groups

Land capability classification (irrigated): 6s

Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: Shallow Sandy (R042XC002NM)
Hydric soil rating: No

Minor Components

Kimbrough

Percent of map unit: 8 percent
Ecological site: Very Shallow 16-21" PZ (R077CY037TX)
Hydric soil rating: No

Lea

Percent of map unit: 7 percent
Ecological site: Limy Upland 16-21" PZ (R077CY028TX)
Hydric soil rating: No

Data Source Information

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

ATTACHMENT 4

Daily Site Visit Report

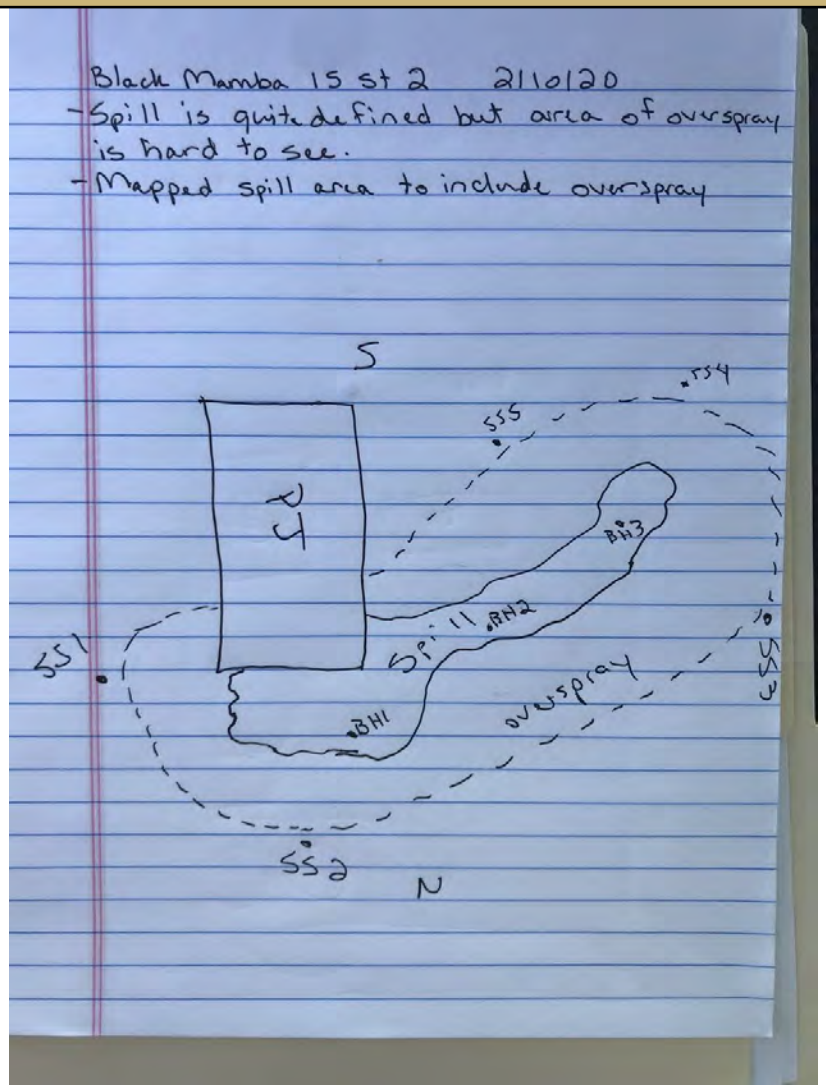
Client:	Devon Energy Corporation	Inspection Date:	2/10/2020
Site Location Name:	Black Mamba 15 State Com 2H CTB	Report Run Date:	2/11/2020 12:44 AM
Project Owner:	Amanda Davis	File (Project) #:	20E-00141
Project Manager:	Natalie Gordon	API #:	30-025-40173
Client Contact Name:	Amanda Davis	Reference	08/31/2018 - 144bbl PW Spill
Client Contact Phone #:	(575) 748-0176		

Summary of Times	
Left Office	2/10/2020 10:34 AM
Arrived at Site	2/10/2020 12:01 PM
Departed Site	2/10/2020 2:27 PM
Returned to Office	

Daily Site Visit Report

VERTEX

Site Sketch



Daily Site Visit Report

Summary of Daily Operations

12:02 Arrive on location safety paperwork map spill area. Collect samples

Next Steps & Recommendations

1 Field screen samples

2 Discuss plan with project manager

Daily Site Visit Report

Site Photos

Viewing Direction: East

Spill area in front of pumpjack

Viewing Direction: South

Spill area west of pumpjack

Viewing Direction: Northeast

Spill area on west side of pumpjack

Viewing Direction: East

Sample points bh1 and ss1

Daily Site Visit Report

Viewing Direction: North	**Viewing Direction**: South
	
Sample point ss2	Sample point bh2
Viewing Direction: South	**Viewing Direction**: West
	
Sample points bh3 and ss5	Sample point ss5

Daily Site Visit Report

Viewing Direction: South

Sample point ss4

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Monica Peppin

Signature:

VERTEX

Spill Response and Sampling

Client:	Devon
Date:	2110120
Site Name:	Black Mamba 15 St 2
Site Location:	
Project Owner:	
Project Manager:	
Project #:	20E-00141-022

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

Sampling

		Field Screening			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/FP/BH - Year - Number Ex. BH18-01	Ex. '2ft	Ex. 400 ppm	200 ppm	Ex. 'High +	Ex. Hydrocarbon Chloride			
BH1	0			10.69/20.9	15334			
	0.5			2.35/20.7	3306			
	1			0.81/20.6	1087			
	1.5			1.19/20.6	1636 (R)			
BH2	0			4.89/20.1	6998			
	0.5			0.88/20.3	1201			
	1			0.44/20.2	571			
	2			0.65/20.3	869 (R)			
BH3	0			0.63/20.2	845			
	0.5			0.93/20.3	1273			
	1			1.05/20.2	1451			
	2			0.28/20.1	344			
	3			0.10/20.3	75			
SS1	0			0.70/20.2	946			
SS1.1	0			1.04/20.3	1432			
SS2	0			0.31/20.2	383			
SS2.1	0			0.96/20.2	1321			
SS3	0			0.53/20.1	705			
SS3.1	0			0.25/20.3	292			
SS4	0			0.71/20.3	956			
SS4.1	0			0.73/20.3	985			

VERTEX

Spill Response and Sampling

Client:	
Date:	
Site Name:	
Site Location:	
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			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			
SS 5	0			0.93/20.5	1273			
SS5.1	0			0.26/20.3	306			

Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	9/1/2020
Site Location Name:	Black Mamba 15 State Com 2H CTB	Report Run Date:	9/1/2020 7:41 PM
Client Contact Name:	Amanda Davis	API #:	30-025-40173
Client Contact Phone #:	(575) 748-0176		
Unique Project ID	-Black Mamba 15 State Com 2H CTB	Project Owner:	Amanda Davis
Project Reference #	08/31/2018 - 144bbl PW Spill	Project Manager:	Natalie Gordon

Summary of Times

Arrived at Site	9/1/2020 8:15 AM
Departed Site	9/1/2020 12:08 PM

Field Notes

8:56 Liner integrity shows no signs of breach from lined containment. Liner is fit to retain a release

8:56 Stepping out ss1 ss2 ss4 and ss5 for a better horizontal delineation. Field screening for chlorides and tph

10:20 Fixed map and completed step out of points exceeding strictest criteria.

10:42 Attempting to recollect bh1 and bh2 for vertical delineation. Hitting hard rock layer on bh1 at 1.5 ft.

Next Steps & Recommendations

1 Send samples to lab

2 Create work plan or remediation plan

Daily Site Visit Report

Site Photos

Viewing Direction: South

East side of lined containment

Viewing Direction: Southeast

Southeast side of lined containment

Viewing Direction: West

Looking west of lined containment

Viewing Direction: South

Looking south of lined containment

Daily Site Visit Report

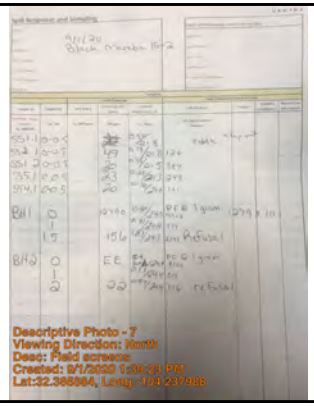
Viewing Direction: North

Looking north in front of tanks

Viewing Direction: North

Looking on north end of lined containment

Viewing Direction: North



Field screens

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Monica Peppin

Signature: 

Signature

Spill Response and Sampling

VERTEX

Client:	
Date:	9/1/20
Site Name:	Black Mamba 15-2
Site Location:	
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			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			
SS1.1	0-0.5		~~X~~	0.54/21.8	cobble step out			
SS2.1	0-0.5		49	0.18/21.8	126			
SS1.2	0-0.5		20	0.35/21.5	384			
SS5.1	0-0.5		23	0.25/21.3	249			
SS4.1	0-0.5		20	0.16/21.7	101			
BH1	0		12790	10.50/24.5	PF @ 1 gram 14904	1279 x 10		
	1			0.71/24.4	774			
	1.5		156	1.83/24.3	2399 Refusal			
BH2	0		EE	5.9 6.0 b/24.4	PF @ 1 gram 8500			
	1			0.53/24.4	519			
	2		22	0.57/24.4	576 refusal			

Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	2/4/2021
Site Location Name:	Black Mamba 15 State Com 2H CTB	Report Run Date:	2/8/2021 10:13 PM
Client Contact Name:	Amanda Davis	API #:	30-025-40173
Client Contact Phone #:	(575) 748-0176		
Unique Project ID	-Black Mamba 15 State Com 2H CTB	Project Owner:	Amanda Davis
Project Reference #	08/31/2018 - 144bbl PW Spill	Project Manager:	Natalie Gordon

Summary of Times

Arrived at Site	2/4/2021 8:15 AM
Departed Site	2/4/2021 3:22 PM

Field Notes

12:16 Began digging west of the pumping unit with a base sample 10 feet away from the well head.

Next Steps & Recommendations

1

Daily Site Visit Report

Site Photos

Viewing Direction: East

Excavation began by the well head.

Viewing Direction: Northwest

Area excavated so far

Viewing Direction: South

Dirt pile

Viewing Direction: Northeast

Area planned to excavate east of the pumping unit.

Daily Site Visit Report

Viewing Direction: Northwest	**Viewing Direction**: West
	
Area planned to excavate	WS 1

Viewing Direction: East	**Viewing Direction**: North
	
WS 2	WS 3

Daily Site Visit Report

Viewing Direction: South	**Viewing Direction**: West
	
Well head	Soil pile

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Chance Dixon

Signature: 

Signature

VERTEX

Spill Response and Sampling

Client:	
Date:	
Site Name:	
Site Location:	
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			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			
BS1-01	1	2.2	175	0.3/22.8				
[redacted]	1	0		0				
BS1	2	0		0.54/20.8				
BS1	2.5	0.5		0.61/24.7				
WS1-01	0.5	0.2	24	0.18/22.4				
WS2	0.5	0.5		0.42/26.4				
WS3	0.5	0.4		0.73/5				

Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	2/5/2021
Site Location Name:	Black Mamba 15 State Com 2H CTB	Report Run Date:	2/8/2021 10:14 PM
Client Contact Name:	Amanda Davis	API #:	30-025-40173
Client Contact Phone #:	(575) 748-0176		
Unique Project ID	-Black Mamba 15 State Com 2H CTB	Project Owner:	Amanda Davis
Project Reference #	08/31/2018 - 144bbl PW Spill	Project Manager:	Natalie Gordon

Summary of Times

Arrived at Site	2/5/2021 8:21 AM
Departed Site	2/5/2021 3:15 PM

Field Notes

8:22 Arrived at site to move soil piles to run wall samples

Next Steps & Recommendations

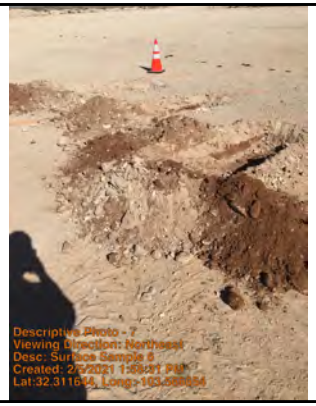
1

Daily Site Visit Report

Site Photos

Viewing Direction: Northwest	**Viewing Direction**: West
	
Surface Sample 1	Area excavated
Viewing Direction: Southwest	**Viewing Direction**: North
	
Surface Sample 2	Sample Surface 3

Daily Site Visit Report

Viewing Direction: South	**Viewing Direction**: East
	
Surface Sample 4	Surface Sample 5
Viewing Direction: Southeast	**Viewing Direction**: Northeast
	
Base Sample 1	Surface Sample 6

Daily Site Visit Report

Viewing Direction: Southeast	**Viewing Direction**: West
	
Surface Sample 7	Area Excavated so far

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Chance Dixon

Signature: 

Signature

VERTEX

Spill Response and Sampling

Client:	Devon
Date:	2/5/21
Site Name:	Black Mamba
Site Location:	15 ST 2
Project Owner:	
Project Manager:	Monica Pippin
Project #:	

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

Sampling								
		Field Screening			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			
WS21-01	0.5							
WS 2	0.5	0.3		1.09/17.0				
WS 3	0.5	0	55	0.79/16.8				
WS 4	0.5	0.2		0.49/16.4				
WS 5	0.5	0.4	51	0.09/18.2				
WS 6	0.5	0.3	26	0.17/16.0				
WS 7	0.5	0.2	15	0.36/15.8				
WS 2	0.5	0.6	29	0.26/18.7	Stepped out 4-5'			
WS 4	0.5	0.4	16	0.25/19.6	Stepped out 3'			
BS21-01	3.5	0.6		1.66/23.6				
BS 1	4	0.4		2.14/25.3				
BS 1	5	0.1		1.60/24.5				

VERSATILITY. EXPERTISE.

Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	2/8/2021
Site Location Name:	Black Mamba 15 State Com 2H CTB	Report Run Date:	2/8/2021 10:15 PM
Client Contact Name:	Amanda Davis	API #:	30-025-40173
Client Contact Phone #:	(575) 748-0176		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	2/8/2021 9:11 AM
Departed Site	2/8/2021 3:20 PM

Field Notes

9:11 Arrived on site to begin base sampling

Next Steps & Recommendations

1

Daily Site Visit Report

Site Photos

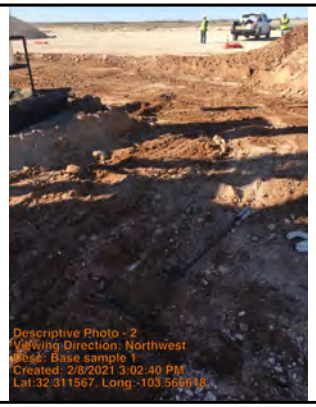
Viewing Direction: Northwest

Exacavation extended to the edges. Walls completed

Viewing Direction: East

Area excavated

Viewing Direction: Northwest

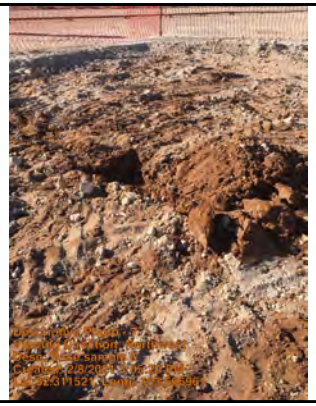


Base sample 1

Viewing Direction: Southwest

Base sample 2

Daily Site Visit Report

Viewing Direction: North	**Viewing Direction**: West
	
Base sample 3	Base sample 4
Viewing Direction: West	**Viewing Direction**: Northwest
	
Base sample 5	Base sample 6

Daily Site Visit Report

Viewing Direction: North	**Viewing Direction**: East
	
Base sample 7	Base sample 8

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Chance Dixon

Signature: 

Signature

VERTEX

Spill Response and Sampling

Client:	DEVON
Date:	2/16/21
Site Name:	BLACK MAMBA
Site Location:	15S 2H
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			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			
BS21-01	0.5	0.9		1.37/20.5				
BS2	0.5-1	0.5	32	0.37/22.7				
BS3		1.1		1.19/22.9				
BS4		1.3		0.61/22.8				
BS5		0.5		0.77/23.3				
BS6		0.6		0.42/23.4				
BS7		0.5		1.02/23.6				
BS8		0.4		0.71/23.2				
BS 1.1	2'	0.6		0.86/21.8				
BS 3.1		0.2	106	0.07/21.8				
BS 4.1		0.3		0.67/22.2				
BS 5.1		0.5	56	0.06/25.0				
BS 6.1		0.4	35	0.28/23.9				
BS 7.1		0.3	44	0.38/25.0				
BS 8.1		0.2		0.50/24.1				
BS 3	2'		92	0.07/22.4				
BS 4	3'	0.2		0.51/21.2				
BS 8	3'	0.3		0.18/21.2				

VERTEX

Spill Response and Sampling

Client:	
Date:	
Site Name:	
Site Location:	
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			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			
BS21-01	2'	0.5		0.58/17.3				
BS4	2'	0.6	36	0.37/16.4				
BS1	2'	0.7		0.79/17.4				
BS1	2'	0.7		0.73/18.0				
BS1	2'	0.7	56	0.28/16.9				

Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	3/4/2021
Site Location Name:	Black Mamba 15 State Com 2H CTB	Report Run Date:	3/4/2021 5:57 PM
Client Contact Name:	Amanda Davis	API #:	30-025-40173
Client Contact Phone #:	(575) 748-0176		
Unique Project ID	-Black Mamba 15 State Com 2H CTB	Project Owner:	Amanda Davis
Project Reference #	08/31/2018 - 144bbl PW Spill	Project Manager:	Natalie Gordon

Summary of Times

Arrived at Site	3/4/2021 9:15 AM
Departed Site	3/4/2021 11:56 AM

Field Notes

10:30 Arrived on site to re-collect failed confirmatory samples WS1 and BS8. Also to take photos of backfill.

11:52 Completed recollection of samples and got clean for both.

Next Steps & Recommendations

1

Daily Site Visit Report

Site Photos

Viewing Direction: North

Excavation backfill

Viewing Direction: East

Excavation backfill

Viewing Direction: South

Excavation backfill

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Chance Dixon

Signature: 

Signature

VERTEX

Spill Response and Sampling

Client:	DCVN
Date:	3/4/21
Site Name:	Black Mamba 15 St 2
Site Location:	
Project Owner:	
Project Manager:	Monica Peppin
Project #:	20E-00141-022

Initial Spill Information - Record on First Visit	
Spill Date:	9/1/19
Spill Volume:	15 bbls
Spill Cause:	Liner separated
Spill Product:	Water and oil
Recovered Spill Volume:	
Recovery Method:	

Sampling

		Field Screening			Data Collection (Check for Yes)		
Sample ID	Depth (ft)	VOC (PID)	PetroFlag TPH (ppm)	Chloride PPM	Notes	Trimble Coordinates	Marked on Site Sketch
BE/WS/BH - Year Number Ex. BE18-01	Ex. '2ft	Ex. 400 ppm	200 ppm	Method: Titration - EC Probe			
WS21-01	0-2	0.1	51	[redacted] 75			
BS21-08	0-3	0.3	78	90			

ATTACHMENT 5

From: Dhugal Hanton
To: Enviro, OCD, EMNRD; spills@slo.state.nm.us
Subject: [EXT] NRM2003436831: Black Mamba 15 St Com 2H/48-hr notification of Confirmatory Sampling
Date: Tuesday, February 2, 2021 11:35:03 AM

All,

Please accept this email as 48-hour notification that Vertex Resource Services has scheduled confirmatory sampled to be conducted at Black Mamba 15 State Com 2H, API 30-025-40173 for the following release:

NRM2003436831 DOR: September 1, 2019

On Thursday, February 4, 2021 at approximately 11:30 AM, Chance Dixon will be onsite to conduct confirmatory. He can be reached at 575-988-1472, please do not hesitate to contact him. If you have any questions or concerns regarding this notification, please give me a call at 575-361-9880.

Thank you,
Monica

Monica Peppin
Project Manager in Training

Vertex Resource Group Ltd.
3101 Boyd Drive,
Carlsbad, NM 88220

P 575.725.5001 Ext. 711
C 575.361.9880
F

www.vertex.ca

ATTACHMENT 6

Client Name: Devon Energy Production Company
Site Name: Black Mamba 15 State Com 2H
NMOCD Incident Tracking Numbers: NRM2003436831
Project #: 20E-00141-022
Lab Report: 2002515

Table 2. Characterization Sampling Laboratory Results - Depth to Groundwater < 50 feet

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)
BH 20-01	0	February 10, 2020	-	-	15,334	<0.025	<0.225	<5.0	13,000	7,500	**13,000**	**20,500**	**18,000**
BH 20-01	0	September 1, 2020	-	-	-	<0.024	<0.097	<4.9	4,700	4,400	**4,700**	**9,100**	**15,000**
BH 20-01	0.5	February 10, 2020	-	-	3,306	-	-	-	-	-	-	-	-
BH 20-01	1	February 10, 2020	-	-	1,087	-	-	-	-	-	-	-	-
BH 20-01	1.5-R	February 10, 2020	-	-	1,636	-	-	-	-	-	-	-	-
BH 20-01	1.5	September 1, 2020	-	-	-	<0.024	<0.096	<4.8	19	<46	19	19	**2,800**
BH 20-02	0	February 10, 2020	-	-	6,998	<0.024	1.490	5.2	24,000	15,000	**24,005**	**39,000**	**12,000**
BH 20-02	0	September 1, 2020	-	-	-	<0.025	<0.099	<5.0	12,000	11,000	**12,000**	**23,000**	**14,000**
BH 20-02	0.5	February 10, 2020	-	-	1,201	-	-	-	-	-	-	-	-
BH 20-02	1	February 10, 2020	-	-	571	<0.025	<0.221	<4.9	43	<50	43	43	270
BH 20-02	2-R	February 10, 2020	-	-	869	-	-	-	-	-	-	-	-
BH 20-02	2	September 1, 2020	-	-	-	<0.024	<0.096	<4.8	<9.1	<46	<13.9	<59.9	330
BH 20-03	0	February 10, 2020	-	-	845	-	-	-	-	-	-	-	-
BH 20-03	0.5	February 10, 2020	-	-	1,273	-	-	-	-	-	-	-	-
BH 20-03	1	February 10, 2020	-	-	1,451	-	-	-	-	-	-	-	-
BH 20-03	2	February 10, 2020	-	-	344	-	-	-	-	-	-	-	-
BH 20-03	3	February 10, 2020	-	-	75	-	-	-	-	-	-	-	-
SS 20-01	0	February 10, 2020	-	-	946	<0.024	<0.217	<4.8	16,000	8,300	**16,000**	**24,300**	**1,300**
SS 20-01	0-0.5	September 1, 2020	-	-	-	<0.024	<0.095	<4.8	<9.2	<46	<14	60	490
SS 20-02	0	February 10, 2020	-	-	383	<0.025	<0.221	<4.9	570	680	**570**	**1,250**	310
SS 20-02	0-0.5	September 1, 2020	-	-	-	<0.023	<0.093	<4.7	<9.7	<48	<14.4	<62.4	88
SS 20-03	0	February 10, 2020	-	-	292	<0.025	<0.222	<4.9	<9.9	<49	<14.8	<63.8	180
SS 20-04	0	February 10, 2020	-	-	956	<0.025	<0.225	<5.0	12	<49	12	12	**1,100**
SS 20-04	0-0.5	September 1, 2020	-	-	-	<0.024	<0.096	<4.8	<9.4	<47	<14.2	<61.2	61
SS 20-05	0	February 10, 2020	-	-	306	<0.025	<0.222	<4.9	42	66	42	**108**	350
SS 20-05	0-0.5	September 1, 2020	-	-	-	<0.024	<0.094	<4.7	<9.1	<45	<13.8	<58.8	120

"-" - Not applicable/assessed
Bold and shaded indicates exceedance outside of applied action level

VERTEX

Client Name: Devon Energy Production Company
Site Name: Black Mamba 15 State Com 2H
NMOCD Incident Tracking Number: NRM2003436831
Project #: 20E-00141-022
Lab Report: 2102602

Table 3. Release Characterization Sampling

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)
WS21-01	0-2	2021-02-09	0.2	24	100	<0.12	<1.07	<24	290	300	290	590	510
WS21-01	0-2	2021-03-04				<0.023	<0.208	<4.6	<9.6	<48	<14.2	<62.2	<59
WS21-02	0-2	2021-02-09	0.6	29	376	<0.023	<0.207	<4.6	<8.5	<42	<13.1	<55.1	180
WS21-03	0-2	2021-02-09	0.0	55	357	<0.024	<0.22	<4.9	<9.1	<45	<14	<59.0	<60
WS21-04	0-2	2021-02-09	0.4	16	444	<0.024	<0.219	<4.9	<9.0	<45	<13.9	<58.9	190
WS21-05	0-2	2021-02-09	0.4	51	152	<0.024	<0.215	<4.8	<9.3	<47	<14.1	<61.1	<60
WS21-06	0-3	2021-02-09	0.3	26	363	<0.023	<0.21	<4.7	<9.3	<46	<14.0	<60.0	270
WS21-07	0-2	2021-02-09	0.2	15	646	<0.024	<0.219	<4.9	<9.7	<48	<14.6	<62.6	230
BS21-01	2	2021-02-09	0.2	24	482	<0.023	<0.208	<4.6	<9.1	<45	<13.7	<58.7	610
BS21-01	2	2021-03-04				<0.023	<0.21	<4.7	<9.7	<48	<14.4	<62.4	240
BS21-02	2	2021-02-09	0.5	32	361	<0.024	<0.213	<4.7	<8.8	<44	<13.5	<57.5	500
BS21-03	2	2021-02-09	0.2	92	ND	<0.024	<0.212	<4.7	<9.8	<49	<14.5	<63.5	<60
BS21-04	2	2021-02-09	0.6	36	634	<0.025	<0.221	<4.9	<10	<50	<14.9	<64.9	240
BS21-05	2	2021-02-09	0.5	56	ND	<0.024	<0.216	<4.8	<9.8	<49	<14.6	<63.6	<60
BS21-06	2	2021-02-09	0.4	35	179	<0.024	<0.216	<4.8	<9.7	<48	<14.5	<62.5	150
BS21-07	2	2021-02-09	0.3	44.0	276.0	<0.023	<0.21	<4.7	<9.7	<49	<14.4	<63.4	290
BS21-08	3	2021-02-09	0.3	-	152	<0.023	<0.211	<4.7	<9.8	<49	<14.5	<63.5	160

Bold and shaded indicates exceedance outside of applied action level
Bold and shaded indicates re-sampling event

VERTEX

ATTACHMENT 7

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

February 20, 2020

Amanda Davis

Devon Energy
6488 Seven Rivers Highway
Artesia, NM 88210
TEL: (575) 748-0176
FAX

RE: Black Mamba 15 State Com 2H CTB OrderNo.: 2002515

Dear Amanda Davis:

Hall Environmental Analysis Laboratory received 8 sample(s) on 2/13/2020 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 **2002515**
Date Reported: **2/20/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Black Mamba 15 State Com 2H CTB
Lab ID: 2002515-001 **Matrix:** SOIL

Client Sample ID: BH20-01 0'
Collection Date: 2/10/2020 12:45:00 PM
Received Date: 2/13/2020 10:18:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	13000	990		mg/Kg	100	2/18/2020 10:56:36 AM
Motor Oil Range Organics (MRO)	7500	5000		mg/Kg	100	2/18/2020 10:56:36 AM
Surr: DNOP	0	55.1-146	S	%Rec	100	2/18/2020 10:56:36 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	2/15/2020 9:44:03 AM
Surr: BFB	81.7	66.6-105		%Rec	1	2/15/2020 9:44:03 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	2/17/2020 4:41:32 PM
Toluene	ND	0.050		mg/Kg	1	2/17/2020 4:41:32 PM
Ethylbenzene	ND	0.050		mg/Kg	1	2/17/2020 4:41:32 PM
Xylenes, Total	ND	0.10		mg/Kg	1	2/17/2020 4:41:32 PM
Surr: 4-Bromofluorobenzene	86.1	80-120		%Rec	1	2/17/2020 4:41:32 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	18000	1500		mg/Kg	500	2/19/2020 12:24:55 AM

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 **2002515**
Date Reported: **2/20/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Black Mamba 15 State Com 2H CTB
Lab ID: 2002515-002 **Matrix:** SOIL

Client Sample ID: BH20-02 0'
Collection Date: 2/10/2020 1:15:00 PM
Received Date: 2/13/2020 10:18:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**
Diesel Range Organics (DRO)	24000	990		mg/Kg	100	2/17/2020 5:53:20 PM
Motor Oil Range Organics (MRO)	15000	4900		mg/Kg	100	2/17/2020 5:53:20 PM
Surr: DNOP	0	55.1-146	S	%Rec	100	2/17/2020 5:53:20 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	5.2	4.9		mg/Kg	1	2/15/2020 10:07:20 AM
Surr: BFB	115	66.6-105	S	%Rec	1	2/15/2020 10:07:20 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	2/17/2020 5:28:39 PM
Toluene	ND	0.049		mg/Kg	1	2/17/2020 5:28:39 PM
Ethylbenzene	0.19	0.049		mg/Kg	1	2/17/2020 5:28:39 PM
Xylenes, Total	1.3	0.098		mg/Kg	1	2/17/2020 5:28:39 PM
Surr: 4-Bromofluorobenzene	110	80-120		%Rec	1	2/17/2020 5:28:39 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	12000	600		mg/Kg	200	2/19/2020 12:37:15 AM

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 **2002515**
Date Reported: **2/20/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Black Mamba 15 State Com 2H CTB
Lab ID: 2002515-003 **Matrix:** SOIL

Client Sample ID: BH20-02 1'
Collection Date: 2/10/2020 1:25:00 PM
Received Date: 2/13/2020 10:18:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**
Diesel Range Organics (DRO)	43	10		mg/Kg	1	2/17/2020 6:02:38 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	2/17/2020 6:02:38 PM
Surr: DNOP	96.6	55.1-146		%Rec	1	2/17/2020 6:02:38 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	2/15/2020 10:30:42 AM
Surr: BFB	79.1	66.6-105		%Rec	1	2/15/2020 10:30:42 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	2/17/2020 6:15:10 PM
Toluene	ND	0.049		mg/Kg	1	2/17/2020 6:15:10 PM
Ethylbenzene	ND	0.049		mg/Kg	1	2/17/2020 6:15:10 PM
Xylenes, Total	ND	0.098		mg/Kg	1	2/17/2020 6:15:10 PM
Surr: 4-Bromofluorobenzene	93.9	80-120		%Rec	1	2/17/2020 6:15:10 PM
EPA METHOD 300.0: ANIONS						Analyst: **CJS**
Chloride	270	60		mg/Kg	20	2/17/2020 1:55:06 PM

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 **2002515**
Date Reported: **2/20/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: SS20-01 0'
Project: Black Mamba 15 State Com 2H CTB
Collection Date: 2/10/2020 1:45:00 PM
Lab ID: 2002515-004 **Matrix:** SOIL
Received Date: 2/13/2020 10:18:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	16000	470		mg/Kg	50	2/18/2020 11:44:56 AM
Motor Oil Range Organics (MRO)	8300	2400		mg/Kg	50	2/18/2020 11:44:56 AM
Surr: DNOP	0	55.1-146	S	%Rec	50	2/18/2020 11:44:56 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	2/15/2020 10:54:07 AM
Surr: BFB	83.1	66.6-105		%Rec	1	2/15/2020 10:54:07 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	2/17/2020 6:38:38 PM
Toluene	ND	0.048		mg/Kg	1	2/17/2020 6:38:38 PM
Ethylbenzene	ND	0.048		mg/Kg	1	2/17/2020 6:38:38 PM
Xylenes, Total	ND	0.097		mg/Kg	1	2/17/2020 6:38:38 PM
Surr: 4-Bromofluorobenzene	88.0	80-120		%Rec	1	2/17/2020 6:38:38 PM
EPA METHOD 300.0: ANIONS						Analyst: **CJS**
Chloride	1300	60		mg/Kg	20	2/17/2020 2:07:28 PM

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 **2002515**
Date Reported: **2/20/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: SS20-02 0'
Project: Black Mamba 15 State Com 2H CTB
Collection Date: 2/10/2020 1:50:00 PM
Lab ID: 2002515-005 **Matrix:** SOIL
Received Date: 2/13/2020 10:18:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**
Diesel Range Organics (DRO)	570	9.8		mg/Kg	1	2/17/2020 6:21:12 PM
Motor Oil Range Organics (MRO)	680	49		mg/Kg	1	2/17/2020 6:21:12 PM
Surr: DNOP	190	55.1-146	S	%Rec	1	2/17/2020 6:21:12 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	2/15/2020 11:17:37 AM
Surr: BFB	80.2	66.6-105		%Rec	1	2/15/2020 11:17:37 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	2/17/2020 7:25:38 PM
Toluene	ND	0.049		mg/Kg	1	2/17/2020 7:25:38 PM
Ethylbenzene	ND	0.049		mg/Kg	1	2/17/2020 7:25:38 PM
Xylenes, Total	ND	0.098		mg/Kg	1	2/17/2020 7:25:38 PM
Surr: 4-Bromofluorobenzene	86.9	80-120		%Rec	1	2/17/2020 7:25:38 PM
EPA METHOD 300.0: ANIONS						Analyst: **CJS**
Chloride	310	60		mg/Kg	20	2/17/2020 2:19:49 PM

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 **2002515**
Date Reported: **2/20/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: SS20-03 0'
Project: Black Mamba 15 State Com 2H CTB
Collection Date: 2/10/2020 1:55:00 PM
Lab ID: 2002515-006 **Matrix:** SOIL
Received Date: 2/13/2020 10:18:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	2/17/2020 6:30:28 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	2/17/2020 6:30:28 PM
Surr: DNOP	94.8	55.1-146		%Rec	1	2/17/2020 6:30:28 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	2/15/2020 11:41:06 AM
Surr: BFB	80.8	66.6-105		%Rec	1	2/15/2020 11:41:06 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	2/17/2020 7:49:08 PM
Toluene	ND	0.049		mg/Kg	1	2/17/2020 7:49:08 PM
Ethylbenzene	ND	0.049		mg/Kg	1	2/17/2020 7:49:08 PM
Xylenes, Total	ND	0.099		mg/Kg	1	2/17/2020 7:49:08 PM
Surr: 4-Bromofluorobenzene	87.9	80-120		%Rec	1	2/17/2020 7:49:08 PM
EPA METHOD 300.0: ANIONS						Analyst: **CJS**
Chloride	180	60		mg/Kg	20	2/17/2020 2:32:09 PM

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 **2002515**
Date Reported: **2/20/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: SS20-04 0'
Project: Black Mamba 15 State Com 2H CTB
Collection Date: 2/10/2020 2:00:00 PM
Lab ID: 2002515-007 **Matrix:** SOIL
Received Date: 2/13/2020 10:18:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**
Diesel Range Organics (DRO)	12	9.8		mg/Kg	1	2/17/2020 6:39:43 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	2/17/2020 6:39:43 PM
Surr: DNOP	88.9	55.1-146		%Rec	1	2/17/2020 6:39:43 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	2/15/2020 1:38:49 PM
Surr: BFB	82.8	66.6-105		%Rec	1	2/15/2020 1:38:49 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	2/17/2020 8:12:38 PM
Toluene	ND	0.050		mg/Kg	1	2/17/2020 8:12:38 PM
Ethylbenzene	ND	0.050		mg/Kg	1	2/17/2020 8:12:38 PM
Xylenes, Total	ND	0.10		mg/Kg	1	2/17/2020 8:12:38 PM
Surr: 4-Bromofluorobenzene	88.4	80-120		%Rec	1	2/17/2020 8:12:38 PM
EPA METHOD 300.0: ANIONS						Analyst: **CJS**
Chloride	1100	60		mg/Kg	20	2/17/2020 2:44:31 PM

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 **2002515**
Date Reported: **2/20/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: SS20-05 0'
Project: Black Mamba 15 State Com 2H CTB
Collection Date: 2/10/2020 2:05:00 PM
Lab ID: 2002515-008 **Matrix:** SOIL
Received Date: 2/13/2020 10:18:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**
Diesel Range Organics (DRO)	42	9.5		mg/Kg	1	2/17/2020 6:48:58 PM
Motor Oil Range Organics (MRO)	66	47		mg/Kg	1	2/17/2020 6:48:58 PM
Surr: DNOP	104	55.1-146		%Rec	1	2/17/2020 6:48:58 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	2/15/2020 2:02:24 PM
Surr: BFB	82.7	66.6-105		%Rec	1	2/15/2020 2:02:24 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	2/17/2020 8:36:03 PM
Toluene	ND	0.049		mg/Kg	1	2/17/2020 8:36:03 PM
Ethylbenzene	ND	0.049		mg/Kg	1	2/17/2020 8:36:03 PM
Xylenes, Total	ND	0.099		mg/Kg	1	2/17/2020 8:36:03 PM
Surr: 4-Bromofluorobenzene	87.7	80-120		%Rec	1	2/17/2020 8:36:03 PM
EPA METHOD 300.0: ANIONS						Analyst: **CJS**
Chloride	350	60		mg/Kg	20	2/17/2020 2:56:52 PM

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2002515**

20-Feb-20

Client: Devon Energy

Project: Black Mamba 15 State Com 2H CTB

Sample ID: **MB-50475**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **50475**	RunNo: **66591**
Prep Date: **2/17/2020**	Analysis Date: **2/17/2020**	SeqNo: **2288912** Units: **mg/Kg**

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

Sample ID: **LCS-50475**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **50475**	RunNo: **66591**
Prep Date: **2/17/2020**	Analysis Date: **2/17/2020**	SeqNo: **2288913** 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#: **2002515**

20-Feb-20

Client: Devon Energy

Project: Black Mamba 15 State Com 2H CTB

Sample ID: **MB-50455** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **50455** RunNo: **66580**
Prep Date: **2/14/2020** Analysis Date: **2/17/2020** SeqNo: **2288366** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	9.1		10.00		91.1	55.1	146			

Sample ID: **LCS-50455** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **50455** RunNo: **66580**
Prep Date: **2/14/2020** Analysis Date: **2/17/2020** SeqNo: **2288367** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.4		5.000		89.0	55.1	146			

Sample ID: **MB-50453** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **50453** RunNo: **66580**
Prep Date: **2/14/2020** Analysis Date: **2/17/2020** SeqNo: **2288580** 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	8.6		10.00		85.7	55.1	146			

Sample ID: **LCS-50453** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **50453** RunNo: **66580**
Prep Date: **2/14/2020** Analysis Date: **2/17/2020** SeqNo: **2288581** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	50	10	50.00	0	100	70	130			
Surr: DNOP	4.1		5.000		82.4	55.1	146			

Sample ID: **MB-50496** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **50496** RunNo: **66605**
Prep Date: **2/18/2020** Analysis Date: **2/18/2020** SeqNo: **2289090** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	8.9		10.00		88.8	55.1	146			

Sample ID: **LCS-50496** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **50496** RunNo: **66605**
Prep Date: **2/18/2020** Analysis Date: **2/18/2020** SeqNo: **2289092** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.2		5.000		84.7	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#: **2002515**

20-Feb-20

Client: Devon Energy

Project: Black Mamba 15 State Com 2H CTB

Sample ID: **MB-50486**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **50486**	RunNo: **66605**
Prep Date: **2/17/2020**	Analysis Date: **2/18/2020**	SeqNo: **2289790** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	11		10.00		111	55.1	146			

Sample ID: **LCS-50486**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **50486**	RunNo: **66605**
Prep Date: **2/17/2020**	Analysis Date: **2/18/2020**	SeqNo: **2289791** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	5.1		5.000		102	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#: **2002515**

20-Feb-20

Client: Devon Energy

Project: Black Mamba 15 State Com 2H CTB

Sample ID: **MB-50443** SampType: **MBLK** TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS** Batch ID: **50443** RunNo: **66571**
Prep Date: **2/13/2020** Analysis Date: **2/14/2020** SeqNo: **2287764** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	780		1000		78.3	66.6	105			

Sample ID: **LCS-50443** SampType: **LCS** TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS** Batch ID: **50443** RunNo: **66571**
Prep Date: **2/13/2020** Analysis Date: **2/14/2020** SeqNo: **2287765** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	890		1000		88.9	66.6	105			

Sample ID: **mb-50435** SampType: **MBLK** TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS** Batch ID: **50435** RunNo: **66571**
Prep Date: **2/13/2020** Analysis Date: **2/15/2020** SeqNo: **2287867** 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	790		1000		78.7	66.6	105			

Sample ID: **lcs-50435** SampType: **LCS** TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS** Batch ID: **50435** RunNo: **66571**
Prep Date: **2/13/2020** Analysis Date: **2/15/2020** SeqNo: **2287868** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	21	5.0	25.00	0	82.4	80	120			
Surr: BFB	870		1000		87.4	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#: **2002515**

20-Feb-20

Client: Devon Energy

Project: Black Mamba 15 State Com 2H CTB

Sample ID: **MB-50443** SampType: **MBLK** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS** Batch ID: **50443** RunNo: **66571**
Prep Date: **2/13/2020** Analysis Date: **2/14/2020** SeqNo: **2287894** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.87		1.000		87.2	80	120			

Sample ID: **LCS-50443** SampType: **LCS** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS** Batch ID: **50443** RunNo: **66571**
Prep Date: **2/13/2020** Analysis Date: **2/14/2020** SeqNo: **2287895** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.89		1.000		89.2	80	120			

Sample ID: **mb-50435** SampType: **MBLK** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS** Batch ID: **50435** RunNo: **66590**
Prep Date: **2/13/2020** Analysis Date: **2/17/2020** SeqNo: **2288662** 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	0.94		1.000		93.8	80	120			

Sample ID: **lcs-50435** SampType: **LCS** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS** Batch ID: **50435** RunNo: **66590**
Prep Date: **2/13/2020** Analysis Date: **2/17/2020** SeqNo: **2288663** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.90	0.025	1.000	0	89.8	80	120			
Toluene	0.92	0.050	1.000	0	91.6	80	120			
Ethylbenzene	0.94	0.050	1.000	0	93.6	80	120			
Xylenes, Total	2.9	0.10	3.000	0	95.1	80	120			
Surr: 4-Bromofluorobenzene	0.90		1.000		89.9	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: **DEVON ENERGY** Work Order Number: **2002515** RcptNo: **1**

Received By: ~~Leah Baca~~ Juan Rojas 2/13/20 LB **2/13/2020 10:18:00 AM** Leah Baca

Completed By: **Isaiah Ortiz** **2/13/2020 10:32:17 AM** I-OX

Reviewed By: YG 2/13/20

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: SR 2/13/20

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	4.2	Good	Not Present			

Chain-of-Custody Record

Client: Devon Energy

Amanda Davis or Wes Mathews

Mailing Address: 6488 Seven Rivers Hwy

Artesia, NM 88210

Phone #:

email or Fax#:

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance

☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:

☑ Standard ☐ Rush 5 Day

Project Name: Black Mamba 15 state com 2H CTB

Project #: 20E-00141-022

Project Manager: Natalie Gordon

Sampler: MJP

On Ice: ☑ Yes ☐ No

# of Coolers: 1

Cooler Temp (including CF): 4.0+0.2=4.2 (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2002515	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)
2/10	12:45	Soil	BH20-01 0'	402	ice	-001		✓	✓					✓			
	1:15		BH20-02 0'			-002		✓	✓					✓			
	1:25		BH20-02 1'			-003		✓	✓					✓			
	1:45		SS20-01 0'			-004		✓	✓					✓			
	1:50		SS20-02 0'			-005		✓	✓					✓			
	1:55		SS20-03 0'			-006		✓	✓					✓			
	2:00		SS20-04 0'			-007		✓	✓					✓			
	2:05		SS20-05 0'			-008		✓	✓					✓			

Analysis Request

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
2/12	1400				2/13/20	1500
2/12	1900			courier	2/13/20	10:18

Remarks: CC: Natalie Gordon Vertex

Direct Bill

Devon W/O #: 20836387

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: clients.hallenvironmental.com

September 15, 2020

Natalie Gordon

Devon Energy
6488 Seven Rivers Highway
Artesia, NM 88210
TEL: (575) 748-0176
FAX:

RE: Black Mamba 15 State Com 2H CTB OrderNo.: 2009215

Dear Natalie Gordon:

Hall Environmental Analysis Laboratory received 8 sample(s) on 9/3/2020 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 **2009215**
Date Reported: **9/15/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Black Mamba 15 State Com 2H CTB
Lab ID: 2009215-001 **Matrix:** SOIL

Client Sample ID: SS20-01 0-0.5
Collection Date: 9/1/2020 9:30:00 AM
Received Date: 9/3/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	9/5/2020 12:28:24 AM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	9/5/2020 12:28:24 AM
Surr: DNOP	56.3	30.4-154		%Rec	1	9/5/2020 12:28:24 AM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	490	60		mg/Kg	20	9/10/2020 4:39:47 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.024		mg/Kg	1	9/9/2020 1:04:24 PM
Toluene	ND	0.048		mg/Kg	1	9/9/2020 1:04:24 PM
Ethylbenzene	ND	0.048		mg/Kg	1	9/9/2020 1:04:24 PM
Xylenes, Total	ND	0.095		mg/Kg	1	9/9/2020 1:04:24 PM
Surr: 1,2-Dichloroethane-d4	97.6	70-130		%Rec	1	9/9/2020 1:04:24 PM
Surr: 4-Bromofluorobenzene	95.6	70-130		%Rec	1	9/9/2020 1:04:24 PM
Surr: Dibromofluoromethane	112	70-130		%Rec	1	9/9/2020 1:04:24 PM
Surr: Toluene-d8	105	70-130		%Rec	1	9/9/2020 1:04:24 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	9/9/2020 1:04:24 PM
Surr: BFB	99.2	70-130		%Rec	1	9/9/2020 1:04:24 PM

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 **2009215**
Date Reported: **9/15/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Black Mamba 15 State Com 2H CTB
Lab ID: 2009215-002 **Matrix:** SOIL

Client Sample ID: SS20-02 0-0.5
Collection Date: 9/1/2020 9:40:00 AM
Received Date: 9/3/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	9/5/2020 12:38:24 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	9/5/2020 12:38:24 AM
Surr: DNOP	67.4	30.4-154		%Rec	1	9/5/2020 12:38:24 AM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	88	60		mg/Kg	20	9/10/2020 5:17:00 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.023		mg/Kg	1	9/9/2020 1:33:00 PM
Toluene	ND	0.047		mg/Kg	1	9/9/2020 1:33:00 PM
Ethylbenzene	ND	0.047		mg/Kg	1	9/9/2020 1:33:00 PM
Xylenes, Total	ND	0.093		mg/Kg	1	9/9/2020 1:33:00 PM
Surr: 1,2-Dichloroethane-d4	95.9	70-130		%Rec	1	9/9/2020 1:33:00 PM
Surr: 4-Bromofluorobenzene	103	70-130		%Rec	1	9/9/2020 1:33:00 PM
Surr: Dibromofluoromethane	108	70-130		%Rec	1	9/9/2020 1:33:00 PM
Surr: Toluene-d8	106	70-130		%Rec	1	9/9/2020 1:33:00 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	9/9/2020 1:33:00 PM
Surr: BFB	104	70-130		%Rec	1	9/9/2020 1:33:00 PM

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 **2009215**
Date Reported: **9/15/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: SS20-04 0-0.5
Project: Black Mamba 15 State Com 2H CTB
Collection Date: 9/1/2020 9:50:00 AM
Lab ID: 2009215-003 **Matrix:** SOIL
Received Date: 9/3/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	9/5/2020 12:48:23 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	9/5/2020 12:48:23 AM
Surr: DNOP	68.0	30.4-154		%Rec	1	9/5/2020 12:48:23 AM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	61	61		mg/Kg	20	9/10/2020 5:29:24 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.024		mg/Kg	1	9/9/2020 2:01:33 PM
Toluene	ND	0.048		mg/Kg	1	9/9/2020 2:01:33 PM
Ethylbenzene	ND	0.048		mg/Kg	1	9/9/2020 2:01:33 PM
Xylenes, Total	ND	0.096		mg/Kg	1	9/9/2020 2:01:33 PM
Surr: 1,2-Dichloroethane-d4	91.6	70-130		%Rec	1	9/9/2020 2:01:33 PM
Surr: 4-Bromofluorobenzene	99.5	70-130		%Rec	1	9/9/2020 2:01:33 PM
Surr: Dibromofluoromethane	107	70-130		%Rec	1	9/9/2020 2:01:33 PM
Surr: Toluene-d8	102	70-130		%Rec	1	9/9/2020 2:01:33 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	9/9/2020 2:01:33 PM
Surr: BFB	103	70-130		%Rec	1	9/9/2020 2:01:33 PM

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 **2009215**
Date Reported: **9/15/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Black Mamba 15 State Com 2H CTB
Lab ID: 2009215-004 **Matrix:** SOIL

Client Sample ID: SS20-05 0-0.5
Collection Date: 9/1/2020 10:00:00 AM
Received Date: 9/3/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**
Diesel Range Organics (DRO)	ND	9.1		mg/Kg	1	9/5/2020 12:58:19 AM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	9/5/2020 12:58:19 AM
Surr: DNOP	59.6	30.4-154		%Rec	1	9/5/2020 12:58:19 AM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	120	60		mg/Kg	20	9/10/2020 5:41:48 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.024		mg/Kg	1	9/9/2020 2:30:07 PM
Toluene	ND	0.047		mg/Kg	1	9/9/2020 2:30:07 PM
Ethylbenzene	ND	0.047		mg/Kg	1	9/9/2020 2:30:07 PM
Xylenes, Total	ND	0.094		mg/Kg	1	9/9/2020 2:30:07 PM
Surr: 1,2-Dichloroethane-d4	87.4	70-130		%Rec	1	9/9/2020 2:30:07 PM
Surr: 4-Bromofluorobenzene	102	70-130		%Rec	1	9/9/2020 2:30:07 PM
Surr: Dibromofluoromethane	108	70-130		%Rec	1	9/9/2020 2:30:07 PM
Surr: Toluene-d8	105	70-130		%Rec	1	9/9/2020 2:30:07 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	9/9/2020 2:30:07 PM
Surr: BFB	103	70-130		%Rec	1	9/9/2020 2:30:07 PM

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 **2009215**
Date Reported: **9/15/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: BH20-01 0'
Project: Black Mamba 15 State Com 2H CTB
Collection Date: 9/1/2020 10:30:00 AM
Lab ID: 2009215-005 **Matrix:** SOIL
Received Date: 9/3/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**
Diesel Range Organics (DRO)	4700	96		mg/Kg	10	9/5/2020 1:08:20 AM
Motor Oil Range Organics (MRO)	4400	480		mg/Kg	10	9/5/2020 1:08:20 AM
Surr: DNOP	0	30.4-154	S	%Rec	10	9/5/2020 1:08:20 AM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	15000	600		mg/Kg	200	9/12/2020 4:18:04 AM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.024		mg/Kg	1	9/9/2020 2:58:41 PM
Toluene	ND	0.049		mg/Kg	1	9/9/2020 2:58:41 PM
Ethylbenzene	ND	0.049		mg/Kg	1	9/9/2020 2:58:41 PM
Xylenes, Total	ND	0.097		mg/Kg	1	9/9/2020 2:58:41 PM
Surr: 1,2-Dichloroethane-d4	91.8	70-130		%Rec	1	9/9/2020 2:58:41 PM
Surr: 4-Bromofluorobenzene	88.2	70-130		%Rec	1	9/9/2020 2:58:41 PM
Surr: Dibromofluoromethane	106	70-130		%Rec	1	9/9/2020 2:58:41 PM
Surr: Toluene-d8	105	70-130		%Rec	1	9/9/2020 2:58:41 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/9/2020 2:58:41 PM
Surr: BFB	97.6	70-130		%Rec	1	9/9/2020 2:58:41 PM

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 **2009215**
Date Reported: **9/15/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: BH20-01 1.5'
Project: Black Mamba 15 State Com 2H CTB
Collection Date: 9/1/2020 10:35:00 AM
Lab ID: 2009215-006 **Matrix:** SOIL
Received Date: 9/3/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**
Diesel Range Organics (DRO)	19	9.2		mg/Kg	1	9/5/2020 1:18:21 AM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	9/5/2020 1:18:21 AM
Surr: DNOP	91.6	30.4-154		%Rec	1	9/5/2020 1:18:21 AM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	2800	150		mg/Kg	50	9/12/2020 4:30:29 AM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.024		mg/Kg	1	9/9/2020 3:27:16 PM
Toluene	ND	0.048		mg/Kg	1	9/9/2020 3:27:16 PM
Ethylbenzene	ND	0.048		mg/Kg	1	9/9/2020 3:27:16 PM
Xylenes, Total	ND	0.096		mg/Kg	1	9/9/2020 3:27:16 PM
Surr: 1,2-Dichloroethane-d4	93.9	70-130		%Rec	1	9/9/2020 3:27:16 PM
Surr: 4-Bromofluorobenzene	98.8	70-130		%Rec	1	9/9/2020 3:27:16 PM
Surr: Dibromofluoromethane	106	70-130		%Rec	1	9/9/2020 3:27:16 PM
Surr: Toluene-d8	104	70-130		%Rec	1	9/9/2020 3:27:16 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	9/9/2020 3:27:16 PM
Surr: BFB	102	70-130		%Rec	1	9/9/2020 3:27:16 PM

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 **2009215**
Date Reported: **9/15/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: BH20-02 0'
Project: Black Mamba 15 State Com 2H CTB
Collection Date: 9/1/2020 10:40:00 AM
Lab ID: 2009215-007 **Matrix:** SOIL
Received Date: 9/3/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**
Diesel Range Organics (DRO)	12000	960		mg/Kg	100	9/5/2020 1:28:25 AM
Motor Oil Range Organics (MRO)	11000	4800		mg/Kg	100	9/5/2020 1:28:25 AM
Surr: DNOP	0	30.4-154	S	%Rec	100	9/5/2020 1:28:25 AM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	14000	600		mg/Kg	200	9/12/2020 4:42:54 AM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.025		mg/Kg	1	9/9/2020 3:55:53 PM
Toluene	ND	0.050		mg/Kg	1	9/9/2020 3:55:53 PM
Ethylbenzene	ND	0.050		mg/Kg	1	9/9/2020 3:55:53 PM
Xylenes, Total	ND	0.099		mg/Kg	1	9/9/2020 3:55:53 PM
Surr: 1,2-Dichloroethane-d4	93.5	70-130		%Rec	1	9/9/2020 3:55:53 PM
Surr: 4-Bromofluorobenzene	92.0	70-130		%Rec	1	9/9/2020 3:55:53 PM
Surr: Dibromofluoromethane	111	70-130		%Rec	1	9/9/2020 3:55:53 PM
Surr: Toluene-d8	105	70-130		%Rec	1	9/9/2020 3:55:53 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	9/9/2020 3:55:53 PM
Surr: BFB	106	70-130		%Rec	1	9/9/2020 3:55:53 PM

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 **2009215**
Date Reported: **9/15/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: BH20-02 2'
Project: Black Mamba 15 State Com 2H CTB
Collection Date: 9/1/2020 10:45:00 AM
Lab ID: 2009215-008 **Matrix:** SOIL
Received Date: 9/3/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**
Diesel Range Organics (DRO)	ND	9.1		mg/Kg	1	9/5/2020 1:38:32 AM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	9/5/2020 1:38:32 AM
Surr: DNOP	90.1	30.4-154		%Rec	1	9/5/2020 1:38:32 AM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	330	60		mg/Kg	20	9/10/2020 6:56:17 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.024		mg/Kg	1	9/9/2020 4:24:27 PM
Toluene	ND	0.048		mg/Kg	1	9/9/2020 4:24:27 PM
Ethylbenzene	ND	0.048		mg/Kg	1	9/9/2020 4:24:27 PM
Xylenes, Total	ND	0.096		mg/Kg	1	9/9/2020 4:24:27 PM
Surr: 1,2-Dichloroethane-d4	93.5	70-130		%Rec	1	9/9/2020 4:24:27 PM
Surr: 4-Bromofluorobenzene	104	70-130		%Rec	1	9/9/2020 4:24:27 PM
Surr: Dibromofluoromethane	104	70-130		%Rec	1	9/9/2020 4:24:27 PM
Surr: Toluene-d8	104	70-130		%Rec	1	9/9/2020 4:24:27 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	9/9/2020 4:24:27 PM
Surr: BFB	102	70-130		%Rec	1	9/9/2020 4:24:27 PM

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2009215**

15-Sep-20

Client: Devon Energy

Project: Black Mamba 15 State Com 2H CTB

Sample ID: **MB-55077**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **55077**	RunNo: **71765**
Prep Date: **9/10/2020**	Analysis Date: **9/10/2020**	SeqNo: **2510884** Units: **mg/Kg**

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

Sample ID: **LCS-55077**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **55077**	RunNo: **71765**
Prep Date: **9/10/2020**	Analysis Date: **9/10/2020**	SeqNo: **2510885** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.9	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#: **2009215**

15-Sep-20

Client: Devon Energy

Project: Black Mamba 15 State Com 2H CTB

Sample ID: **MB-54926**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**							
Client ID: **PBS**	Batch ID: **54926**	RunNo: **71644**							
Prep Date: **9/3/2020**	Analysis Date: **9/4/2020**	SeqNo: **2504468**	Units: **%Rec**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	9.2		10.00		92.4	30.4	154			

Sample ID: **MB-54933**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**							
Client ID: **PBS**	Batch ID: **54933**	RunNo: **71644**							
Prep Date: **9/3/2020**	Analysis Date: **9/4/2020**	SeqNo: **2504469**	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	8.5		10.00		84.8	30.4	154			

Sample ID: **LCS-54926**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**							
Client ID: **LCSS**	Batch ID: **54926**	RunNo: **71644**							
Prep Date: **9/3/2020**	Analysis Date: **9/4/2020**	SeqNo: **2504471**	Units: **%Rec**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	3.8		5.000		75.9	30.4	154			

Sample ID: **LCS-54933**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**							
Client ID: **LCSS**	Batch ID: **54933**	RunNo: **71644**							
Prep Date: **9/3/2020**	Analysis Date: **9/4/2020**	SeqNo: **2504472**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	47	10	50.00	0	93.5	70	130			
Surr: DNOP	3.9		5.000		78.4	30.4	154			

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#: **2009215**

15-Sep-20

Client: Devon Energy

Project: Black Mamba 15 State Com 2H CTB

Sample ID: **lcs-54928**	SampType: **LCS4**	TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **BatchQC**	Batch ID: **54928**	RunNo: **71689**
Prep Date: **9/3/2020**	Analysis Date: **9/8/2020**	SeqNo: **2507082** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.91	0.025	1.000	0	90.9	80	120			
Toluene	0.95	0.050	1.000	0	95.4	80	120			
Ethylbenzene	0.99	0.050	1.000	0	98.8	80	120			
Xylenes, Total	3.2	0.10	3.000	0	105	80	120			
Surr: 1,2-Dichloroethane-d4	0.50		0.5000		100	70	130			
Surr: 4-Bromofluorobenzene	0.52		0.5000		105	70	130			
Surr: Dibromofluoromethane	0.57		0.5000		115	70	130			
Surr: Toluene-d8	0.52		0.5000		104	70	130			

Sample ID: **mb-54928**	SampType: **MBLK**	TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **PBS**	Batch ID: **54928**	RunNo: **71689**
Prep Date: **9/3/2020**	Analysis Date: **9/8/2020**	SeqNo: **2507083** 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: 1,2-Dichloroethane-d4	0.50		0.5000		101	70	130			
Surr: 4-Bromofluorobenzene	0.51		0.5000		102	70	130			
Surr: Dibromofluoromethane	0.57		0.5000		114	70	130			
Surr: Toluene-d8	0.51		0.5000		101	70	130			

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#: **2009215**

15-Sep-20

Client: Devon Energy

Project: Black Mamba 15 State Com 2H CTB

Sample ID: **lcs-54928**	SampType: **LCS**	TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **LCSS**	Batch ID: **54928**	RunNo: **71689**
Prep Date: **9/3/2020**	Analysis Date: **9/8/2020**	SeqNo: **2507110** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	21	5.0	25.00	0	84.4	70	130			
Surr: BFB	510		500.0		102	70	130			

Sample ID: **mb-54928**	SampType: **MBLK**	TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **PBS**	Batch ID: **54928**	RunNo: **71689**
Prep Date: **9/3/2020**	Analysis Date: **9/8/2020**	SeqNo: **2507111** 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	510		500.0		102	70	130			

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: clients.hallenvironmental.com

Sample Log-In Check List

Client Name: Devon Energy Work Order Number: 2009215 RcptNo: 1

Received By: **Juan Rojas** 9/3/2020 8:00:00 AM

Completed By: **Juan Rojas** 9/3/2020 9:12:44 AM

Reviewed By: EM 9/3/20

Chain of Custody

1. Is Chain of Custody 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: EM 9/3/20

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	0.6	Good				

Chain-of-Custody Record

Client: Devon Energy
A. Davis / W. Mathews
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: Black Mamba 15 State Com 2H CTB
Project #: 20E-00141
Project Manager: Natalie Gordon
Sampler: MJP
On Ice: ☑ Yes ☐ No
# of Coolers: 1
Cooler Temp(including CF): 0.6-0=0.6 (°C)

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

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2009215
9/1	9:30	Soil	SS20-01 0-0.5	402	ice	-001
	9:40		SS20-02 0-0.5			-002
	9:50		SS20-04 0-0.5			-003
	10:00		SS20-05 0-0.5			-004
	10:30		BH20-01 0'			-005
	10:35		BH20-01 1.5'			-006
	10:40		BH20-02 0'			-007
	10:45		BH20-02 2'			-008

Analysis Request

(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)
✓	✓					✓			

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
9/2/20	1300				9/2/20	1300
9/3/20	1900			courier	9/3/20	8:00

Remarks: Direct bill Devon
CC Natalie Gordon
W/O #: 20836387

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
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: clients.hallenvironmental.com

March 16, 2021

Monica Peppin

Devon Energy
6488 Seven Rivers Highway
Artesia, NM 88210
TEL: (505) 350-1336
FAX:

RE: Black Mamba 15 ST 2 OrderNo.: 2103480

Dear Monica Peppin:

Hall Environmental Analysis Laboratory received 2 sample(s) on 3/10/2021 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 **2103480**
Date Reported: **3/16/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Black Mamba 15 ST 2
Lab ID: 2103480-001 **Matrix:** SOIL

Client Sample ID: WS21-01
Collection Date: 3/4/2021 9:00:00 AM
Received Date: 3/10/2021 7:44:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	3/12/2021 10:08:49 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	3/12/2021 10:08:49 AM
Surr: DNOP	79.6	70-130		%Rec	1	3/12/2021 10:08:49 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	3/12/2021 5:06:39 PM
Surr: BFB	105	75.3-105		%Rec	1	3/12/2021 5:06:39 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.023		mg/Kg	1	3/12/2021 5:06:39 PM
Toluene	ND	0.046		mg/Kg	1	3/12/2021 5:06:39 PM
Ethylbenzene	ND	0.046		mg/Kg	1	3/12/2021 5:06:39 PM
Xylenes, Total	ND	0.093		mg/Kg	1	3/12/2021 5:06:39 PM
Surr: 4-Bromofluorobenzene	98.6	80-120		%Rec	1	3/12/2021 5:06:39 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	59		mg/Kg	20	3/15/2021 2:53:17 PM

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 **2103480**
Date Reported: **3/16/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Black Mamba 15 ST 2
Lab ID: 2103480-002 **Matrix:** SOIL

Client Sample ID: BS21-08
Collection Date: 3/4/2021 9:30:00 AM
Received Date: 3/10/2021 7:44:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	3/12/2021 10:18:28 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	3/12/2021 10:18:28 AM
Surr: DNOP	101	70-130		%Rec	1	3/12/2021 10:18:28 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	3/12/2021 5:30:22 PM
Surr: BFB	103	75.3-105		%Rec	1	3/12/2021 5:30:22 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.023		mg/Kg	1	3/12/2021 5:30:22 PM
Toluene	ND	0.047		mg/Kg	1	3/12/2021 5:30:22 PM
Ethylbenzene	ND	0.047		mg/Kg	1	3/12/2021 5:30:22 PM
Xylenes, Total	ND	0.093		mg/Kg	1	3/12/2021 5:30:22 PM
Surr: 4-Bromofluorobenzene	97.0	80-120		%Rec	1	3/12/2021 5:30:22 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	240	59		mg/Kg	20	3/15/2021 3:55:19 PM

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2103480**

16-Mar-21

Client: Devon Energy

Project: Black Mamba 15 ST 2

Sample ID: **MB-58716**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **58716**	RunNo: **75950**							
Prep Date: **3/15/2021**	Analysis Date: **3/15/2021**	SeqNo: **2687698**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-58716**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **58716**	RunNo: **75950**							
Prep Date: **3/15/2021**	Analysis Date: **3/15/2021**	SeqNo: **2687699**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.6	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#: **2103480**

16-Mar-21

Client: Devon Energy

Project: Black Mamba 15 ST 2

Sample ID: **MB-58676**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **58676**	RunNo: **75912**
Prep Date: **3/11/2021**	Analysis Date: **3/12/2021**	SeqNo: **2685950** 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	8.7		10.00		86.6	70	130			

Sample ID: **LCS-58676**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **58676**	RunNo: **75912**
Prep Date: **3/11/2021**	Analysis Date: **3/12/2021**	SeqNo: **2685951** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	47	10	50.00	0	94.6	68.9	141			
Surr: DNOP	4.5		5.000		90.1	70	130			

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#: **2103480**

16-Mar-21

Client: Devon Energy

Project: Black Mamba 15 ST 2

Sample ID: **mb-58673**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**							
Client ID: **PBS**	Batch ID: **58673**	RunNo: **75901**							
Prep Date: **3/11/2021**	Analysis Date: **3/12/2021**	SeqNo: **2686708**	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	1000		1000		104	75.3	105			

Sample ID: **lcs-58673**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**							
Client ID: **LCSS**	Batch ID: **58673**	RunNo: **75901**							
Prep Date: **3/11/2021**	Analysis Date: **3/12/2021**	SeqNo: **2686709**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	27	5.0	25.00	0	108	80	120			
Surr: BFB	1100		1000		114	75.3	105			S

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#: **2103480**

16-Mar-21

Client: Devon Energy

Project: Black Mamba 15 ST 2

Sample ID: **mb-58673**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **58673**	RunNo: **75901**
Prep Date: **3/11/2021**	Analysis Date: **3/12/2021**	SeqNo: **2686749** 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	0.96		1.000		96.5	80	120			

Sample ID: **LCS-58673**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **58673**	RunNo: **75901**
Prep Date: **3/11/2021**	Analysis Date: **3/12/2021**	SeqNo: **2686750** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.88	0.025	1.000	0	87.7	80	120			
Toluene	0.90	0.050	1.000	0	90.2	80	120			
Ethylbenzene	0.90	0.050	1.000	0	90.4	80	120			
Xylenes, Total	2.7	0.10	3.000	0	89.6	80	120			
Surr: 4-Bromofluorobenzene	1.0		1.000		102	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: clients.hallenvironmental.com

Sample Log-In Check List

Client Name: **Devon Energy** Work Order Number: **2103480** RcptNo: **1**

Received By: **Andy Freeman** **3/10/2021 7:44:00 AM**

Completed By: **Cheyenne Cason** **3/10/2021 8:44:36 AM**

Reviewed By: JR 3/10/21

Chain of Custody

1. Is Chain of Custody 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 ☐	# of preserved bottles checked for pH: 3/10/21 (<2 or >12 unless noted)
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted?
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 ☐	Checked by:

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	3.2	Good				
2	4.9	Good				

Chain-of-Custody Record

Client: Devon

Mailing Address: On File

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: Black Mamba 15 St 2

Project #: 20E-00141-022

Project Manager: Monica Peppin

Sampler: CD

On Ice: ☑ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): See Bench (°C)

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

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2103480
3/4	9:00	Soil	VS21-01	4oz	Ice	001
3/4	4:30	Soil	BS21-08	4oz	Ice	002

Analysis Request

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)
✓	✓					✓			
✓	✓					✓			

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
3/9/22	0930				3/9/22	0930
3/9/22	1900			Courier	3/10/22	0700

Remarks: Direct Bill Devon
cc: Monica Peppin, Dennis Williams
WO # 22102602
3.1+0.1 = 3.2 4.6+0.1 = 4.7

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: clients.hallenvironmental.com

March 02, 2021

Monica Peppin

Devon Energy
6488 Seven Rivers Highway
Artesia, NM 88210
TEL: (505) 350-1336
FAX:

RE: Black Mamba 15 State 2H OrderNo.: 2102602

Dear Monica Peppin:

Hall Environmental Analysis Laboratory received 15 sample(s) on 2/11/2021 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 **2102602**
Date Reported: **3/2/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Black Mamba 15 State 2H
Lab ID: 2102602-001 **Matrix:** SOIL

Client Sample ID: WS21-0-2 ft
Collection Date: 2/9/2021 8:00:00 AM
Received Date: 2/11/2021 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**
Diesel Range Organics (DRO)	290	9.8		mg/Kg	1	2/14/2021 1:55:38 PM
Motor Oil Range Organics (MRO)	300	49		mg/Kg	1	2/14/2021 1:55:38 PM
Surr: DNOP	124	70-130		%Rec	1	2/14/2021 1:55:38 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	510	61		mg/Kg	20	2/13/2021 11:28:36 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.024		mg/Kg	1	2/19/2021 6:27:10 AM
Toluene	ND	0.047		mg/Kg	1	2/19/2021 6:27:10 AM
Ethylbenzene	ND	0.047		mg/Kg	1	2/19/2021 6:27:10 AM
Xylenes, Total	ND	0.095		mg/Kg	1	2/19/2021 6:27:10 AM
Surr: 1,2-Dichloroethane-d4	80.6	70-130		%Rec	1	2/19/2021 6:27:10 AM
Surr: 4-Bromofluorobenzene	89.4	70-130		%Rec	1	2/19/2021 6:27:10 AM
Surr: Dibromofluoromethane	98.3	70-130		%Rec	1	2/19/2021 6:27:10 AM
Surr: Toluene-d8	106	70-130		%Rec	1	2/19/2021 6:27:10 AM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	2/19/2021 6:27:10 AM
Surr: BFB	96.6	70-130		%Rec	1	2/19/2021 6:27:10 AM

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 **2102602**
Date Reported: **3/2/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Black Mamba 15 State 2H
Lab ID: 2102602-002 **Matrix:** SOIL

Client Sample ID: WS21-0-2 ft
Collection Date: 2/9/2021 8:15:00 AM
Received Date: 2/11/2021 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**
Diesel Range Organics (DRO)	ND	8.5		mg/Kg	1	2/14/2021 10:46:54 AM
Motor Oil Range Organics (MRO)	ND	42		mg/Kg	1	2/14/2021 10:46:54 AM
Surr: DNOP	106	70-130		%Rec	1	2/14/2021 10:46:54 AM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	180	60		mg/Kg	20	2/14/2021 12:05:50 AM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.023		mg/Kg	1	2/17/2021 4:00:16 PM
Toluene	ND	0.046		mg/Kg	1	2/17/2021 4:00:16 PM
Ethylbenzene	ND	0.046		mg/Kg	1	2/17/2021 4:00:16 PM
Xylenes, Total	ND	0.092		mg/Kg	1	2/17/2021 4:00:16 PM
Surr: 1,2-Dichloroethane-d4	80.6	70-130		%Rec	1	2/17/2021 4:00:16 PM
Surr: 4-Bromofluorobenzene	98.4	70-130		%Rec	1	2/17/2021 4:00:16 PM
Surr: Dibromofluoromethane	102	70-130		%Rec	1	2/17/2021 4:00:16 PM
Surr: Toluene-d8	106	70-130		%Rec	1	2/17/2021 4:00:16 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	2/17/2021 4:00:16 PM
Surr: BFB	96.1	70-130		%Rec	1	2/17/2021 4:00:16 PM

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 **2102602**
Date Reported: **3/2/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Black Mamba 15 State 2H
Lab ID: 2102602-003 **Matrix:** SOIL

Client Sample ID: WS21-0-2 ft
Collection Date: 2/9/2021 8:30:00 AM
Received Date: 2/11/2021 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**
Diesel Range Organics (DRO)	ND	9.1		mg/Kg	1	2/14/2021 11:10:28 AM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	2/14/2021 11:10:28 AM
Surr: DNOP	90.6	70-130		%Rec	1	2/14/2021 11:10:28 AM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	60		mg/Kg	20	2/14/2021 12:18:15 AM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.024		mg/Kg	1	2/17/2021 4:28:54 PM
Toluene	ND	0.049		mg/Kg	1	2/17/2021 4:28:54 PM
Ethylbenzene	ND	0.049		mg/Kg	1	2/17/2021 4:28:54 PM
Xylenes, Total	ND	0.098		mg/Kg	1	2/17/2021 4:28:54 PM
Surr: 1,2-Dichloroethane-d4	95.3	70-130		%Rec	1	2/17/2021 4:28:54 PM
Surr: 4-Bromofluorobenzene	96.1	70-130		%Rec	1	2/17/2021 4:28:54 PM
Surr: Dibromofluoromethane	98.7	70-130		%Rec	1	2/17/2021 4:28:54 PM
Surr: Toluene-d8	105	70-130		%Rec	1	2/17/2021 4:28:54 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	2/17/2021 4:28:54 PM
Surr: BFB	95.3	70-130		%Rec	1	2/17/2021 4:28:54 PM

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 **2102602**
Date Reported: **3/2/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Black Mamba 15 State 2H
Lab ID: 2102602-004 **Matrix:** SOIL

Client Sample ID: WS21-0-2 ft
Collection Date: 2/9/2021 8:45:00 AM
Received Date: 2/11/2021 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**
Diesel Range Organics (DRO)	ND	9.0		mg/Kg	1	2/14/2021 11:34:05 AM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	2/14/2021 11:34:05 AM
Surr: DNOP	125	70-130		%Rec	1	2/14/2021 11:34:05 AM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	190	60		mg/Kg	20	2/14/2021 12:30:39 AM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.024		mg/Kg	1	2/17/2021 4:57:41 PM
Toluene	ND	0.049		mg/Kg	1	2/17/2021 4:57:41 PM
Ethylbenzene	ND	0.049		mg/Kg	1	2/17/2021 4:57:41 PM
Xylenes, Total	ND	0.097		mg/Kg	1	2/17/2021 4:57:41 PM
Surr: 1,2-Dichloroethane-d4	91.0	70-130		%Rec	1	2/17/2021 4:57:41 PM
Surr: 4-Bromofluorobenzene	98.2	70-130		%Rec	1	2/17/2021 4:57:41 PM
Surr: Dibromofluoromethane	109	70-130		%Rec	1	2/17/2021 4:57:41 PM
Surr: Toluene-d8	109	70-130		%Rec	1	2/17/2021 4:57:41 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	2/17/2021 4:57:41 PM
Surr: BFB	98.2	70-130		%Rec	1	2/17/2021 4:57:41 PM

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 **2102602**
Date Reported: **3/2/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Black Mamba 15 State 2H
Lab ID: 2102602-005 **Matrix:** SOIL

Client Sample ID: WS21-0-2 ft
Collection Date: 2/9/2021 9:00:00 AM
Received Date: 2/11/2021 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	2/14/2021 11:57:44 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	2/14/2021 11:57:44 AM
Surr: DNOP	124	70-130		%Rec	1	2/14/2021 11:57:44 AM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	60		mg/Kg	20	2/14/2021 12:43:04 AM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.024		mg/Kg	1	2/17/2021 5:26:22 PM
Toluene	ND	0.048		mg/Kg	1	2/17/2021 5:26:22 PM
Ethylbenzene	ND	0.048		mg/Kg	1	2/17/2021 5:26:22 PM
Xylenes, Total	ND	0.095		mg/Kg	1	2/17/2021 5:26:22 PM
Surr: 1,2-Dichloroethane-d4	85.7	70-130		%Rec	1	2/17/2021 5:26:22 PM
Surr: 4-Bromofluorobenzene	94.9	70-130		%Rec	1	2/17/2021 5:26:22 PM
Surr: Dibromofluoromethane	103	70-130		%Rec	1	2/17/2021 5:26:22 PM
Surr: Toluene-d8	109	70-130		%Rec	1	2/17/2021 5:26:22 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	2/17/2021 5:26:22 PM
Surr: BFB	99.8	70-130		%Rec	1	2/17/2021 5:26:22 PM

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 **2102602**
Date Reported: **3/2/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Black Mamba 15 State 2H
Lab ID: 2102602-006 **Matrix:** SOIL

Client Sample ID: WS21-0-3 ft
Collection Date: 2/9/2021 9:15:00 AM
Received Date: 2/11/2021 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	2/14/2021 12:21:18 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	2/14/2021 12:21:18 PM
Surr: DNOP	120	70-130		%Rec	1	2/14/2021 12:21:18 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	270	60		mg/Kg	20	2/14/2021 12:55:29 AM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.023		mg/Kg	1	2/17/2021 5:54:56 PM
Toluene	ND	0.047		mg/Kg	1	2/17/2021 5:54:56 PM
Ethylbenzene	ND	0.047		mg/Kg	1	2/17/2021 5:54:56 PM
Xylenes, Total	ND	0.093		mg/Kg	1	2/17/2021 5:54:56 PM
Surr: 1,2-Dichloroethane-d4	81.7	70-130		%Rec	1	2/17/2021 5:54:56 PM
Surr: 4-Bromofluorobenzene	97.4	70-130		%Rec	1	2/17/2021 5:54:56 PM
Surr: Dibromofluoromethane	104	70-130		%Rec	1	2/17/2021 5:54:56 PM
Surr: Toluene-d8	106	70-130		%Rec	1	2/17/2021 5:54:56 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	2/17/2021 5:54:56 PM
Surr: BFB	96.6	70-130		%Rec	1	2/17/2021 5:54:56 PM

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 **2102602**
Date Reported: **3/2/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Black Mamba 15 State 2H
Lab ID: 2102602-007 **Matrix:** SOIL

Client Sample ID: WS21-0-2 ft
Collection Date: 2/9/2021 9:30:00 AM
Received Date: 2/11/2021 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	2/14/2021 12:44:55 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	2/14/2021 12:44:55 PM
Surr: DNOP	135	70-130	S	%Rec	1	2/14/2021 12:44:55 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	230	59		mg/Kg	20	2/14/2021 1:07:54 AM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.024		mg/Kg	1	2/17/2021 6:23:32 PM
Toluene	ND	0.049		mg/Kg	1	2/17/2021 6:23:32 PM
Ethylbenzene	ND	0.049		mg/Kg	1	2/17/2021 6:23:32 PM
Xylenes, Total	ND	0.097		mg/Kg	1	2/17/2021 6:23:32 PM
Surr: 1,2-Dichloroethane-d4	87.9	70-130		%Rec	1	2/17/2021 6:23:32 PM
Surr: 4-Bromofluorobenzene	98.1	70-130		%Rec	1	2/17/2021 6:23:32 PM
Surr: Dibromofluoromethane	105	70-130		%Rec	1	2/17/2021 6:23:32 PM
Surr: Toluene-d8	107	70-130		%Rec	1	2/17/2021 6:23:32 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	2/17/2021 6:23:32 PM
Surr: BFB	97.6	70-130		%Rec	1	2/17/2021 6:23:32 PM

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 **2102602**
Date Reported: **3/2/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Black Mamba 15 State 2H
Lab ID: 2102602-008 **Matrix:** SOIL

Client Sample ID: BS21-0-2 ft
Collection Date: 2/9/2021 9:45:00 AM
Received Date: 2/11/2021 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**
Diesel Range Organics (DRO)	ND	9.1		mg/Kg	1	2/14/2021 1:08:29 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	2/14/2021 1:08:29 PM
Surr: DNOP	133	70-130	S	%Rec	1	2/14/2021 1:08:29 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	610	59		mg/Kg	20	2/14/2021 1:20:19 AM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.023		mg/Kg	1	2/17/2021 6:52:12 PM
Toluene	ND	0.046		mg/Kg	1	2/17/2021 6:52:12 PM
Ethylbenzene	ND	0.046		mg/Kg	1	2/17/2021 6:52:12 PM
Xylenes, Total	ND	0.093		mg/Kg	1	2/17/2021 6:52:12 PM
Surr: 1,2-Dichloroethane-d4	89.2	70-130		%Rec	1	2/17/2021 6:52:12 PM
Surr: 4-Bromofluorobenzene	100	70-130		%Rec	1	2/17/2021 6:52:12 PM
Surr: Dibromofluoromethane	105	70-130		%Rec	1	2/17/2021 6:52:12 PM
Surr: Toluene-d8	103	70-130		%Rec	1	2/17/2021 6:52:12 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	2/17/2021 6:52:12 PM
Surr: BFB	98.0	70-130		%Rec	1	2/17/2021 6:52:12 PM

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 **2102602**
Date Reported: **3/2/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Black Mamba 15 State 2H
Lab ID: 2102602-009 **Matrix:** SOIL

Client Sample ID: BS21-0-2 ft
Collection Date: 2/9/2021 10:00:00 AM
Received Date: 2/11/2021 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**
Diesel Range Organics (DRO)	ND	8.8		mg/Kg	1	2/14/2021 1:32:05 PM
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	2/14/2021 1:32:05 PM
Surr: DNOP	138	70-130	S	%Rec	1	2/14/2021 1:32:05 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	500	59		mg/Kg	20	2/14/2021 1:57:32 AM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.024		mg/Kg	1	2/17/2021 7:20:48 PM
Toluene	ND	0.047		mg/Kg	1	2/17/2021 7:20:48 PM
Ethylbenzene	ND	0.047		mg/Kg	1	2/17/2021 7:20:48 PM
Xylenes, Total	ND	0.095		mg/Kg	1	2/17/2021 7:20:48 PM
Surr: 1,2-Dichloroethane-d4	80.6	70-130		%Rec	1	2/17/2021 7:20:48 PM
Surr: 4-Bromofluorobenzene	98.0	70-130		%Rec	1	2/17/2021 7:20:48 PM
Surr: Dibromofluoromethane	101	70-130		%Rec	1	2/17/2021 7:20:48 PM
Surr: Toluene-d8	106	70-130		%Rec	1	2/17/2021 7:20:48 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	2/17/2021 7:20:48 PM
Surr: BFB	95.3	70-130		%Rec	1	2/17/2021 7:20:48 PM

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 **2102602**
Date Reported: **3/2/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Black Mamba 15 State 2H
Lab ID: 2102602-010 **Matrix:** SOIL

Client Sample ID: BS21-0-2 ft
Collection Date: 2/9/2021 10:15:00 AM
Received Date: 2/11/2021 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	2/16/2021 5:55:57 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	2/16/2021 5:55:57 PM
Surr: DNOP	89.0	70-130		%Rec	1	2/16/2021 5:55:57 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	2/16/2021 1:38:15 AM
Surr: BFB	99.0	75.3-105		%Rec	1	2/16/2021 1:38:15 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	2/16/2021 1:38:15 AM
Toluene	ND	0.047		mg/Kg	1	2/16/2021 1:38:15 AM
Ethylbenzene	ND	0.047		mg/Kg	1	2/16/2021 1:38:15 AM
Xylenes, Total	ND	0.094		mg/Kg	1	2/16/2021 1:38:15 AM
Surr: 4-Bromofluorobenzene	97.2	80-120		%Rec	1	2/16/2021 1:38:15 AM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	60		mg/Kg	20	2/15/2021 4:59:25 PM

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 **2102602**
Date Reported: **3/2/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Black Mamba 15 State 2H
Lab ID: 2102602-011 **Matrix:** SOIL

Client Sample ID: BS21-0-2 ft
Collection Date: 2/9/2021 10:30:00 AM
Received Date: 2/11/2021 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	2/16/2021 7:07:43 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	2/16/2021 7:07:43 PM
Surr: DNOP	94.5	70-130		%Rec	1	2/16/2021 7:07:43 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	2/16/2021 2:25:10 AM
Surr: BFB	99.7	75.3-105		%Rec	1	2/16/2021 2:25:10 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	2/16/2021 2:25:10 AM
Toluene	ND	0.049		mg/Kg	1	2/16/2021 2:25:10 AM
Ethylbenzene	ND	0.049		mg/Kg	1	2/16/2021 2:25:10 AM
Xylenes, Total	ND	0.098		mg/Kg	1	2/16/2021 2:25:10 AM
Surr: 4-Bromofluorobenzene	97.2	80-120		%Rec	1	2/16/2021 2:25:10 AM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	240	60		mg/Kg	20	2/15/2021 5:11:50 PM

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 **2102602**
Date Reported: **3/2/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: BS21-0-2 ft
Project: Black Mamba 15 State 2H
Collection Date: 2/9/2021 10:45:00 AM
Lab ID: 2102602-012 **Matrix:** SOIL
Received Date: 2/11/2021 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	2/16/2021 7:31:33 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	2/16/2021 7:31:33 PM
Surr: DNOP	97.3	70-130		%Rec	1	2/16/2021 7:31:33 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	2/16/2021 2:48:59 AM
Surr: BFB	99.0	75.3-105		%Rec	1	2/16/2021 2:48:59 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	2/16/2021 2:48:59 AM
Toluene	ND	0.048		mg/Kg	1	2/16/2021 2:48:59 AM
Ethylbenzene	ND	0.048		mg/Kg	1	2/16/2021 2:48:59 AM
Xylenes, Total	ND	0.096		mg/Kg	1	2/16/2021 2:48:59 AM
Surr: 4-Bromofluorobenzene	97.3	80-120		%Rec	1	2/16/2021 2:48:59 AM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	60		mg/Kg	20	2/15/2021 5:24:15 PM

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 **2102602**
Date Reported: **3/2/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Black Mamba 15 State 2H
Lab ID: 2102602-013 **Matrix:** SOIL

Client Sample ID: BS21-0-2 ft
Collection Date: 2/9/2021 11:00:00 AM
Received Date: 2/11/2021 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	2/16/2021 7:55:30 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	2/16/2021 7:55:30 PM
Surr: DNOP	91.8	70-130		%Rec	1	2/16/2021 7:55:30 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	2/16/2021 3:12:59 AM
Surr: BFB	99.4	75.3-105		%Rec	1	2/16/2021 3:12:59 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	2/16/2021 3:12:59 AM
Toluene	ND	0.048		mg/Kg	1	2/16/2021 3:12:59 AM
Ethylbenzene	ND	0.048		mg/Kg	1	2/16/2021 3:12:59 AM
Xylenes, Total	ND	0.096		mg/Kg	1	2/16/2021 3:12:59 AM
Surr: 4-Bromofluorobenzene	97.6	80-120		%Rec	1	2/16/2021 3:12:59 AM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	150	61		mg/Kg	20	2/15/2021 5:36:40 PM

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 **2102602**
Date Reported: **3/2/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Black Mamba 15 State 2H
Lab ID: 2102602-014 **Matrix:** SOIL

Client Sample ID: BS21-0-2 ft
Collection Date: 2/9/2021 11:15:00 AM
Received Date: 2/11/2021 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	2/16/2021 8:19:14 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	2/16/2021 8:19:14 PM
Surr: DNOP	97.8	70-130		%Rec	1	2/16/2021 8:19:14 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	2/16/2021 3:37:01 AM
Surr: BFB	100	75.3-105		%Rec	1	2/16/2021 3:37:01 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.023		mg/Kg	1	2/16/2021 3:37:01 AM
Toluene	ND	0.047		mg/Kg	1	2/16/2021 3:37:01 AM
Ethylbenzene	ND	0.047		mg/Kg	1	2/16/2021 3:37:01 AM
Xylenes, Total	ND	0.093		mg/Kg	1	2/16/2021 3:37:01 AM
Surr: 4-Bromofluorobenzene	98.1	80-120		%Rec	1	2/16/2021 3:37:01 AM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	290	60		mg/Kg	20	2/15/2021 5:49:05 PM

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 **2102602**
Date Reported: **3/2/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Black Mamba 15 State 2H
Lab ID: 2102602-015 **Matrix:** SOIL

Client Sample ID: BS21-0-2 ft
Collection Date: 2/9/2021 11:30:00 AM
Received Date: 2/11/2021 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	2/16/2021 8:43:12 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	2/16/2021 8:43:12 PM
Surr: DNOP	94.2	70-130		%Rec	1	2/16/2021 8:43:12 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	2/16/2021 4:01:04 AM
Surr: BFB	99.8	75.3-105		%Rec	1	2/16/2021 4:01:04 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.023		mg/Kg	1	2/16/2021 4:01:04 AM
Toluene	ND	0.047		mg/Kg	1	2/16/2021 4:01:04 AM
Ethylbenzene	ND	0.047		mg/Kg	1	2/16/2021 4:01:04 AM
Xylenes, Total	ND	0.094		mg/Kg	1	2/16/2021 4:01:04 AM
Surr: 4-Bromofluorobenzene	98.0	80-120		%Rec	1	2/16/2021 4:01:04 AM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	160	60		mg/Kg	20	2/15/2021 6:26:19 PM

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2102602**

02-Mar-21

Client: Devon Energy

Project: Black Mamba 15 State 2H

Sample ID: **MB-58110**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **58110**	RunNo: **75278**							
Prep Date: **2/13/2021**	Analysis Date: **2/13/2021**	SeqNo: **2659195**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-58110**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **58110**	RunNo: **75278**							
Prep Date: **2/13/2021**	Analysis Date: **2/13/2021**	SeqNo: **2659196**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	92.5	90	110			

Sample ID: **MB-58131**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **58131**	RunNo: **75290**							
Prep Date: **2/15/2021**	Analysis Date: **2/15/2021**	SeqNo: **2661084**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-58131**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **58131**	RunNo: **75290**							
Prep Date: **2/15/2021**	Analysis Date: **2/15/2021**	SeqNo: **2661086**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	96.1	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#: **2102602**

02-Mar-21

Client: Devon Energy

Project: Black Mamba 15 State 2H

Sample ID: **MB-58058**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **58058**	RunNo: **75266**
Prep Date: **2/11/2021**	Analysis Date: **2/14/2021**	SeqNo: **2659615** 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	12		10.00		120	70	130			

Sample ID: **LCS-58058**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **58058**	RunNo: **75266**
Prep Date: **2/11/2021**	Analysis Date: **2/14/2021**	SeqNo: **2659616** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	63	10	50.00	0	126	68.9	141			
Surr: DNOP	6.0		5.000		121	70	130			

Sample ID: **MB-58106**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **58106**	RunNo: **75335**
Prep Date: **2/13/2021**	Analysis Date: **2/16/2021**	SeqNo: **2662219** 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	9.6		10.00		95.7	70	130			

Sample ID: **LCS-58106**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **58106**	RunNo: **75335**
Prep Date: **2/13/2021**	Analysis Date: **2/16/2021**	SeqNo: **2662220** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	47	10	50.00	0	93.4	68.9	141			
Surr: DNOP	4.6		5.000		92.5	70	130			

Sample ID: **2102602-010AMS**	SampType: **MS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BS21-0-2 ft**	Batch ID: **58106**	RunNo: **75335**
Prep Date: **2/13/2021**	Analysis Date: **2/16/2021**	SeqNo: **2662221** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	45	10	50.25	0	89.6	15	184			
Surr: DNOP	4.5		5.025		89.8	70	130			

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#: **2102602**

02-Mar-21

Client: Devon Energy

Project: Black Mamba 15 State 2H

Sample ID: **2102602-010AMSD** SampType: **MSD** TestCode: **EPA Method 8015M/D: Diesel Range Organics**

Client ID: **BS21-0-2 ft** Batch ID: **58106** RunNo: **75335**

Prep Date: **2/13/2021** Analysis Date: **2/16/2021** SeqNo: **2662222** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	42	9.2	46.21	0	91.2	15	184	6.53	23.9	
Surr: DNOP	4.3		4.621		93.2	70	130	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#: **2102602**

02-Mar-21

Client: Devon Energy

Project: Black Mamba 15 State 2H

Sample ID: **mb-58098**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **58098**	RunNo: **75283**
Prep Date: **2/12/2021**	Analysis Date: **2/15/2021**	SeqNo: **2659412** 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	980		1000		98.3	75.3	105			

Sample ID: **lcs-58098**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **58098**	RunNo: **75283**
Prep Date: **2/12/2021**	Analysis Date: **2/15/2021**	SeqNo: **2659413** 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	93.1	80	120			
Surr: BFB	1100		1000		108	75.3	105			S

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#: **2102602**

02-Mar-21

Client: Devon Energy

Project: Black Mamba 15 State 2H

Sample ID: **mb-58098**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **58098**	RunNo: **75283**
Prep Date: **2/12/2021**	Analysis Date: **2/15/2021**	SeqNo: **2659422** 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	0.97		1.000		96.9	80	120			

Sample ID: **LCS-58098**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **58098**	RunNo: **75283**
Prep Date: **2/12/2021**	Analysis Date: **2/15/2021**	SeqNo: **2659423** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.90	0.025	1.000	0	90.0	80	120			
Toluene	0.93	0.050	1.000	0	93.3	80	120			
Ethylbenzene	0.93	0.050	1.000	0	92.9	80	120			
Xylenes, Total	2.8	0.10	3.000	0	93.2	80	120			
Surr: 4-Bromofluorobenzene	0.98		1.000		97.6	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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2102602**

02-Mar-21

Client: Devon Energy

Project: Black Mamba 15 State 2H

Sample ID: **lcs-58056**	SampType: **LCS4**	TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **BatchQC**	Batch ID: **58056**	RunNo: **75346**
Prep Date: **2/11/2021**	Analysis Date: **2/16/2021**	SeqNo: **2662755** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.025	1.000	0	102	80	120			
Toluene	1.0	0.050	1.000	0	103	80	120			
Ethylbenzene	1.1	0.050	1.000	0	106	80	120			
Xylenes, Total	3.2	0.10	3.000	0	108	80	120			
Surr: 1,2-Dichloroethane-d4	0.46		0.5000		92.2	70	130			
Surr: 4-Bromofluorobenzene	0.49		0.5000		98.6	70	130			
Surr: Dibromofluoromethane	0.51		0.5000		102	70	130			
Surr: Toluene-d8	0.53		0.5000		106	70	130			

Sample ID: **mb-58056**	SampType: **MBLK**	TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **PBS**	Batch ID: **58056**	RunNo: **75346**
Prep Date: **2/11/2021**	Analysis Date: **2/16/2021**	SeqNo: **2662756** 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: 1,2-Dichloroethane-d4	0.45		0.5000		89.1	70	130			
Surr: 4-Bromofluorobenzene	0.48		0.5000		95.6	70	130			
Surr: Dibromofluoromethane	0.50		0.5000		101	70	130			
Surr: Toluene-d8	0.55		0.5000		110	70	130			

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#: **2102602**

02-Mar-21

Client: Devon Energy

Project: Black Mamba 15 State 2H

Sample ID: **lcs-58056**	SampType: **LCS**	TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **LCSS**	Batch ID: **58056**	RunNo: **75346**
Prep Date: **2/11/2021**	Analysis Date: **2/16/2021**	SeqNo: **2662794** 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	92.3	70	130			
Surr: BFB	470		500.0		93.3	70	130			

Sample ID: **mb-58056**	SampType: **MBLK**	TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **PBS**	Batch ID: **58056**	RunNo: **75346**
Prep Date: **2/11/2021**	Analysis Date: **2/16/2021**	SeqNo: **2662799** 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	490		500.0		98.2	70	130			

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: clients.hallenvironmental.com

Sample Log-In Check List

Client Name: **Devon Energy** Work Order Number: **2102602** RcptNo: 1

Received By: **Desiree Dominguez** **2/11/2021 8:00:00 AM** DD

Completed By: **Desiree Dominguez** **2/11/2021 9:01:55 AM** DD

Reviewed By: IO 2/11/21

Chain of Custody

1. Is Chain of Custody 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 ☐	# of preserved bottles checked for pH: (<2 or >12 unless noted)
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted?
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 ☐	Checked by: CM 2/11/21

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	2.3	Good				

Chain-of-Custody Record

Client: Devon

Mailing Address: On File

Phone #: On File

email or Fax#: On File

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time: 5-day
☑ Standard ☐ Rush

Project Name: Black Mamba 15 State ZH

Project #: 20E-00141-022

Project Manager: Monica Peppin

Sampler: CD

On Ice: ☒ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): 2.4 - 0.1 = 2.3 (°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. 2102602	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)
2/9	8:00	Soil	NS21-01	4oz	Ice	-001	✓	✓					✓			
	8:15		NS21-02			-002										
	8:30		NS21-03			-003										
	8:45		NS21-04			-004										
	9:00		NS21-05			-005										
	9:15		NS21-06			-006										
	9:30		NS21-07			-007										
	9:45		BS21-01			-008										
	10:00		BS21-02			-009										
	10:15		BS21-03			-010										
	10:30		BS21-04			-011										
	10:45		BS21-05			-012										

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
			A Cummings		2/10/21	0800
2/10/21	1900	A Cummings		Courier	2/11/21	8:00

Remarks: CC: Monica Peppin

WO # 20536387

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: Devon

Mailing Address: On File

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: Black Mamba 15 State 2H

Project #: 20E-00141-022

Project Manager: Monica Peppin

Sampler: CD

On Ice: ☒ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): 2.4 - 0.1 = 2.3 (°C)

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

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2102602
2/9	11:00	Soil	BSZ1-06	4oz	Ice	-013
"	11:15	"	BSZ1-07	"	"	-014
"	11:30	"	BSZ1-08	"	"	-015

Analysis Request

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)
✓	✓					✓			
✓	✓					✓			
✓	✓					✓			

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
			[signature]		2/10/21	800
2/10/21	1900	[signature]	[signature]	courier	2/11/21	8:00

Remarks: CC: Monica Peppin

PO # 20836387

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.

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 214175

CONDITIONS

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 214175
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
bhall	Closure approved. It is recommended that for future reports that the pertinent information for the referenced incident is called out in some way. Liner integrity statement can be found on the 58th page of the report (Daily Site Visit Report).	6/30/2023