District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources Department

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 24, 2018
Submit to appropriate OCD District office

Incident ID	
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party	OGRID
Contact Name	Contact Telephone
Contact email	Incident # *(assigned by OCD)*
Contact mailing address	

Location of Release Source

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

Site Name	Site Type
Date Release Discovered	API# *(if applicable)*

Unit Letter	Section	Township	Range	County

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

Nature and Volume of Release

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

☐ Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
☐ Produced Water	Volume Released (bbls)	Volume Recovered (bbls)
	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		

State of New Mexico
Oil Conservation Division

Incident ID	
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:

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: _____ Title: _____

Signature: Kendra Ruiz Date: _____

email: _____ Telephone: _____

OCD Only

Received by: Jocelyn Harimon Date: _____

Spill Volume(Bbls) Calculator		
Inputs in blue, Outputs in red		
Contaminated Soil measurement		
Length(Ft)	Width(Ft)	Depth(Ft)
35	15.000	0.500
Cubic Feet of Soil Impacted		262.500
Barrels of Soil Impacted		46.79
Soil Type		Clay/Sand
Barrels of Oil Assuming 100% Saturation		7.02
Saturation	Damp no fluid when squeezed	
Estimated Barrels of Oil Released		0.70
Free Standing Fluid Only		
Length(Ft)	Width(Ft)	Depth(Ft)
0	0.000	0.000
Standing fluid		0.000
Total fluids spilled		**7.019**

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

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 127694
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
jharimon	None	7/21/2022

Incident ID	nAPP2219226827
District RP	
Facility ID	
Application ID	

Site Assessment/Characterization

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

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

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

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

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

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

Form C-141
Page 4

State of New Mexico
Oil Conservation Division

Incident ID	nAPP2219226827
District RP	
Facility ID	
Application ID	

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

Printed Name: Dale Woodall Title: Manager Environment

Signature: Dale Woodall Date: 1/10/2023

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

OCD Only

Received by: Jocelyn Harimon Date: 01/11/2023

Incident ID	nAPP2219226827
District RP	
Facility ID	
Application ID	

Remediation Plan

Remediation Plan Checklist: ***Each of the following items must be included in the plan.***

- [X] Detailed description of proposed remediation technique
- [X] Scaled sitemap with GPS coordinates showing delineation points
- [X] Estimated volume of material to be remediated
- [X] Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(4) NMAC
- [X] Proposed schedule for remediation (note if remediation plan timeline is more than 90 days OCD approval is required)

Deferral Requests Only: ***Each of the following items must be confirmed as part of any request for deferral of remediation.***

- [ ] Contamination must be in areas immediately under or around production equipment where remediation could cause a major facility deconstruction.
- [ ] Extents of contamination must be fully delineated.
- [ ] Contamination does not cause an imminent risk to human health, the environment, or groundwater.

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: Dale Woodall Title: Manager Environment

Signature: Dale Woodall Date: 1/10/2023

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

OCD Only

Received by: Jocelyn Harimon Date: 01/11/2023

- [ ] Approved
- [ ] Approved with Attached Conditions of Approval
- [ ] Denied
- [ ] Deferral Approved

Signature: _____ Date: _____

Incident ID	nAPP2219226827
District RP	
Facility ID	
Application ID	

Remediation Plan

Remediation Plan Checklist: ***Each of the following items must be included in the plan.***

- [X] Detailed description of proposed remediation technique
- [X] Scaled sitemap with GPS coordinates showing delineation points
- [X] Estimated volume of material to be remediated
- [X] Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(4) NMAC
- [X] Proposed schedule for remediation (note if remediation plan timeline is more than 90 days OCD approval is required)

Deferral Requests Only: ***Each of the following items must be confirmed as part of any request for deferral of remediation.***

- [ ] Contamination must be in areas immediately under or around production equipment where remediation could cause a major facility deconstruction.
- [ ] Extents of contamination must be fully delineated.
- [ ] Contamination does not cause an imminent risk to human health, the environment, or groundwater.

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: Dale Woodall Title: Manager Environment

Signature: Dale Woodall Date: 1/10/2023

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

OCD Only

Received by: Jocelyn Harimon Date: 01/11/2023

- [ ] Approved
- [X] Approved with Attached Conditions of Approval
- [ ] Denied
- [ ] Deferral Approved

Signature: Robert Hamlet Date: 5/10/2023

General Information

NMOCD District:	District 2	Incident ID:	nAPP2219226827, nAPP2116940090
Landowner:	Bureau of Land Management (BLM)	RP Reference:	N/A
Client:	Devon Energy Production Company	Site Location:	Helios 6 Fed Com 3H, Hackberry 6 Fed 1
Date:	November 29, 2022	Project #:	22E-02537
Client Contact:	Wesley Mathews	Phone #:	575.513.8608
Vertex PM:	Chance Dixon	Phone #:	575.988.1472

Objective

The objective of the Environmental Site Remediation Work Plan is to identify areas of exceedance for areas of concern delineated during spill assessment and site characterization activities, and propose appropriate remediation techniques to address the open releases for the Helios 6 Fed Com 3H and Hackberry 6 Federal 1 Wellpad locations (hereafter referred to as "Helios and Hackberry"). The first release, labeled as Helios, occurred when a pinhole developed a leak on the water transfer line. The second release, labeled as Hackberry, occurred when the same pinhole developed another leak on the line. Both incidents took place at the same point of release. Devon Energy Production Company (Devon) submitted initial C-141 notifications for both releases (Attachment 1). The location where the leaks took place is in the undisturbed pastureland between the pad and the access road. The affected area is approximately 160 feet long and 105 feet wide. Closure criteria has been selected as per New Mexico Administrative Code (NMAC) 19.15.29.12. All applicable research as it pertains to closure criteria selection is presented in Attachment 4.

Table 1. Closure Criteria for Soils to Remediation & Reclamation Standards

	Constituent	Limit
0-4 feet bgs (19.15.29.13)	Chloride	600 mg/kg
	TPH (GRO+DRO+MRO)	100 mg/kg
DTGW > 100 feet (19.15.29.12)	Chloride	20,000 mg/kg
	TPH (GRO+DRO+MRO)	2,500 mg/kg
	GRO+DRO	1,000 mg/kg
	BTEX	50 mg/kg
	Benzene	10 mg/kg

TDS - Total dissolved solids,

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

BTEX - Benzene, toluene, ethylbenzene, and xylenes

Site Assessment/Characterization

A permit was obtained from the New Mexico Office of the State Engineer approving the the collection of lithological data for a test borehole for depth to groundwater determination with Vision Resources, Inc. for the Helios and Hackberry releases. The borehole was drilled on December 12, 2022. The borehole was left open for 72 hours as per requirements on the WR-07 Application for Permit to Drill A Well With No Water Right. On December 16, 2022, an interface probe was lowered to the bottom of the borehole to determine if any groundwater may have accumulated during the waiting period; no water was present at that time. The borehole was then plugged as per requirements on the WR-08, Well Plugging Plan of Operations. The boring log and well-plugging plan are presented in Attachment 4.

Site characterization for the Helios release was attempted in June 2021. The release was horizontally delineated to New Mexico Oil Conservation Division's (NMOCD's) strictest criteria. The release was not vertically delineated to the strictest criteria as refusal was hit at 15 feet below ground surface (bgs) with mechanical excavation equipment. Site characterization for the Hackberry release was completed on November 3, 2022. Samples were collected around the total impacted area for horizontal delineation to ensure that the Hackberry

release did not migrate further than the Helios release. Samples were also collected down to 4 feet bgs for vertical delineation below the >100 feet closure criteria. All samples that were below the closure criteria were submitted to the laboratory for analysis. In total, 37 samples for both releases were submitted to Hall Environmental Analysis Laboratory in Albuquerque, New Mexico, for analysis. The characterization sampling locations are presented in Figure 1 (Attachment 2). Laboratory analyses were compared to the above-noted closure criteria and the results from the characterization activity are presented in Table 2 (Attachment 3).

Site characterization for the Helios release was attempted in June 2021. The release was horizontally delineated to New Mexico Oil Conservation Division's (NMOCD's) strictest criteria. The release was not vertically delineated to the strictest criteria as refusal was hit at 15 feet below ground surface (bgs) with mechanical excavation equipment. Site characterization for the Hackberry release was completed on November 3, 2022. Samples were collected around the total impacted area for horizontal delineation to ensure that the Hackberry release did not migrate further than the Helios release. Samples were also collected down to 4 feet bgs for vertical delineation below the >100 feet closure criteria. All samples that were below the closure criteria were submitted to the laboratory for analysis. In total, 37 samples for both releases were submitted to Hall Environmental Analysis Laboratory in Albuquerque, New Mexico, for analysis. The characterization sampling locations are presented in Figure 1 (Attachment 2). Laboratory analyses were compared to the above-noted closure criteria and the results from the characterization activity are presented in Table 2 (Attachment 3).

Remedial Activities

Areas identified with contaminant concentrations above the selected closure criteria will be remediated through excavation. Laboratory results from the site assessment/characterization have been referenced to estimate both the vertical and horizontal limits of the impacts and the volume of soil to be removed. The affected area where the exceedances were located will be excavated to 4 feet bgs. The impacted area will then be sampled and remediated until it is below the selected closure criteria. The top 4 feet will then be reclaimed under NMOCD's strictest criteria as required by Subsection A of 19.15.29.13 NMAC. Contaminated soils that are in exceedance will be stored on a 30mil liner prior to disposal at an approved facility. During excavation, confirmatory samples will be collected and analysis will be completed to confirm closure criteria guidelines are met. Excavations will be backfilled after the open releases receive closure. The excavations will be backfilled with clean topsoil sourced locally.

Variance Request

Based on the initial characterization of the impacted area, the dimensions were determined to be approximately 158 feet long and 105 feet wide. The total area was determined to be 8,776 square feet (Figure 1 – Attachment 2). When excavation begins, the area will be fenced off and remain open until approval of the variance request for confirmation sampling and karst potential is obtained.

Vertex Resource Services, Inc. (Vertex) and Devon would like to request a variance for confirmation sampling due to the square footage of the proposed excavation area and the depth to groundwater being greater than 100 feet for closure criteria. This variance request will consist of five-point composite samples for every 400 square feet for the base of the 4-foot excavation. The walls and excavation areas greater than 4 feet of vertical depth will utilize five-point composite samples that are representative of no more than 200 square feet. Additional discrete grab samples will be collected from areas with discoloration and analyzed for chloride (EPA 300.0), BTEX (EPA 8021B), and TPH (EPA 8015D) depending on field screening results.
Vertex Resource Services, Inc. (Vertex) and Devon would like to request a variance for confirmation sampling due to the square footage of the proposed excavation area and the depth to groundwater being greater than 100 feet for closure criteria. This variance request will consist of five-point composite samples for every 400 square feet for the base of the 4-foot excavation. The walls and excavation areas greater than 4 feet of vertical depth will utilize five-point composite samples that are representative of no more than 200 square feet. Additional discrete grab samples will be collected from areas with discoloration and analyzed for chloride (EPA 300.0), BTEX (EPA 8021B), and TPH (EPA 8015D) depending on field screening results.

Should you have any questions or concerns, please do not hesitate to contact Chance Dixon at 575.988.1472 or cdixon@vertex.ca.

Chance Dixon
Chance Dixon, B.Sc.
SR. ENVIRONMENTAL TECHNICIAN, REPORTING

1/10/2023
Date

Michael Moffitt
Michael Moffitt, B.Sc.
MANAGER OF ENVIRONMENT, REPORT REVIEW

1/10/2023
Date

Attachments

Attachment 1. NMOCD C-141 Reports
Attachment 2. Characterization Schematic
Attachment 3. Characterization Table
Attachment 4. Closure Criteria Research
Attachment 5. Laboratory Data Reports

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	nAPP2116940090
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party Devon Energy Production Company	OGRID 6137
Contact Name Wesley Mathews	Contact Telephone
Contact email Wesley.Mathews@dvn.com	Incident # *(assigned by OCD)*
Contact mailing address 6488 Seven Rivers Hwy Artesia, NM 88210	

Location of Release Source

Latitude 32.6880381 Longitude -103.9071575
(NAD 83 in decimal degrees to 5 decimal places)

Site Name Helios 6 Fed Com 1H & 3H Battery	Site Type Oil
Date Release Discovered 6/17/2021	API# *(if applicable)*

Unit Letter	Section	Township	Range	County
J	6	19S	31E	Eddy

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

Nature and Volume of Release

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

☐ Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
■ Produced Water	Volume Released (bbls) 91.82 BBLS	Volume Recovered (bbls) 73 BBLS
	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 Pin hole leak on water transfer line.		

Form C-141
Page 2

State of New Mexico
Oil Conservation Division

Incident ID	
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:

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: _____ Title: _____

Signature: Kendra DeHoyos Date: _____

email: _____ Telephone: _____

OCD Only

Received by: Ramona Marcus Date: 10/5/2021

State of New Mexico
Oil Conservation Division

Incident ID	nAPP2116940090
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? This is considered a major release because it is over 25 BBLS.

If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?
Immediate notice was given by NOR on the OCD website.

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.

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: 7/7/2021

email: Kendra.DeHoyos@dvn.com Telephone: 575-748-0167

OCD Only

Received by: Ramona Marcus Date: 10/5/2021

NAPP2116940090

Spill Volume(Bbls) Calculator *Inputs in blue, Outputs in red*	
Contaminated Soil measurement	
Area (square feet)	Depth(inches)
7877.949	1.000
Cubic Feet of Soil Impacted	656.496
Barrels of Soil Impacted	117.02
Soil Type	Clay/Sand
Barrels of water Assuming 100% Saturation	17.55
Saturation	Fluid present with shovel/backhoe
Estimated Barrels of water Released	17.55
Free Standing Fluid Only	
Area (square feet)	Depth(inches)
2500	2.000
Standing fluid	74.272
Total fluids spilled	**91.825**

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources Department

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 24, 2018
Submit to appropriate OCD District office

Incident ID	
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party	OGRID
Contact Name	Contact Telephone
Contact email	Incident # *(assigned by OCD)*
Contact mailing address	

Location of Release Source

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

Site Name	Site Type
Date Release Discovered	API# *(if applicable)*

Unit Letter	Section	Township	Range	County

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

Nature and Volume of Release

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

☐ Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
☐ Produced Water	Volume Released (bbls)	Volume Recovered (bbls)
	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		

State of New Mexico
Oil Conservation Division

Incident ID	
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:

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: _____ Title: _____

Signature: Kendra Ruiz Date: _____

email: _____ Telephone: _____

OCD Only

Received by: Jocelyn Harimon Date: _____

Spill Volume(Bbls) Calculator		
Inputs in blue, Outputs in red		
Contaminated Soil measurement		
Length(Ft)	Width(Ft)	Depth(Ft)
35	15.000	0.500
Cubic Feet of Soil Impacted		262.500
Barrels of Soil Impacted		46.79
Soil Type		Clay/Sand
Barrels of Oil Assuming 100% Saturation		7.02
Saturation	Damp no fluid when squeezed	
Estimated Barrels of Oil Released		0.70
Free Standing Fluid Only		
Length(Ft)	Width(Ft)	Depth(Ft)
0	0.000	0.000
Standing fluid		0.000
Total fluids spilled		**7.019**

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

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 127694
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
jharimon	None	7/21/2022

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources Department

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 24, 2018
Submit to appropriate OCD District office

Incident ID	
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party	OGRID
Contact Name	Contact Telephone
Contact email	Incident # *(assigned by OCD)*
Contact mailing address	

Location of Release Source

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

Site Name	Site Type
Date Release Discovered	API# *(if applicable)*

Unit Letter	Section	Township	Range	County

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

Nature and Volume of Release

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

☐ Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
☐ Produced Water	Volume Released (bbls)	Volume Recovered (bbls)
	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		

State of New Mexico
Oil Conservation Division

Incident ID	
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:

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: _____ Title: _____

Signature: Kendra Ruiz Date: _____

email: _____ Telephone: _____

OCD Only

Received by: Jocelyn Harimon Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	nAPP2116940090
District RP	
Facility ID	
Application ID	

Site Assessment/Characterization

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

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

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

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

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

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

Form C-141
Page 4

State of New Mexico
Oil Conservation Division

Incident ID	nAPP2116940090
District RP	
Facility ID	
Application ID	

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

Printed Name: Dale Woodall Title: Manager Environment

Signature: Dale Woodall Date: 1/10/2023

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

OCD Only

Received by: _____ Date: _____

NAPP2116940090

Spill Volume(Bbls) Calculator *Inputs in blue, Outputs in red*	
Contaminated Soil measurement	
Area (square feet)	Depth(inches)
7877.949	1.000
Cubic Feet of Soil Impacted	656.496
Barrels of Soil Impacted	117.02
Soil Type	Clay/Sand
Barrels of water Assuming 100% Saturation	17.55
Saturation	Fluid present with shovel/backhoe
Estimated Barrels of water Released	17.55
Free Standing Fluid Only	
Area (square feet)	Depth(inches)
2500	2.000
Standing fluid	74.272
Total fluids spilled	**91.825**

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources Department

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 24, 2018
Submit to appropriate OCD District office

Incident ID	
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party	OGRID
Contact Name	Contact Telephone
Contact email	Incident # *(assigned by OCD)*
Contact mailing address	

Location of Release Source

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

Site Name	Site Type
Date Release Discovered	API# *(if applicable)*

Unit Letter	Section	Township	Range	County

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

Nature and Volume of Release

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

☐ Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
☐ Produced Water	Volume Released (bbls)	Volume Recovered (bbls)
	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		

State of New Mexico
Oil Conservation Division

Incident ID	nAPP2116940090
District RP	
Facility ID	
Application ID	

Remediation Plan

Remediation Plan Checklist: ***Each of the following items must be included in the plan.***

- [X] Detailed description of proposed remediation technique
- [X] Scaled sitemap with GPS coordinates showing delineation points
- [X] Estimated volume of material to be remediated
- [X] Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(4) NMAC
- [X] Proposed schedule for remediation (note if remediation plan timeline is more than 90 days OCD approval is required)

Deferral Requests Only: ***Each of the following items must be confirmed as part of any request for deferral of remediation.***

- [ ] Contamination must be in areas immediately under or around production equipment where remediation could cause a major facility deconstruction.
- [ ] Extents of contamination must be fully delineated.
- [ ] Contamination does not cause an imminent risk to human health, the environment, or groundwater.

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: Dale Woodall Title: Manager Environment

Signature: Dale Woodall Date: 1/10/2023

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

OCD Only

Received by: _____ Date: _____

- [ ] Approved
- [ ] Approved with Attached Conditions of Approval
- [ ] Denied
- [ ] Deferral Approved

Signature: _____ Date: _____

Spill Volume(Bbls) Calculator		
Inputs in blue, Outputs in red		
Contaminated Soil measurement		
Length(Ft)	Width(Ft)	Depth(Ft)
35	15.000	0.500
Cubic Feet of Soil Impacted		262.500
Barrels of Soil Impacted		46.79
Soil Type		Clay/Sand
Barrels of Oil Assuming 100% Saturation		7.02
Saturation	Damp no fluid when squeezed	
Estimated Barrels of Oil Released		0.70
Free Standing Fluid Only		
Length(Ft)	Width(Ft)	Depth(Ft)
0	0.000	0.000
Standing fluid		0.000
Total fluids spilled		**7.019**

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 127694

CONDITIONS

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 127694
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
jharimon	None	7/21/2022

Incident ID	nAPP2219226827
District RP	
Facility ID	
Application ID	

Site Assessment/Characterization

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

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

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

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

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

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

Form C-141
Page 4

State of New Mexico
Oil Conservation Division

Incident ID	nAPP2219226827
District RP	
Facility ID	
Application ID	

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

Printed Name: Dale Woodall Title: Manager Environment

Signature: Dale Woodall Date: 1/10/2023

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

OCD Only

Received by: _____ Date: _____

Incident ID	nAPP2219226827
District RP	
Facility ID	
Application ID	

Remediation Plan

Remediation Plan Checklist: ***Each of the following items must be included in the plan.***

- [X] Detailed description of proposed remediation technique
- [X] Scaled sitemap with GPS coordinates showing delineation points
- [X] Estimated volume of material to be remediated
- [X] Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(4) NMAC
- [X] Proposed schedule for remediation (note if remediation plan timeline is more than 90 days OCD approval is required)

Deferral Requests Only: ***Each of the following items must be confirmed as part of any request for deferral of remediation.***

- [ ] Contamination must be in areas immediately under or around production equipment where remediation could cause a major facility deconstruction.
- [ ] Extents of contamination must be fully delineated.
- [ ] Contamination does not cause an imminent risk to human health, the environment, or groundwater.

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: Dale Woodall Title: Manager Environment

Signature: Dale Woodall Date: 1/10/2023

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

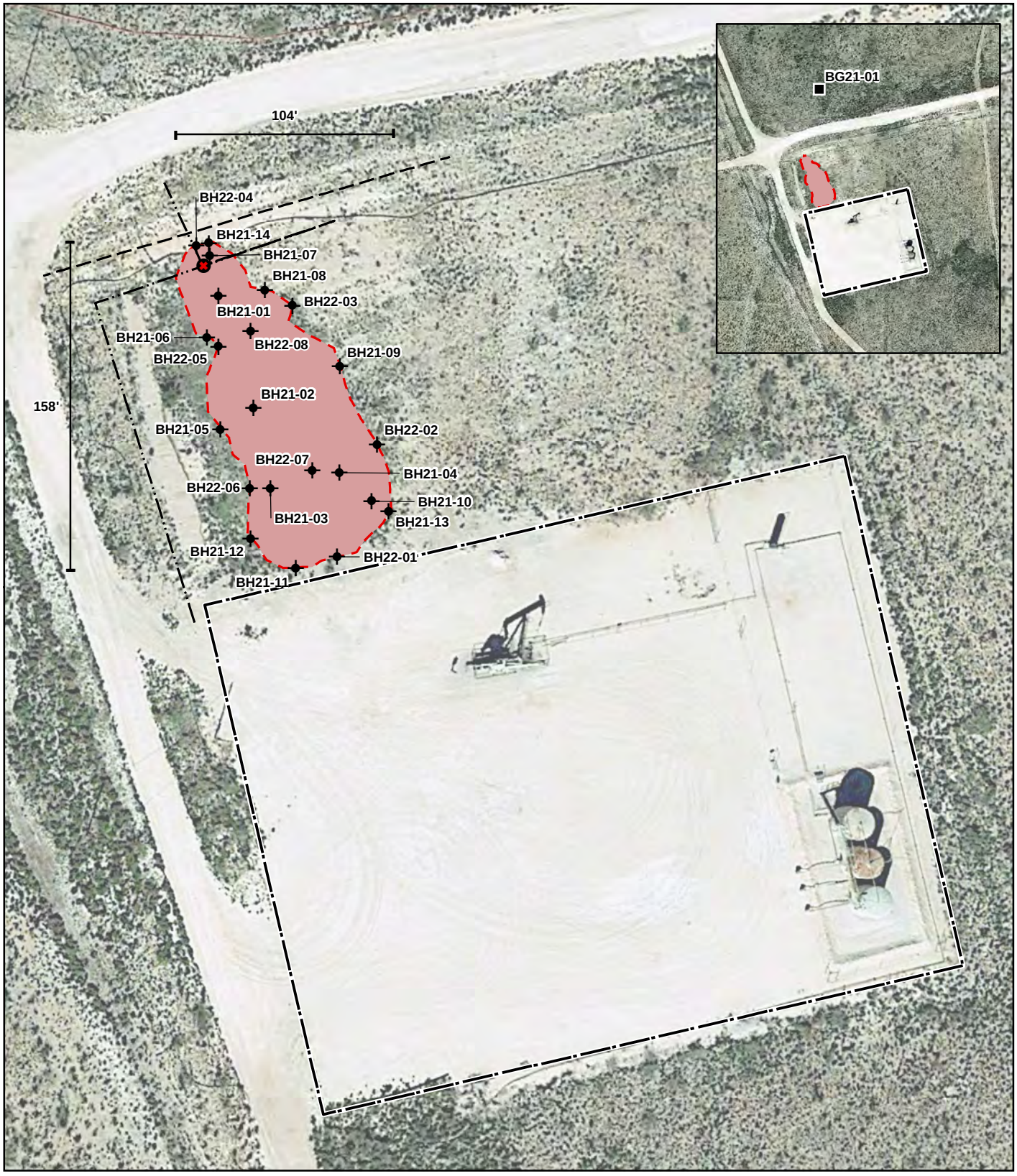
OCD Only

Received by: _____ Date: _____

- [ ] Approved
- [ ] Approved with Attached Conditions of Approval
- [ ] Denied
- [ ] Deferral Approved

Signature: _____ Date: _____

ATTACHMENT 2



Background Sample
Borehole
Point of Release
DCP Flowline
Devon Flowline
Approximate Extent of Release (~8,776 sq. ft.)
Approximate Lease Boundary

VERTEX

0 10 20 40 ft.

NAD 1983 UTM Zone 13N
Date: Nov 07/22

Map Center:
Lat: 32.687591,
Long:-103.906654

N

Characterization Schematic
Helios 6 Fed Com Battery and
Hackberry 6 Federal 1 Well-Pad

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: Background imagery from Google Earth, 2017. Feature locations from GPS, Verex Professional Services Ltd., 2022.

VERSATILITY. EXPERTISE.

Document Path: G:\1-Projects_US PROJECTS\Devon Energy Corporation\2021\21E-00580\003-Helios 6 Fed Com 1H\Figure 1 Characterization Helios 6 and Hackberry 6.mxd

ATTACHMENT 3

Client Name: Devon Energy Production Company
Site Name: Helios 6 Fed Com 1H 3H, Hackberry 6 Federal 1 Wellpad
Project #: 22E-02537
Lab Report(s): 2106D66, 2107069

Table 2. Initial Characterization Sample/Field Screen and Laboratory Results - Depth to Groundwater >100 feet bgs

Sample Description			Field Screening			Petroleum Hydrocarbons							Inorganic
						Volatile		Extractable					
Sample ID	Depth (ft)	Sample Date	Volatile Organic Compounds (PID)	Extractable Organic Compounds (PetroFl	Chloride Concentration	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)
BG21-01	0	6/22/2021	0	—	ND	ND	ND	ND	ND	ND	ND	ND	ND
BG21-01	1	6/22/2021	0	—	ND	ND	ND	ND	ND	ND	ND	ND	ND
BG21-01	2	6/22/2021	0	39	ND	ND	ND	ND	ND	ND	ND	ND	ND
BH21-01	0.5	6/22/2021	1	—	**8,188**	ND	ND	ND	ND	ND	ND	ND	**12,000.0**
BH21-01	1	6/22/2021	1	—	**7,091**	—	—	—	—	—	—	—	—
BH21-01	2	6/22/2021	1	—	**8,083**	—	—	—	—	—	—	—	—
BH21-01	3	6/22/2021	2	1,037	**7,233**	—	—	—	—	—	—	—	—
BH21-01	4	6/30/2021	2	—	2,411	—	—	—	—	—	—	—	—
BH21-01	6	6/30/2021	1	—	9,427	—	—	—	—	—	—	—	—
BH21-01	8	6/30/2021	0	—	3,319	—	—	—	—	—	—	—	—
BH21-01	10	6/30/2021	1	—	7,468	—	—	—	—	—	—	—	—
BH21-01	11	6/30/2021	1	—	6,661	—	—	—	—	—	—	—	11,000.0
BH21-02	0.5	6/22/2021	3	—	**5,590**	ND	ND	ND	ND	ND	ND	ND	**11,000.0**
BH21-02	1	6/22/2021	1	—	**8,520**	—	—	—	—	—	—	—	—
BH21-02	2	6/22/2021	0	—	**9,671**	—	—	—	—	—	—	—	—
BH21-02	3	6/22/2021	1	57	**6,289**	—	—	—	—	—	—	—	—
BH21-02	3.5	6/23/2021	—	—	**7,630**	—	—	—	—	—	—	—	—

Table 2. Initial Characterization Sample/Field Screen and Laboratory Results - Depth to Groundwater >100 feet bgs

Sample Description			Field Screening			Petroleum Hydrocarbons							Inorganic
						Volatile		Extractable					
Sample ID	Depth (ft)	Sample Date	Volatile Organic Compounds (PID)	Extractable Organic Compounds (PetroFlag)	Chloride Concentration	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)
BH21-02	4	6/30/2021	1	—	5,097	—	—	—	—	—	—	—	—
BH21-02	6	6/30/2021	1	—	4,215	—	—	—	—	—	—	—	—
BH21-02	8	6/30/2021	1	—	2,338	—	—	—	—	—	—	—	—
BH21-02	12	6/30/2021	1	41	331	ND	ND	ND	ND	ND	ND	ND	150.0
BH21-03	0.5	6/22/2021	—	—	**9,824**	ND	ND	ND	ND	ND	ND	ND	**13,000.0**
BH21-03	1	6/22/2021	—	—	**8,835**	—	—	—	—	—	—	—	—
BH21-03	2	6/22/2021	—	—	**8,614**	—	—	—	—	—	—	—	—
BH21-03	3	6/22/2021	—	—	**8,556**	—	—	—	—	—	—	—	—
BH21-03	3.5	6/23/2021	—		**10,366**	—	—	—	—	—	—	—	—
BH21-03	4	6/28/2021	—	—	6,279	—	—	—	—	—	—	—	—
BH21-03	5	6/28/2021	—	—	6,256	—	—	—	—	—	—	—	—
BH21-03	7	6/28/2021	—	—	5,092	—	—	—	—	—	—	—	—
BH21-03	8	6/28/2021	—	—	5,658	—	—	—	—	—	—	—	—
BH21-03	9	6/28/2021	—	—	1,367	—	—	—	—	—	—	—	—
BH21-03	10	6/30/2021	0	—	950	—	—	—	—	—	—	—	—
BH21-03	11	6/30/2021	1	—	664	—	—	—	—	—	—	—	—
BH21-03	12	6/30/2021	1	44	107	ND	ND	ND	ND	ND	ND	ND	170.0
BH21-04	0.5	6/22/2021	—	—	**14,605**	ND	ND	ND	28	98	28	**126**	**18,000.0**
BH21-04	1	6/22/2021	—	—	**6,090**	—	—	—	—	—	—	—	—
BH21-04	2	6/22/2021	—	—	**7,618**	—	—	—	—	—	—	—	—
BH21-04	3	6/22/2021	—	—	**7,257**	—	—	—	—	—	—	—	—
BH21-04	3.5	6/23/2021	—	—	**10,044**	—	—	—	—	—	—	—	—
BH21-04	4	6/30/2021	0	—	2,932	—	—	—	—	—	—	—	—

Table 2. Initial Characterization Sample/Field Screen and Laboratory Results - Depth to Groundwater >100 feet bgs

Sample Description			Field Screening			Petroleum Hydrocarbons							Inorganic
						Volatile		Extractable					
Sample ID	Depth (ft)	Sample Date	Volatile Organic Compounds (PID)	Extractable Organic Compounds (PetroFlag)	Chloride Concentration	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)
BH21-04	6	6/30/2021	1	—	4,620	—	—	—	—	—	—	—	—
BH21-04	9	6/30/2021	1	—	6,410	—	—	—	—	—	—	—	—
BH21-04	11	6/30/2021	1	—	6,386	—	—	—	—	—	—	—	—
BH21-04	12	6/30/2021	1	—	6,085	—	—	—	—	—	—	—	—
BH21-04	13	6/30/2021	1	—	6,726	—	—	—	—	—	—	—	—
BH21-04	14	6/30/2021	1	—	6,560	—	—	—	—	—	—	—	—
BH21-04	15	6/30/2021	2	—	4,698	ND	ND	ND	ND	ND	ND	ND	6,700.0
BH21-05	0.5	6/23/2021	—	—	24	ND	ND	ND	ND	ND	ND	ND	ND
BH21-06	0.5	6/23/2021	—	—	71	ND	ND	ND	ND	ND	ND	ND	ND
BH21-07	0.5	6/23/2021	—	—	**2,803**	—	—	—	—	—	—	—	—
BH21-08	0.5	6/23/2021	—	—	28	ND	ND	ND	ND	ND	ND	ND	ND
BH21-09	0.5	6/23/2021	—	68	250	ND	ND	ND	ND	ND	ND	ND	120.0
BH21-10	0.5	6/23/2021	—	—	568	—	—	—	—	—	—	—	—
BH21-11	0.5	6/23/2021	—	—	ND	ND	ND	ND	ND	ND	ND	ND	ND
BH21-12	0.5	6/23/2021	—	—	ND	ND	ND	ND	ND	ND	ND	ND	ND
BH21-13	0.5	6/23/2021	—		138	ND	ND	ND	ND	ND	ND	ND	ND
BH21-14	0.5	6/23/2021	—	—	282	ND	ND	ND	ND	ND	ND	ND	330.0
BH22-01	0	11/3/2022	0	21	228	ND	ND	ND	ND	ND	ND	ND	ND
BH22-01	2	11/3/2022	0	—	135	ND	ND	ND	ND	ND	ND	ND	ND
BH22-02	0	11/3/2022	0	48	342	ND	ND	ND	ND	ND	ND	ND	ND
BH22-02	2	11/3/2022	0	—	174	ND	ND	ND	ND	ND	ND	ND	ND
BH22-03	0	11/3/2022	0	55	205	ND	ND	ND	ND	ND	ND	ND	ND

Table 2. Initial Characterization Sample/Field Screen and Laboratory Results - Depth to Groundwater >100 feet bgs														
Sample Description			Field Screening			Petroleum Hydrocarbons								Inorganic
						Volatile		Extractable						
Sample ID	Depth (ft)	Sample Date	Volatile Organic Compounds (PID)	Extractable Organic Compounds (PetroF	Chloride Concentration	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)
BH22-03	2	11/3/2022	0		69	ND	ND	ND	ND	ND	ND	ND		ND
BH22-04	0	11/3/2022	0	65	310	ND	ND	ND	ND	ND	ND	ND		ND
BH22-04	2	11/3/2022	0	—	212	ND	ND	ND	ND	ND	ND	ND		130.0
BH22-05	0	11/3/2022	0	64	477	ND	ND	ND	ND	ND	ND	ND		ND
BH22-05	2	11/3/2022	0	—	255	ND	ND	ND	ND	ND	ND	ND		ND
BH22-06	0	11/3/2022	0	74	380	ND	ND	ND	ND	ND	ND	ND		ND
BH22-06	2	11/3/2022	0	—	174	ND	ND	ND	ND	ND	ND	ND		ND
BH22-07	0	11/3/2022	0	**164**	**7,426**	ND	ND	ND	ND	ND	ND	ND		**9,000.0**
BH22-07	2	11/3/2022	0	24	**7,995**	ND	ND	ND	ND	ND	ND	ND		**7,000.0**
BH22-07	4	11/3/2022	0	50	7,925	ND	ND	ND	14	ND	14	14		6,600.0
BH22-08	0	11/3/2022	0	**124**	**8,455**	ND	ND	ND	ND	ND	ND	ND		**7,100.0**
BH22-08	2	11/3/2022	0	40	**8,790**	ND	ND	ND	ND	ND	ND	ND		**5,600.0**
BH22-08	4	11/3/2022	0	25	4,550	ND	ND	ND	41	110	41	151		7,300.0

"ND" Not Detected at the Reporting Limit

"-" indicates not analyzed/assessed

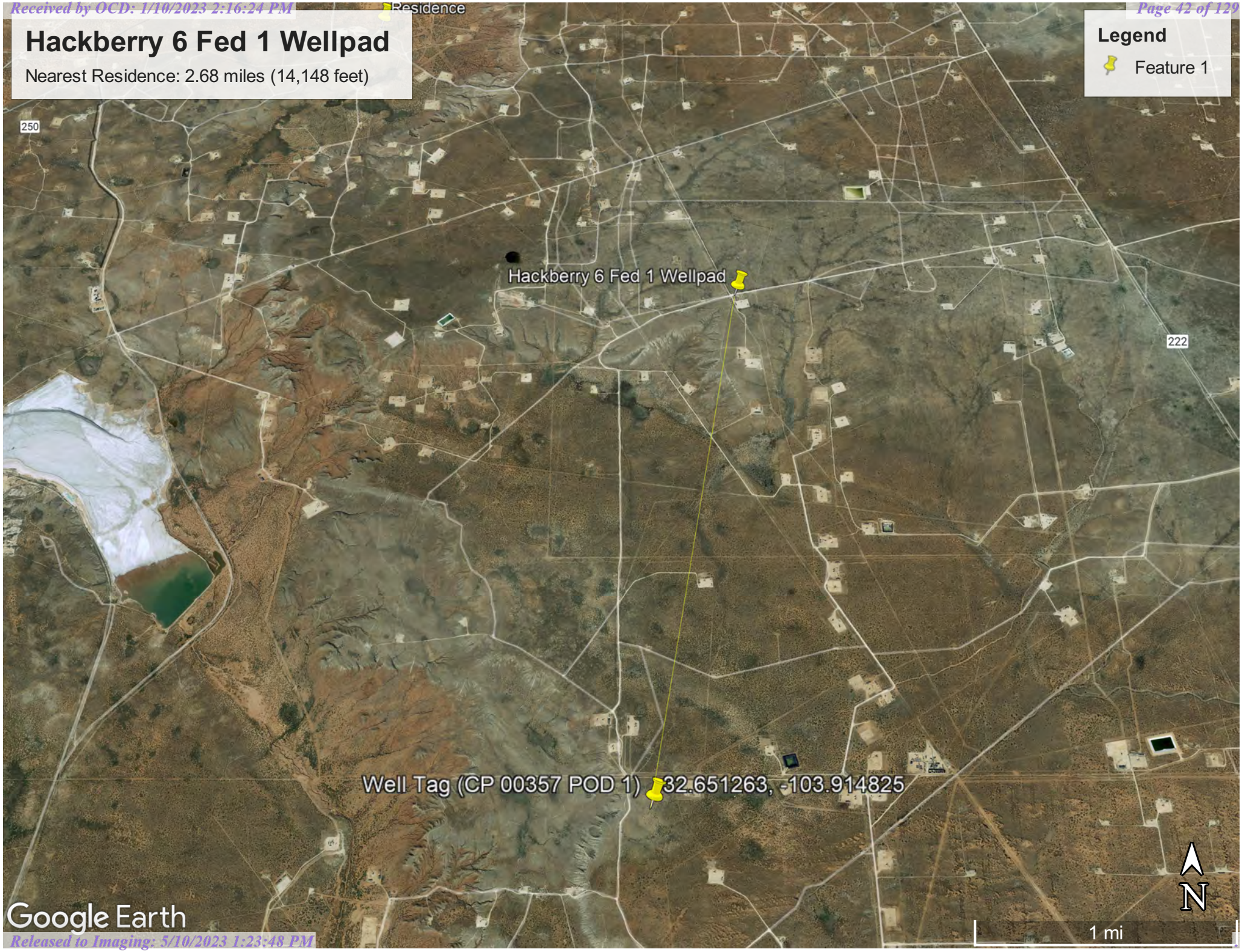
Bold and Shaded indicates exceedance outside of regulator criteria (Off-site)

ATTACHMENT 4

Closure Criteria Worksheet			
Site Name: Hackberry 6 Fed 1 Wellpad			
Spill Coordinates:		**X: 32.688026**	**Y: -103.907163**
Site Specific Conditions		**Value**	**Unit**
1	Depth to Groundwater	**>100**	feet
2	Within 300 feet of any continuously flowing watercourse or any other significant watercourse	800	Feet
3	Within 200 feet of any lakebed, sinkhole or playa lake (measured from the ordinary high-water mark)	4,819	Feet
4	Within 300 feet from an occupied residence, school, hospital, institution or church	14,148	Feet
5	i) Within 500 feet of a spring or a private, domestic fresh water well used by less than five households for domestic or stock watering purposes, **or**	14,148	Feet
	ii) Within 1000 feet of any fresh water well or spring	14,148	Feet
6	Within incorporated municipal boundaries or within a defined municipal fresh water field covered under a municipal ordinance adopted pursuant to Section 3-27-3 NMSA 1978 as amended, unless the municipality specifically approves	No	(Y/N)
7	Within 300 feet of a wetland	4,129	feet
8	Within the area overlying a subsurface mine	No	(Y/N)
9	Within an unstable area (Karst Map)	Low	Critical High Medium Low
10	Within a 100-year Floodplain	Undetermined	Year
11	Soil Type	SG	Soil
12	Ecological Classification	Simona	Plant
13	Geology	Qp	Age
	NMAC 19.15.29.12 E (Table 1) Closure Criteria	>100'	<50' 51-100' >100'

Hackberry 6 Fed 1 Wellpad

Nearest Residence: 2.68 miles (14,148 feet)



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	Code	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
CP 00767 POD1		CP	ED		3	2	35	18S	30E	599300	3619158*	3692	500		
CP 00873 POD1		CP	LE		1	1	19	19S	31E	601772	3613147*	4138	340	180	160
CP 00818 POD1		CP	LE		1	4	26	18S	30E	599289	3620364*	4450	240		
CP 00829 POD1		CP	LE		2	4	16	19S	31E	606165	3614009*	4917	120		
CP 00357 POD1		CP	ED	4	4	1	24	19S	30E	600667	3612631*	4932	630		
CP 00647 POD1	O	CP	ED	4	2	2	15	19S	30E	598235	3614621*	4956	200	92	108

Average Depth to Water: **136 feet**
Minimum Depth: **92 feet**
Maximum Depth: **180 feet**

Record Count: 6

UTMNAD83 Radius Search (in meters):

Easting (X): 602448.65 **Northing (Y):** 3617230 **Radius:** 5000

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

8/12/22 7:40 AM

WATER COLUMN/ AVERAGE DEPTH TO WATER

U.S. Fish and Wildlife Service
National Wetlands Inventory

Hackberry 6 Federal 1 Well Pad 800 Feet (

December 2, 2022

Wetlands

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

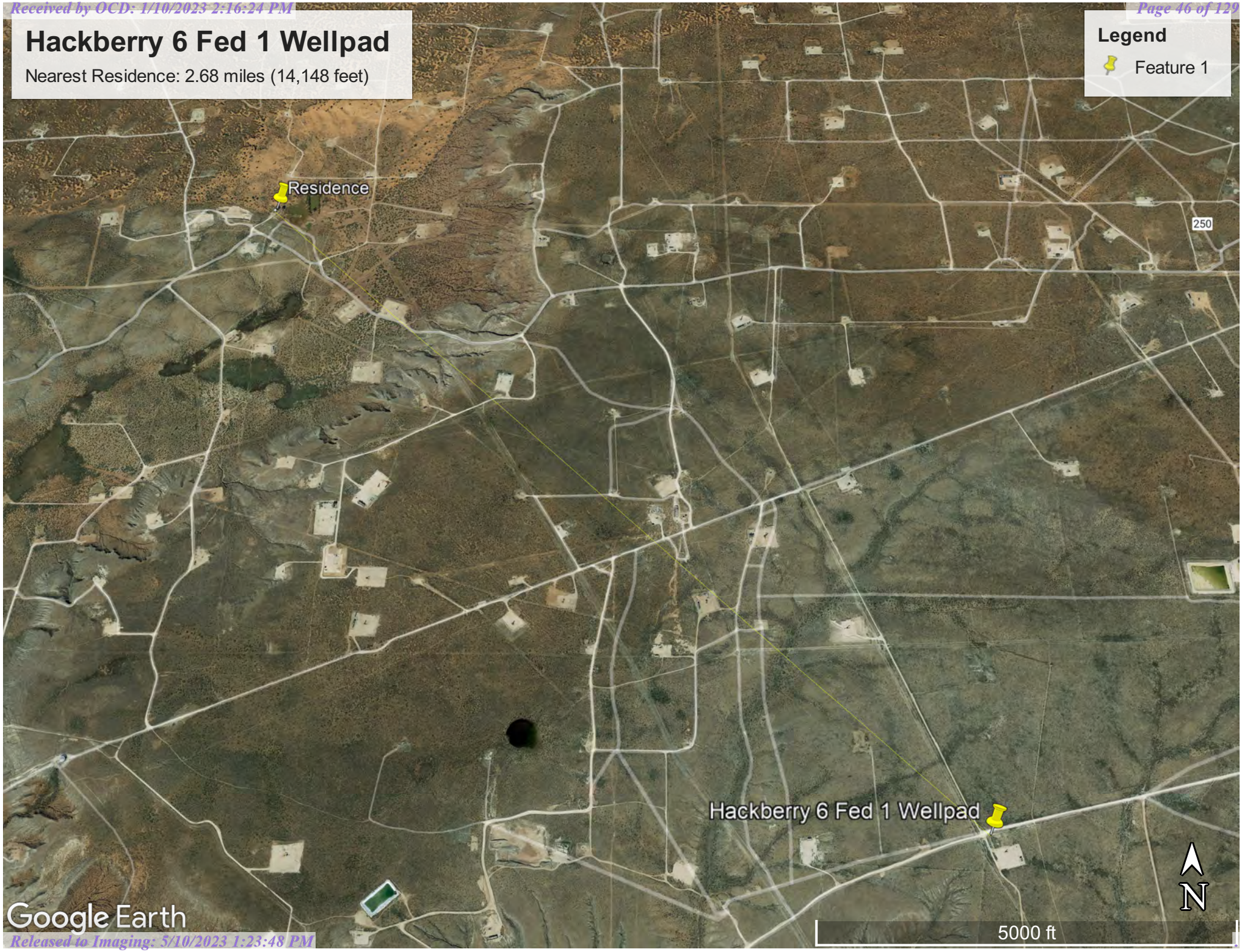
This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

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


LEGEND
Feet
Measurement Result
4,819.1 Feet
PEM1J
1:9,028
32.685 | -103.910

Hackberry 6 Fed 1 Wellpad

Nearest Residence: 2.68 miles (14,148 feet)



U.S. Fish and Wildlife Service
National Wetlands Inventory

7, Hackberry 6 Fed 1 Wellpad to Wetland

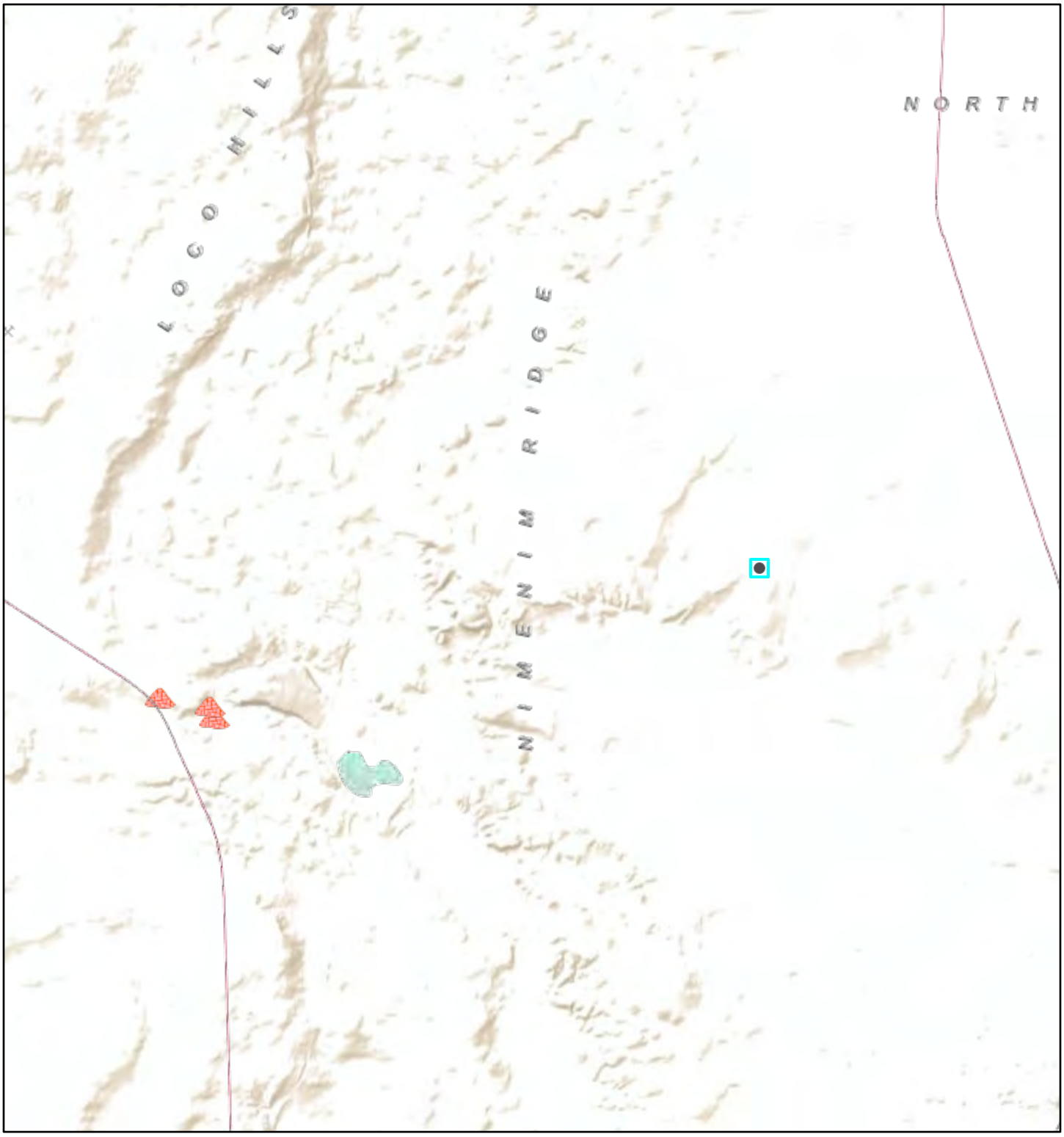
August 12, 2022

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.

Active Mines in New Mexico



12/2/2022, 8:27:51 AM

1:72,224

0 0.5 1 2 mi

0 0.75 1.5 3 km

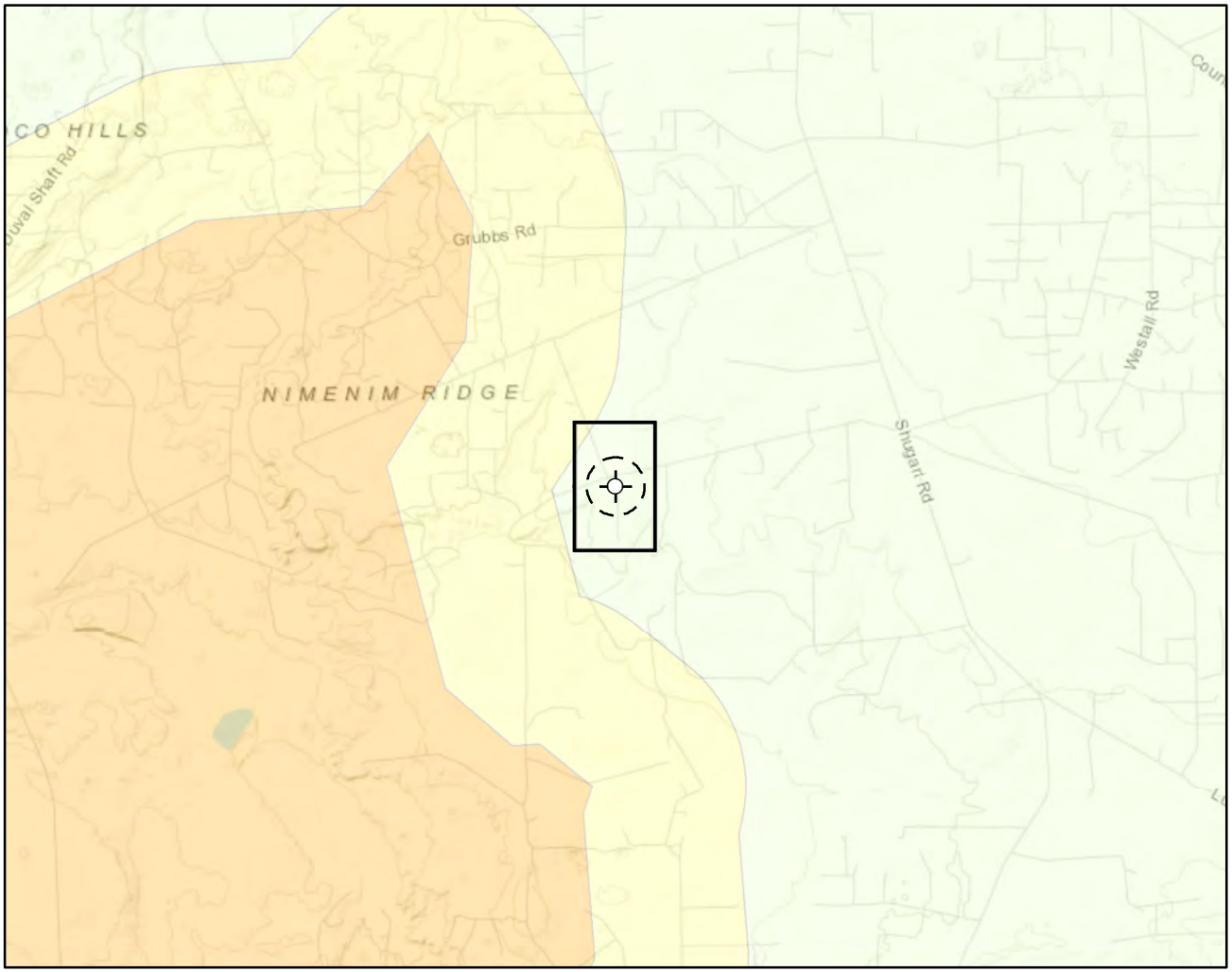
Registered Mines

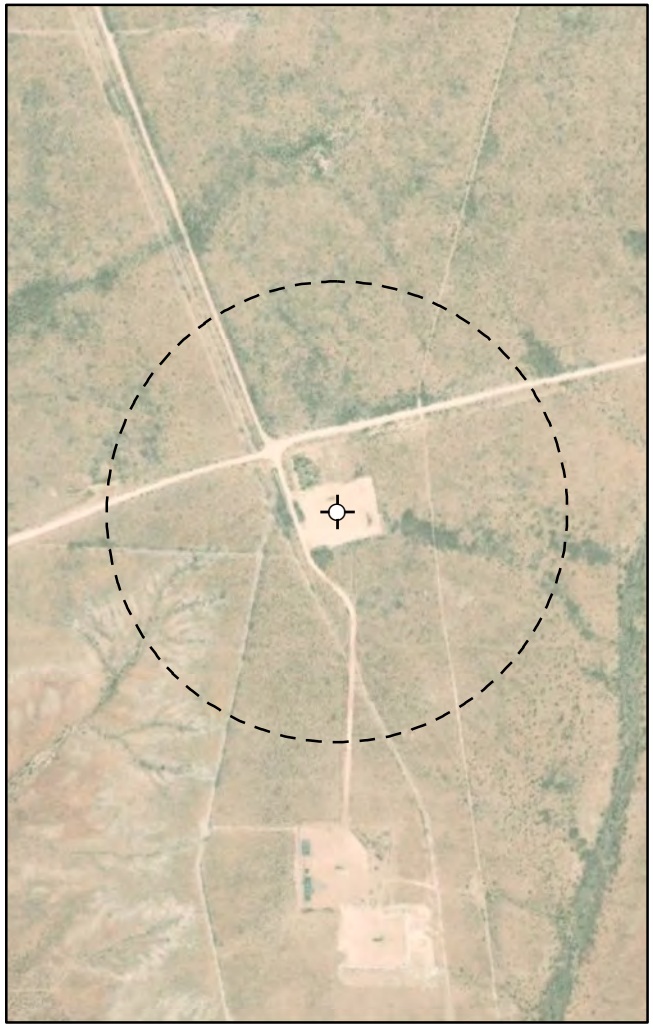
- Aggregate, Stone etc.
- Potash

Sources: Esri, USGS, NOAA, Sources: Esri, Garmin, USGS, NPS

EMNRD MMD GIS Coordinator

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





Karst Potential

- Critical
- High
- Medium
- Low

Site Location

Site Buffer (1,000 ft.)

Overview Map

0 0.25 0.5 1 mi

Detail Map

0 150 300 600 ft.

VERTEX

Map Center:
Lat/Long: 32.687357, -103.906552

NAD 1983 UTM Zone 13N
Date: Aug 18/22

N

Karst Potential
Hackberry 6 Fed 1

FIGURE:
X

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: Inset Map, ESRI 2018; Overview Map: ESRI World Topographic. Karst potential data sourced from Rosswell Field Office, Bureau of Land Management, 2020 or United States Department of the Interior, Bureau of Land Management. (2018). Karst Potential.

VERSATILITY. EXPERTISE.

Document Path: G:\1-Projects_US PROJECTS\Devon Energy Corporation\2022\22E-02537 -Hackberry 6 Fed 1\Figure X Karst Potential Hackberry 6 Fed 1.mxd

National Flood Hazard Layer FIRMette

FEMA

103°54'45"W 32°41'32"N

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

1:6,000

103°54'7"W 32°41'2"N

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

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 Cross Sections with 1% Annual Chance
  - 17.5 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 8/12/2022 at 5:54 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.

Eddy Area, New Mexico

SG—Simona gravelly fine sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 1w5w
Elevation: 2,750 to 5,000 feet
Mean annual precipitation: 8 to 16 inches
Mean annual air temperature: 57 to 70 degrees F
Frost-free period: 180 to 230 days
Farmland classification: Not prime farmland

Map Unit Composition

Simona and similar soils: 95 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Simona

Setting

Landform: Plains, alluvial fans
Landform position (three-dimensional): Rise
Down-slope shape: Convex, linear
Across-slope shape: Linear
Parent material: Mixed alluvium and/or eolian sands

Typical profile

H1 - 0 to 19 inches: gravelly fine sandy loam
H2 - 19 to 23 inches: indurated

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 7 to 20 inches to petrocalcic
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 content: 15 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: Very low (about 2.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: R070BD002NM - Shallow Sandy

Hydric soil rating: No

Minor Components

Simona

Percent of map unit: 4 percent
Ecological site: R070BD002NM - Shallow Sandy
Hydric soil rating: No

Playa

Percent of map unit: 1 percent
Landform: Playas
Landform position (three-dimensional): Talf
Down-slope shape: Concave, convex
Across-slope shape: Concave, linear
Ecological site: R070BC017NM - Bottomland
Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Eddy Area, New Mexico
Survey Area Data: Version 18, Sep 8, 2022

USDA Natural Resources Conservation Service

Ecological site R070BD002NM
Shallow Sandy

Accessed: 12/02/2022

General information

Provisional. A provisional ecological site description has undergone quality control and quality assurance review. It contains a working state and transition model and enough information to identify the ecological site.

Figure 1. Mapped extent

Areas shown in blue indicate the maximum mapped extent of this ecological site. Other ecological sites likely occur within the highlighted areas. It is also possible for this ecological site to occur outside of highlighted areas if detailed soil survey has not been completed or recently updated.

Associated sites

R070BD004NM	**Sandy** Sandy sites often occur in association or in a complex with Shallow Sandy Sites.

Similar sites

R070BD004NM	**Sandy** Sandy ecological sites are similar to Shallow Sandy sites in species composition and Transition pathways.

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

This site occures on plains, alluvial fans, uplands, or fan piedmonts. The parent material consists of mixed loamy alluvium or eolian material derived from igneous and sedimentory bedrock. The petrocalcic layer is at a depth of 10 to 25 inches and undulating.

Slopes are nearly level to undulating, usually less than 9 percent. Elevations range from 2,842 to 4,500 feet.

Table 2. Representative physiographic features

Landforms	(1) Plain (2) Fan piedmont (3) Alluvial fan
Elevation	2,842–4,500 ft
Slope	1–9%
Aspect	Aspect is not a significant factor

Climatic features

The average annual precipitation ranges from 8 to 13 inches. Variations of 5 inches, more or less, are common.

Over 80 percent of the precipitation falls from April through October. Most of the summer precipitation comes in the form of high intensity – short duration thunderstorms.
Temperatures are characterized by distinct seasonal changes and large annual and diurnal temperature changes. The average annual temperature is 61 degrees with extremes of 25 degrees below zero in the winter to 112 degrees in the summer.
The average frost-free season is from 207 to 220 days. The last killing frost is in late March or early April, and the first killing frost is in late October or early November.
Temperature and rainfall both favor warm season perennial plant growth. In years of abundant spring moisture, annual forbs and cool season grasses can make up an important component of the site. The vegetation of this site can take advantage of the moisture and the time it falls. Because of the soil profile, little moisture can be stored in the soil for any length of time. Moisture is readily available to the plants from the time it falls. Strong winds from the southwest blow from January through June which rapidly dries out the soil profile during a critical period for plant growth.

Climate data was obtained from http://www.wrcc.sage.dri.edu/summary/climsmnm.html web site using 50% probability for freeze-free and frost-free seasons using 28.5 degrees F and 32.5 degrees F respectively.

Table 3. Representative climatic features

Frost-free period (average)	221 days
Freeze-free period (average)	240 days
Precipitation total (average)	13 in

Influencing water features

This site is not influenced from water from wetlands or streams.

Soil features

Soils are very shallow to shallow, less than 20 inches in depth. Surface and subsurface textures are gravelly loamy sand, gravelly fine sandy loam or fine sandy loam.

An indurated calache layer occurs at depths of 6 to 25 inches and is at an average of 15 inches from the surface. Underlying material textures are very gravelly fine sandy loam, very gravelly sandy loam, gravelly fine sandy loam. Gravels are calcium carbonate concretions, calcium carbonate content ranges from 30 to 65 percent.

The indurated caliche layer typically holds water up in the profile for short periods within the root zone of plants. These soils will blow if left unprotected by vegetation.

Minimum and maximum values listed below represent the characteristic soils for this site.

Characteristic soils are:
Simona
Jerag

Table 4. Representative soil features

Surface texture	(1) Fine sandy loam (2) Loamy fine sand (3) Gravelly fine sandy loam
Family particle size	(1) Loamy
Drainage class	Well drained to moderately well drained
Permeability class	Moderately slow to moderate

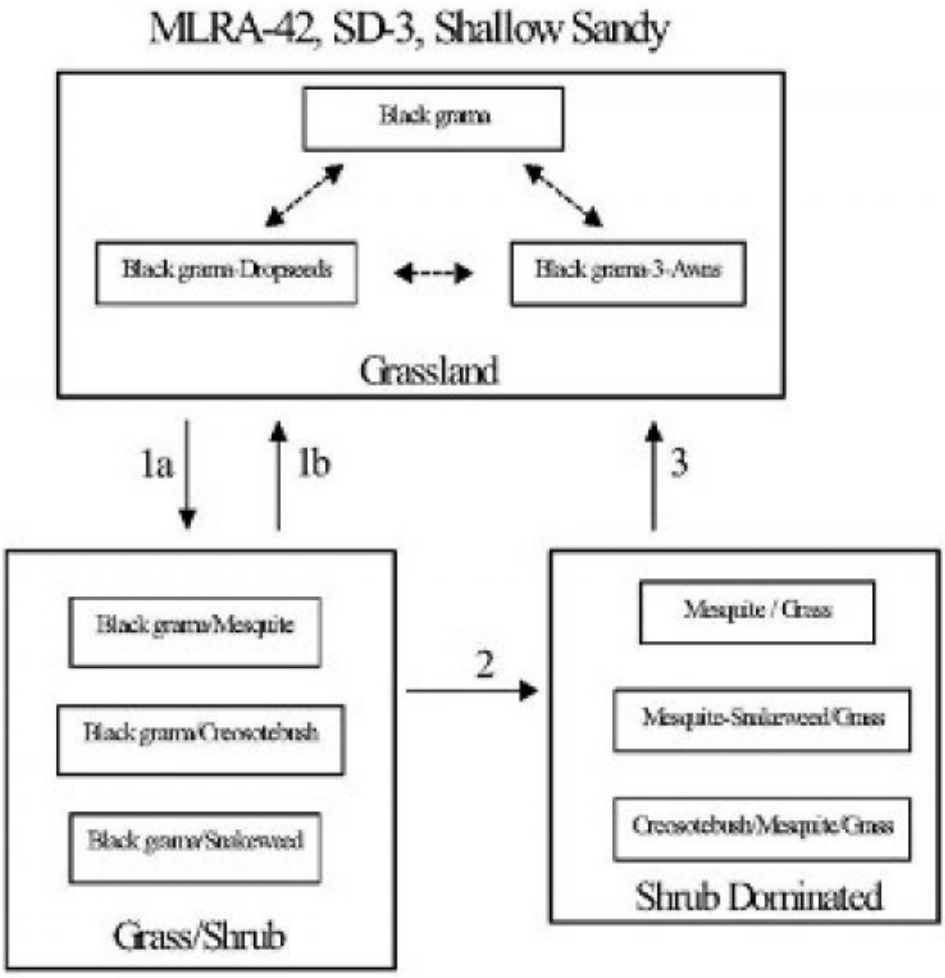
Soil depth	7–24 in
Surface fragment cover <=3"	5–25%
Surface fragment cover >3"	0%
Available water capacity (0-40in)	1–2 in
Calcium carbonate equivalent (0-40in)	5–15%
Electrical conductivity (0-40in)	0–4 mmhos/cm
Sodium adsorption ratio (0-40in)	0
Soil reaction (1:1 water) (0-40in)	7.4–8
Subsurface fragment volume <=3" (Depth not specified)	5–25%
Subsurface fragment volume >3" (Depth not specified)	0%

Ecological dynamics

Overview
The Shallow Sandy site occurs on upland plains, and tops of low ridges and mesas, associated with Sandy, Loamy Sand, and Shallow sites. Coarse to moderately coarse soil surface textures, shallow depth (<20 inches) to an indurated caliche layer (petrocalcic horizon), and an overwhelming dominance by black grama help to distinguish this site. The historic plant community of the Shallow Sandy site is a black grama dominated grassland sparsely dotted with shrubs. Shrubs, especially mesquite and creosotebush can increase or colonize due to the dispersal of shrub seeds by livestock or wildlife. This increase in mesquite and colonization of creosotebush may be enhanced by proximity to areas with existing high shrub densities. Fire suppression, and the loss of grass cover due to overgrazing or drought may facilitate the increase and encroachment of shrubs. Persistent loss of grass cover, competition for resources by shrubs, and periods of climate with increased winter precipitation and dry summers, may initiate the transition to a shrub-dominated state.

State and transition model

Plant Communities and Transitional Pathways (diagram)



1a. Seed dispersal, drought, overgrazing, fire suppression.
1b. Prescribed fire, brush control, prescribed grazing.

2. Persistent loss of grass cover, resource competition, increased winter precipitation.

3. Brush control, range seeding, prescribed grazing.

State 1
Historic Climax Plant Community

Community 1.1
Historic Climax Plant Community

Grassland: This site responds well to management and is resistant to state change, due to the shallow depth to petrocalcic horizon and sandy surface textures. The sandy surface textures allow rapid water infiltration and the petrocalcic horizon helps to keep water perched and available to shallow rooted grasses. Black grama is the dominant species in the historic plant community, averaging 50 to 60 percent of the total production for this site. Bush muhly, blue grama, and dropseeds are present as sub-dominants. Typically, yucca, javalinabush, range ratany, prickly pear, and mesquite are sparsely dotted across the landscape. Leatherweed croton, cutleaf

happlopappus, wooly groundsel, and threadleaf groundsel are common forbs. Continuous heavy grazing or extended periods of drought will cause a loss of grass cover characterized by a decrease in black grama, bush muhly, blue and sideoats grama, plains bristlegrass, and Arizona cottontop. Dropseeds and or threeawns may increase and become sub-dominant to black grama. Continued loss of grass cover in conjunction with dispersal of shrub seeds and fire suppression is believed to cause the transition to a state with increased amounts of shrubs (Grass/Shrub state). Diagnosis: Black grama is the dominant grass species. Grass cover uniformly distributed. Shrubs are a minor component averaging only two to five percent canopy cover. Litter cover is high (40-50 percent of area), and litter movement is limited to smaller size class litter and short distances (<. 5m). Other grasses that could appear on this site would include: six-weeks grama, fluffgrass, false-buffalograss, hairy grama, little bluestem, bristle panicum, cane bluestem, Indian ricegrass, tridens spp., and red lovegrass. Other woody plants include: pricklypear, cholla, fourwing saltbush, catclaw mimosa, winterfat, American tarbush and mesquite. Other forbs include: globemallow, verbena, desert holly, senna, plains blackfoot, trailing fleabane, fiddleneck, deerstongue, wooly Indianwheat, and locoweed.

Table 5. Annual production by plant type

Plant Type	Low (Lb/Acre)	Representative Value (Lb/Acre)	High (Lb/Acre)
Grass/Grasslike	474	652	830
Forb	78	107	136
Shrub/Vine	48	66	84
Total	**600**	**825**	**1050**

Table 6. Ground cover

Tree foliar cover	0%
Shrub/vine/liana foliar cover	0%
Grass/grasslike foliar cover	30-35%
Forb foliar cover	0%
Non-vascular plants	0%
Biological crusts	0%
Litter	40-50%
Surface fragments >0.25" and <=3"	0%
Surface fragments >3"	0%
Bedrock	0%
Water	0%
Bare ground	15-25%

Figure 5. Plant community growth curve (percent production by month). NM2802, R042XC002NM-Shallow Sandy-HCPC. SD-3 Shallow Sandy - Warm season plant community.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	3	5	10	10	25	30	12	5	0	0

State 2
Grass/Shrub

Community 2.1
Grass/Shrub

Grass/Shrub: This state is characterized by the notable presence of shrubs, especially mesquite, broom snakeweed, and/or creosotebush, however grasses remain as the dominant species. Black grama is the dominant

grass species. Threeawns and or dropseeds are sub-dominant. The susceptibility of the Shallow Sandy site to shrub encroachment may be higher when located adjacent to other sites with high densities of mesquite or creosotebush. Retrogression within this site is characterized by decreases in grass cover and increasing densities of shrubs. Diagnosis: Black grama remains as the dominant grass species. Grass cover varies in response to the amount of shrub increase, ranging from uniform to patchy. Shrubs are found at increased densities relative to the grassland state, especially mesquite, creosotebush, or broom snakeweed. Transition to Grass/Shrub (1a) Historically fire may have kept mesquite and other shrubs in check by completely killing some species and disrupting seed production cycles and suppressing the establishment of shrub seedlings in others. Fire suppression combined with seed dispersal by livestock and wildlife is believed to be the factors responsible for the establishment and increase in shrubs.1, 3 Loss of grass cover due to overgrazing, prolonged periods of drought, or their combination, reduces fire fuel loads and increases the susceptibility of the site to shrub establishment. Key indicators of approach to transition: Increase in the relative abundance of dropseeds and threeawns Presence of shrub seedlings Loss of organic matter—evidenced by an increase in physical soil crusts 8 Transition back to Grassland (1b) Brush control is necessary to initiate the transition back to the grassland state. If adequate fuel loads remain, possibly the reintroduction of fire as a management tool will assist in the transition back, however, mixed results have been observed concerning the effects of fire on black grama grasslands.6 Prescribed grazing will help ensure adequate rest following brush control and will assist in the establishment and maintenance of grass cover capable of sustaining fire.

State 3
Shrub Dominated

Community 3.1
Shrub Dominated

Shrub-Dominated: Across the range of soil types included in the Shallow Sandy site, mesquite is typically the dominant shrub, but it does occur as a co-dominant or sub-dominant species with creosotebush or broom snakeweed. Mesquite tends to dominate when the Shallow Sandy site occurs as part of a complex or in association with Sandy or Loamy Sand sites. Creosotebush tends to dominate on Shallow Sandy sites that occur as part of, or adjacent to Shallow Sites. Broom snakeweed increases in response to heavy grazing, but tends to cycle in and out depending on timing of rainfall. However, once the site is dominated by shrubs and snakeweed becomes well established, it tends to remain as a major component in the shrub dominated state. Diagnosis: Mesquite, creosotebush, or snakeweed cover is high, exceeding that of grasses. Grass cover is patchy with large connected bare areas present. Black grama, threeawns, or dropseeds may be the dominant grass. Evidence of accelerated wind erosion in the form of pedestalling of plants, and soil deposition around shrub bases may be common. Transition to Shrub-Dominated (2) Persistent loss of grass cover and the resulting increased competition between shrubs and remaining grasses for dwindling resources (especially soil moisture) may drive this transition.5 Additionally periods of increased winter precipitation may facilitate periodic episodes of shrub expansion and establishment. 4 Key indicators of approach to transition: Increase in size and frequency of bare patches. Loss of grass cover in shrub interspaces. Increased signs of erosion, evidenced by pedestalling of plants, and soil and litter deposition on leeward side of plants. 7 Transition back to Grassland (3) Brush control is necessary to reduce competition from shrubs and reestablish grasses. Range seeding may be necessary if insufficient grasses remain, The benefits, and costs, will vary depending upon the degree of site degradation, and adequate precipitation following seeding.

Additional community tables

Table 7. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Lb/Acre)	Foliar Cover (%)
Grass/Grasslike					
1	**Warm Season**			413–495	
	black grama	BOER4	*Bouteloua eriopoda*	413–495	–
2	**Warm Season**			41–83	
	bush muhly	MUPO2	*Muhlenbergia porteri*	41–83	–
3	**Warm Season**			41–83	

	blue grama	BOGR2	*Bouteloua gracilis*	41–83	–
4	**Warm Season**			25–41	
	sideoats grama	BOCU	*Bouteloua curtipendula*	25–41	–
5	**Warm Season**			41–83	
	spike dropseed	SPCO4	*Sporobolus contractus*	41–83	–
	sand dropseed	SPCR	*Sporobolus cryptandrus*	41–83	–
	mesa dropseed	SPFL2	*Sporobolus flexuosus*	41–83	–
6	**Warm Season**			17–41	
	threeawn	ARIST	*Aristida*	17–41	–
7	**Warm Season**			41–83	
	Arizona cottontop	DICA8	*Digitaria californica*	41–83	–
	plains bristlegrass	SEVU2	*Setaria vulpiseta*	41–83	–
8	**Warm Season**			41–83	
	mat sandbur	CELO3	*Cenchrus longispinus*	41–83	–
	hooded windmill grass	CHCU2	*Chloris cucullata*	41–83	–
9	**Other Perennial Grasses**			25–41	
	Grass, perennial	2GP	*Grass, perennial*	25–41	–
Shrub/Vine					
10	**Shrub**			8–25	
	javelina bush	COER5	*Condalia ericoides*	8–25	–
11	**Shrub**			8–25	
	yucca	YUCCA	*Yucca*	8–25	–
12	**Shrub**			8–25	
	jointfir	EPHED	*Ephedra*	8–25	–
	littleleaf ratany	KRER	*Krameria erecta*	8–25	–
13	**Shrub**			8–25	
	featherplume	DAFO	*Dalea formosa*	8–25	–
14	**Shrub**			8–25	
	broom snakeweed	GUSA2	*Gutierrezia sarothrae*	8–25	–
15	**Other Shrubs**			25–41	
	Shrub (>.5m)	2SHRUB	*Shrub (>.5m)*	25–41	–
Forb					
16	**Forb**			17–41	
	leatherweed	CRPOP	*Croton pottsii var. pottsii*	17–41	–
	Goodding's tansyaster	MAPIG2	*Machaeranthera pinnatifida ssp. gooddingii var. gooddingii*	17–41	–
17	**Forb**			17–41	
	woolly groundsel	PACA15	*Packera cana*	17–41	–
	threadleaf ragwort	SEFLF	*Senecio flaccidus var. flaccidus*	17–41	–
18	**Forb**			8–25	
	whitest evening primrose	OEAL	*Oenothera albicaulis*	8–25	–
19	**Other Forbs**			8–25	
	Forb (herbaceous, not grass nor grass-like)	2FORB	*Forb (herbaceous, not grass nor grass-like)*	8–25	–

Animal community

This site provides habitats which support a resident animal community that is characterized by pronghorn antelope, swift fox, black-tailed jackrabbit, spotted ground squirrel, Ord's kangaroo rat, northern grasshopper mouse, coyote, horned lark, meadowlark, lark bunting, scaled quail, morning dove, side-blotched lizard, round-tailed horned lizard, marbled whiptail, prairie rattlesnake and ornate box turtle.

Hydrological functions

The runoff curve numbers are determined by field investigations using hydraulic cover conditions and hydrologic soil groups.

Hydrologic Interpretations
Soil Series Hydrologic Group
Jarag D
Simona D

Recreational uses

This site offers recreation for hiking, horseback riding, nature observation and photography, and quail and dove hunting. During years of abundant spring moisture, this site displays a riot of color from wildflowers during May and June. A few summer and fall flowers also occur.

Wood products

The natural potential plant community of this site affords little or no wood products. Where the site has been invaded by mesquite or cholla cactus the roots and stems of these plants provide attractive material for a variety of curiosities, such as lamps and small furniture.

Other products

This site is suitable for grazing by all kinds and classes of livestock during all seasons of the year. Because of the sandy textures and shallow profile, this site will respond rapidly to management. As this site deteriorates, plants such as black grama, bush muhly, blue and sideoats grama, plains bristlegrass and Arizona cottontop, will decrease and be replaced by plants such as threeawns, mesquite, creosote bush, and broom snakeweed. This also causes a decrease in ground cover, leaving the soil to blow. This site responds best to a system of management that rotates the season of use.

Other information

Guide to Suggested Initial Stocking Rate Acres per Animal Unit Month
Similarity Index Ac/AUM
100 - 76 2.5 – 3.5
75 – 51 3.2 – 4.6
50 – 26 4.5 – 7.5
25 – 0 7.6 +

Inventory data references

Data collection for this site was done in conjunction with the progressive soil surveys within the Southern Desertic Basins, Plains and Mountains, Major Land Resource Areas of New Mexico. This site has been mapped and correlated with soils in the following soil surveys. Eddy County, Lea County, and Chaves County.

Other references

Literature References:

1. Brooks, M.L. and D.A. Pyke. 2001. Invasive plants and fire in the deserts of North America. Pages 1–14 in K.E.M. Galley and T.P. Wilson (eds.). Proceedings of the Invasive Species Workshop: the Role of Fire in the Control and Spread of Invasive Species.

2. Hennessy, J.T., R.P. Gibbens, J.M. Tromble, and M. Cardenas. 1983. Water properties of caliche. J. Range Manage. 36: 723-726.

3. Humphrey, R.R. 1974. Fire in the deserts and desert grassland of North America. In: Kozlowski, T. T.; Ahlgren, C. E., eds. Fire and ecosystems. New York: Academic Press: 365-400.

4. Moir, W.H., and J. A. Ludwig. 1991. Plant succession and changing land features in desert grasslands. P. 15-18. In P.F. Ffolliott and W.T. Swank (eds.) People and the temperate region: a summary of research from the United States Man and the Biosphere Program 1991. U.S. Dept. State, Publ No. 9839, Nat. Tech. Info. Serv., U.S. Dept. Commerce, Springfield, Illinois. 63 p.

5. Tiedemann, A. R. and J. O. Klemmedson. 1977. Effect of mesquite trees on vegetation and soils in the desert grassland. J. Range Manage. 30: 361-367.

6. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (2002, September). Fire Effects Information System, [Online]. Available: http://www.fs.fed.us/database/feis/ [accessed 2/10/03].

7. U.S. Department of Agriculture, Natural Resources Conservation Service. 2001. Soil Quality Information Sheets. Rangeland Soil Quality—Wind Erosion. Rangeland Sheet 10 [Online]. Available: http://www.statlab.iastate.edu/survey/SQI/range.html

8. U.S. Department of Agriculture, Natural Resources Conservation Service. 2001. Soil Quality Information Sheets. Rangeland Soil Quality—Physical and Biological Soil Crusts. Rangeland Sheet 7 [Online]. Available: http://www.statlab.iastate.edu/survey/SQI/range.html

Contributors

David Trujillo
Don Sylvester

Rangeland health reference sheet

Interpreting Indicators of Rangeland Health is a qualitative assessment protocol used to determine ecosystem condition based on benchmark characteristics described in the Reference Sheet. A suite of 17 (or more) indicators are typically considered in an assessment. The ecological site(s) representative of an assessment location must be known prior to applying the protocol and must be verified based on soils and climate. Current plant community cannot be used to identify the ecological site.

Author(s)/participant(s)	
Contact for lead author	
Date	
Approved by	
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:**

2. **Presence of water flow patterns:**

3. **Number and height of erosional pedestals or terracettes:**

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):**

5. **Number of gullies and erosion associated with gullies:**

6. **Extent of wind scoured, blowouts and/or depositional areas:**

7. **Amount of litter movement (describe size and distance expected to travel):**

8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):**

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):**

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:**

11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):**

12. **Functional/Structural Groups (list in order of descending dominance by above-ground annual-production or live foliar cover using symbols: >>, >, = to indicate much greater than, greater than, and equal to):**

    Dominant:

    Sub-dominant:

    Other:

    Additional:

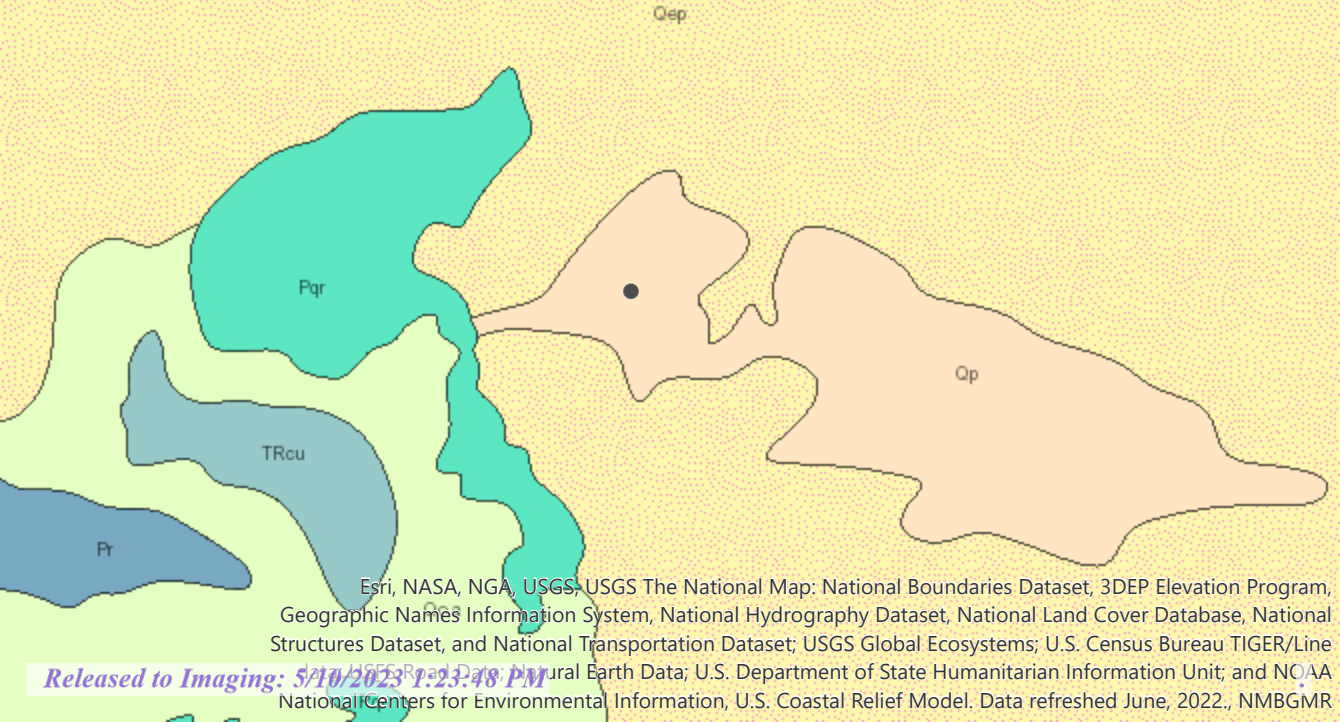
13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):**

14. **Average percent litter cover (%) and depth (in):**

15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):**

16. **Potential invasive (including noxious) species (native and non-native). List species which BOTH characterize degraded states and have the potential to become a dominant or co-dominant species on the ecological site if their future establishment and growth is not actively controlled by management interventions. Species that become dominant for only one to several years (e.g., short-term response to drought or wildfire) are not invasive plants. Note that unlike other indicators, we are describing what is NOT expected in the reference state for the ecological site:**

17. **Perennial plant reproductive capability:**


Qep
Pqr
Qp
TRcu
Pr
Esri, NASA, NGA, USGS, USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS Global Ecosystems; U.S. Census Bureau TIGER/Line data; USFS Road Data; Natural Earth Data; U.S. Department of State Humanitarian Information Unit; and NOAA National Centers for Environmental Information, U.S. Coastal Relief Model. Data refreshed June, 2022., NMBGMR

ATTACHMENT 5

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

July 06, 2021

John Hurt

Vertex Resources Services, Inc.
3101 Boyd Drive
Carlsbad, NM 88220
TEL: (505) 506-0040
FAX

RE: Helios 6 Fed Com 1H OrderNo.: 2106D66

Dear John Hurt:

Hall Environmental Analysis Laboratory received 15 sample(s) on 6/25/2021 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 **2106D66**
Date Reported: **7/6/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BG21-01 0-0.5'
Project: Helios 6 Fed Com 1H
Collection Date: 6/22/2021 10:00:00 AM
Lab ID: 2106D66-001 **Matrix:** SOIL
Received Date: 6/25/2021 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	6/29/2021 11:18:56 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	6/29/2021 11:18:56 PM
Surr: DNOP	65.1	70-130	S	%Rec	1	6/29/2021 11:18:56 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **mb**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/1/2021 2:20:00 PM
Surr: BFB	91.5	70-130		%Rec	1	7/1/2021 2:20:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **mb**
Benzene	ND	0.024		mg/Kg	1	7/1/2021 2:20:00 PM
Toluene	ND	0.048		mg/Kg	1	7/1/2021 2:20:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	7/1/2021 2:20:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	7/1/2021 2:20:00 PM
Surr: 4-Bromofluorobenzene	88.4	70-130		%Rec	1	7/1/2021 2:20:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	60		mg/Kg	20	7/1/2021 2:43:56 AM

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 **2106D66**
Date Reported: **7/6/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BG21-01 1.0'
Project: Helios 6 Fed Com 1H
Collection Date: 6/22/2021 10:10:00 AM
Lab ID: 2106D66-002 **Matrix:** SOIL
Received Date: 6/25/2021 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	8.7		mg/Kg	1	6/29/2021 11:43:22 PM
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	6/29/2021 11:43:22 PM
Surr: DNOP	56.1	70-130	S	%Rec	1	6/29/2021 11:43:22 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **mb**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	7/1/2021 2:40:00 PM
Surr: BFB	91.4	70-130		%Rec	1	7/1/2021 2:40:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **mb**
Benzene	ND	0.025		mg/Kg	1	7/1/2021 2:40:00 PM
Toluene	ND	0.050		mg/Kg	1	7/1/2021 2:40:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	7/1/2021 2:40:00 PM
Xylenes, Total	ND	0.10		mg/Kg	1	7/1/2021 2:40:00 PM
Surr: 4-Bromofluorobenzene	88.2	70-130		%Rec	1	7/1/2021 2:40:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	60		mg/Kg	20	7/1/2021 2:56:20 AM

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 **2106D66**
Date Reported: **7/6/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BG21-01 2.0'
Project: Helios 6 Fed Com 1H
Collection Date: 6/22/2021 10:15:00 AM
Lab ID: 2106D66-003 **Matrix:** SOIL
Received Date: 6/25/2021 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	6/30/2021 12:07:42 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	6/30/2021 12:07:42 AM
Surr: DNOP	58.6	70-130	S	%Rec	1	6/30/2021 12:07:42 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **mb**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/1/2021 3:00:00 PM
Surr: BFB	97.7	70-130		%Rec	1	7/1/2021 3:00:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **mb**
Benzene	ND	0.024		mg/Kg	1	7/1/2021 3:00:00 PM
Toluene	ND	0.048		mg/Kg	1	7/1/2021 3:00:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	7/1/2021 3:00:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	7/1/2021 3:00:00 PM
Surr: 4-Bromofluorobenzene	90.6	70-130		%Rec	1	7/1/2021 3:00:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	60		mg/Kg	20	7/1/2021 3:08:45 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 **2106D66**
Date Reported: **7/6/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH21-01 0-0.5'
Project: Helios 6 Fed Com 1H
Collection Date: 6/22/2021 11:00:00 AM
Lab ID: 2106D66-004 **Matrix:** SOIL
Received Date: 6/25/2021 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	6/30/2021 12:32:06 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	6/30/2021 12:32:06 AM
Surr: DNOP	77.2	70-130		%Rec	1	6/30/2021 12:32:06 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **mb**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/1/2021 3:20:00 PM
Surr: BFB	96.6	70-130		%Rec	1	7/1/2021 3:20:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **mb**
Benzene	ND	0.024		mg/Kg	1	7/1/2021 3:20:00 PM
Toluene	ND	0.048		mg/Kg	1	7/1/2021 3:20:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	7/1/2021 3:20:00 PM
Xylenes, Total	ND	0.096		mg/Kg	1	7/1/2021 3:20:00 PM
Surr: 4-Bromofluorobenzene	92.9	70-130		%Rec	1	7/1/2021 3:20:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	12000	600		mg/Kg	200	7/1/2021 7:50:42 AM

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 **2106D66**
Date Reported: **7/6/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH21-02 0-0.5'
Project: Helios 6 Fed Com 1H
Collection Date: 6/22/2021 11:30:00 AM
Lab ID: 2106D66-005 **Matrix:** SOIL
Received Date: 6/25/2021 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.0		mg/Kg	1	6/30/2021 12:56:24 AM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	6/30/2021 12:56:24 AM
Surr: DNOP	78.8	70-130		%Rec	1	6/30/2021 12:56:24 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **mb**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/1/2021 3:40:00 PM
Surr: BFB	95.8	70-130		%Rec	1	7/1/2021 3:40:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **mb**
Benzene	ND	0.024		mg/Kg	1	7/1/2021 3:40:00 PM
Toluene	ND	0.048		mg/Kg	1	7/1/2021 3:40:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	7/1/2021 3:40:00 PM
Xylenes, Total	ND	0.096		mg/Kg	1	7/1/2021 3:40:00 PM
Surr: 4-Bromofluorobenzene	92.2	70-130		%Rec	1	7/1/2021 3:40:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	11000	590		mg/Kg	200	7/1/2021 8:03:08 AM

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 **2106D66**
Date Reported: **7/6/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH21-03 0-0.5'
Project: Helios 6 Fed Com 1H
Collection Date: 6/22/2021 1:00:00 PM
Lab ID: 2106D66-006 **Matrix:** SOIL **Received Date:** 6/25/2021 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	6/30/2021 1:20:45 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	6/30/2021 1:20:45 AM
Surr: DNOP	84.4	70-130		%Rec	1	6/30/2021 1:20:45 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **mb**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/1/2021 4:00:00 PM
Surr: BFB	96.6	70-130		%Rec	1	7/1/2021 4:00:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **mb**
Benzene	ND	0.024		mg/Kg	1	7/1/2021 4:00:00 PM
Toluene	ND	0.048		mg/Kg	1	7/1/2021 4:00:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	7/1/2021 4:00:00 PM
Xylenes, Total	ND	0.095		mg/Kg	1	7/1/2021 4:00:00 PM
Surr: 4-Bromofluorobenzene	90.9	70-130		%Rec	1	7/1/2021 4:00:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	13000	600		mg/Kg	200	7/1/2021 8:15:33 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 **2106D66**
Date Reported: **7/6/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH21-04 0-0.5'
Project: Helios 6 Fed Com 1H
Collection Date: 6/22/2021 1:30:00 PM
Lab ID: 2106D66-007 **Matrix:** SOIL
Received Date: 6/25/2021 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	28	9.7		mg/Kg	1	7/2/2021 11:52:35 AM
Motor Oil Range Organics (MRO)	98	48		mg/Kg	1	7/2/2021 11:52:35 AM
Surr: DNOP	105	70-130		%Rec	1	7/2/2021 11:52:35 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **mb**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/1/2021 5:00:00 PM
Surr: BFB	94.8	70-130		%Rec	1	7/1/2021 5:00:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **mb**
Benzene	ND	0.024		mg/Kg	1	7/1/2021 5:00:00 PM
Toluene	ND	0.048		mg/Kg	1	7/1/2021 5:00:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	7/1/2021 5:00:00 PM
Xylenes, Total	ND	0.096		mg/Kg	1	7/1/2021 5:00:00 PM
Surr: 4-Bromofluorobenzene	90.6	70-130		%Rec	1	7/1/2021 5:00:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	18000	1500		mg/Kg	500	7/1/2021 8:27:57 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 **2106D66**
Date Reported: **7/6/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH21-05
Project: Helios 6 Fed Com 1H
Collection Date: 6/23/2021 9:00:00 AM
Lab ID: 2106D66-008 **Matrix:** SOIL **Received Date:** 6/25/2021 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	6/30/2021 2:09:21 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	6/30/2021 2:09:21 AM
Surr: DNOP	60.6	70-130	S	%Rec	1	6/30/2021 2:09:21 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **mb**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/1/2021 5:20:00 PM
Surr: BFB	95.5	70-130		%Rec	1	7/1/2021 5:20:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **mb**
Benzene	ND	0.024		mg/Kg	1	7/1/2021 5:20:00 PM
Toluene	ND	0.048		mg/Kg	1	7/1/2021 5:20:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	7/1/2021 5:20:00 PM
Xylenes, Total	ND	0.096		mg/Kg	1	7/1/2021 5:20:00 PM
Surr: 4-Bromofluorobenzene	90.1	70-130		%Rec	1	7/1/2021 5:20:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	60		mg/Kg	20	7/1/2021 5:00:25 AM

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 **2106D66**
Date Reported: **7/6/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH21-06
Project: Helios 6 Fed Com 1H **Collection Date:** 6/23/2021 9:30:00 AM
Lab ID: 2106D66-009 **Matrix:** SOIL **Received Date:** 6/25/2021 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	6/30/2021 2:33:54 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	6/30/2021 2:33:54 AM
Surr: DNOP	65.9	70-130	S	%Rec	1	6/30/2021 2:33:54 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **mb**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/1/2021 5:40:00 PM
Surr: BFB	86.2	70-130		%Rec	1	7/1/2021 5:40:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **mb**
Benzene	ND	0.024		mg/Kg	1	7/1/2021 5:40:00 PM
Toluene	ND	0.048		mg/Kg	1	7/1/2021 5:40:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	7/1/2021 5:40:00 PM
Xylenes, Total	ND	0.096		mg/Kg	1	7/1/2021 5:40:00 PM
Surr: 4-Bromofluorobenzene	87.9	70-130		%Rec	1	7/1/2021 5:40:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	60		mg/Kg	20	7/1/2021 4:32:02 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 **2106D66**
Date Reported: **7/6/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH21-08
Project: Helios 6 Fed Com 1H
Collection Date: 6/23/2021 10:00:00 AM
Lab ID: 2106D66-010 **Matrix:** SOIL
Received Date: 6/25/2021 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	6/30/2021 2:58:10 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	6/30/2021 2:58:10 AM
Surr: DNOP	68.2	70-130	S	%Rec	1	6/30/2021 2:58:10 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **mb**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	7/1/2021 6:00:00 PM
Surr: BFB	94.9	70-130		%Rec	1	7/1/2021 6:00:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **mb**
Benzene	ND	0.024		mg/Kg	1	7/1/2021 6:00:00 PM
Toluene	ND	0.047		mg/Kg	1	7/1/2021 6:00:00 PM
Ethylbenzene	ND	0.047		mg/Kg	1	7/1/2021 6:00:00 PM
Xylenes, Total	ND	0.095		mg/Kg	1	7/1/2021 6:00:00 PM
Surr: 4-Bromofluorobenzene	88.2	70-130		%Rec	1	7/1/2021 6:00:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	60		mg/Kg	20	7/1/2021 5:09:16 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	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 **2106D66**
Date Reported: **7/6/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH21-09
Project: Helios 6 Fed Com 1H
Collection Date: 6/23/2021 10:15:00 AM
Lab ID: 2106D66-011 **Matrix:** SOIL **Received Date:** 6/25/2021 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	6/30/2021 3:22:25 AM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	6/30/2021 3:22:25 AM
Surr: DNOP	60.2	70-130	S	%Rec	1	6/30/2021 3:22:25 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **mb**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/1/2021 6:20:00 PM
Surr: BFB	96.3	70-130		%Rec	1	7/1/2021 6:20:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **mb**
Benzene	ND	0.024		mg/Kg	1	7/1/2021 6:20:00 PM
Toluene	ND	0.048		mg/Kg	1	7/1/2021 6:20:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	7/1/2021 6:20:00 PM
Xylenes, Total	ND	0.096		mg/Kg	1	7/1/2021 6:20:00 PM
Surr: 4-Bromofluorobenzene	88.9	70-130		%Rec	1	7/1/2021 6:20:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	120	60		mg/Kg	20	7/1/2021 6:11:19 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	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 **2106D66**
Date Reported: **7/6/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH21-11
Project: Helios 6 Fed Com 1H
Collection Date: 6/23/2021 10:30:00 AM
Lab ID: 2106D66-012 **Matrix:** SOIL **Received Date:** 6/25/2021 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	6/30/2021 3:46:40 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	6/30/2021 3:46:40 AM
Surr: DNOP	60.7	70-130	S	%Rec	1	6/30/2021 3:46:40 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **mb**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/1/2021 6:40:00 PM
Surr: BFB	96.1	70-130		%Rec	1	7/1/2021 6:40:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **mb**
Benzene	ND	0.024		mg/Kg	1	7/1/2021 6:40:00 PM
Toluene	ND	0.048		mg/Kg	1	7/1/2021 6:40:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	7/1/2021 6:40:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	7/1/2021 6:40:00 PM
Surr: 4-Bromofluorobenzene	91.3	70-130		%Rec	1	7/1/2021 6:40:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	60		mg/Kg	20	7/1/2021 6:23:43 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 **2106D66**
Date Reported: **7/6/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH21-12
Project: Helios 6 Fed Com 1H
Collection Date: 6/23/2021 11:00:00 AM
Lab ID: 2106D66-013 **Matrix:** SOIL
Received Date: 6/25/2021 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	6/30/2021 4:10:52 AM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	6/30/2021 4:10:52 AM
Surr: DNOP	68.0	70-130	S	%Rec	1	6/30/2021 4:10:52 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **mb**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/1/2021 7:00:00 PM
Surr: BFB	93.8	70-130		%Rec	1	7/1/2021 7:00:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **mb**
Benzene	ND	0.024		mg/Kg	1	7/1/2021 7:00:00 PM
Toluene	ND	0.049		mg/Kg	1	7/1/2021 7:00:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	7/1/2021 7:00:00 PM
Xylenes, Total	ND	0.098		mg/Kg	1	7/1/2021 7:00:00 PM
Surr: 4-Bromofluorobenzene	90.8	70-130		%Rec	1	7/1/2021 7:00:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	60		mg/Kg	20	7/1/2021 6:36:08 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 **2106D66**
Date Reported: **7/6/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH21-13
Project: Helios 6 Fed Com 1H
Collection Date: 6/23/2021 11:30:00 AM
Lab ID: 2106D66-014 **Matrix:** SOIL
Received Date: 6/25/2021 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	8.4		mg/Kg	1	6/30/2021 4:35:15 AM
Motor Oil Range Organics (MRO)	ND	42		mg/Kg	1	6/30/2021 4:35:15 AM
Surr: DNOP	58.9	70-130	S	%Rec	1	6/30/2021 4:35:15 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **mb**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/1/2021 7:20:00 PM
Surr: BFB	95.8	70-130		%Rec	1	7/1/2021 7:20:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **mb**
Benzene	ND	0.024		mg/Kg	1	7/1/2021 7:20:00 PM
Toluene	ND	0.048		mg/Kg	1	7/1/2021 7:20:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	7/1/2021 7:20:00 PM
Xylenes, Total	ND	0.095		mg/Kg	1	7/1/2021 7:20:00 PM
Surr: 4-Bromofluorobenzene	90.3	70-130		%Rec	1	7/1/2021 7:20:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	60		mg/Kg	20	7/1/2021 6:48:33 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
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 **2106D66**
Date Reported: **7/6/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH21-14
Project: Helios 6 Fed Com 1H
Collection Date: 6/23/2021 11:45:00 AM
Lab ID: 2106D66-015 **Matrix:** SOIL
Received Date: 6/25/2021 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	6/30/2021 4:59:21 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	6/30/2021 4:59:21 AM
Surr: DNOP	61.5	70-130	S	%Rec	1	6/30/2021 4:59:21 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **mb**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/1/2021 7:40:00 PM
Surr: BFB	98.2	70-130		%Rec	1	7/1/2021 7:40:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **mb**
Benzene	ND	0.024		mg/Kg	1	7/1/2021 7:40:00 PM
Toluene	ND	0.048		mg/Kg	1	7/1/2021 7:40:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	7/1/2021 7:40:00 PM
Xylenes, Total	ND	0.095		mg/Kg	1	7/1/2021 7:40:00 PM
Surr: 4-Bromofluorobenzene	90.9	70-130		%Rec	1	7/1/2021 7:40:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	330	60		mg/Kg	20	7/1/2021 7:00:58 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		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2106D66**
06-Jul-21

Client: Vertex Resources Services, Inc.
Project: Helios 6 Fed Com 1H

Sample ID: **MB-61035** SampType: **MBLK** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS** Batch ID: **61035** RunNo: **79492**
Prep Date: **6/30/2021** Analysis Date: **6/30/2021** SeqNo: **2794639** Units: **mg/Kg**

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

Sample ID: **LCS-61035** SampType: **LCS** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS** Batch ID: **61035** RunNo: **79492**
Prep Date: **6/30/2021** Analysis Date: **6/30/2021** SeqNo: **2794640** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	96.6	90	110			

Sample ID: **MB-61040** SampType: **MBLK** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS** Batch ID: **61040** RunNo: **79497**
Prep Date: **6/30/2021** Analysis Date: **7/1/2021** SeqNo: **2796246** Units: **mg/Kg**

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

Sample ID: **LCS-61040** SampType: **LCS** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS** Batch ID: **61040** RunNo: **79497**
Prep Date: **6/30/2021** Analysis Date: **7/1/2021** SeqNo: **2796247** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	95.8	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#: **2106D66**
06-Jul-21

Client: Vertex Resources Services, Inc.
Project: Helios 6 Fed Com 1H

Sample ID: **LCS-60965**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **60965**	RunNo: **79472**
Prep Date: **6/28/2021**	Analysis Date: **6/29/2021**	SeqNo: **2793936** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	44	10	50.00	0	87.9	68.9	141			
Surr: DNOP	3.6		5.000		72.5	70	130			

Sample ID: **MB-60965**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **60965**	RunNo: **79472**
Prep Date: **6/28/2021**	Analysis Date: **6/29/2021**	SeqNo: **2793938** 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	7.7		10.00		77.0	70	130			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2106D66**
06-Jul-21

Client: Vertex Resources Services, Inc.
Project: Helios 6 Fed Com 1H

Sample ID: **mb-60961**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **60961**	RunNo: **79532**
Prep Date: **6/28/2021**	Analysis Date: **7/1/2021**	SeqNo: **2796799** 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	920		1000		92.3	70	130			

Sample ID: **lcs-60961**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **60961**	RunNo: **79532**
Prep Date: **6/28/2021**	Analysis Date: **7/1/2021**	SeqNo: **2796801** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	5.0	25.00	0	104	78.6	131			
Surr: BFB	1100		1000		108	70	130			

Sample ID: **mb-60981**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **60981**	RunNo: **79563**
Prep Date: **6/28/2021**	Analysis Date: **7/2/2021**	SeqNo: **2798482** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	970		1000		96.7	70	130			

Sample ID: **lcs-60981**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **60981**	RunNo: **79563**
Prep Date: **6/28/2021**	Analysis Date: **7/2/2021**	SeqNo: **2798484** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	1100		1000		114	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#: **2106D66**
06-Jul-21

Client: Vertex Resources Services, Inc.
Project: Helios 6 Fed Com 1H

Sample ID: **mb-60961** SampType: **MBLK** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS** Batch ID: **60961** RunNo: **79532**
Prep Date: **6/28/2021** Analysis Date: **7/1/2021** SeqNo: **2796853** 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	0.90		1.000		90.1	70	130			

Sample ID: **lcs-60961** SampType: **LCS** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS** Batch ID: **60961** RunNo: **79532**
Prep Date: **6/28/2021** Analysis Date: **7/1/2021** SeqNo: **2796855** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.98	0.025	1.000	0	97.5	80	120			
Toluene	0.99	0.050	1.000	0	98.6	80	120			
Ethylbenzene	1.0	0.050	1.000	0	101	80	120			
Xylenes, Total	3.1	0.10	3.000	0	102	80	120			
Surr: 4-Bromofluorobenzene	0.93		1.000		93.2	70	130			

Sample ID: **mb-60981** SampType: **MBLK** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS** Batch ID: **60981** RunNo: **79563**
Prep Date: **6/28/2021** Analysis Date: **7/2/2021** SeqNo: **2798540** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.93		1.000		92.6	70	130			

Sample ID: **lcs-60981** SampType: **LCS** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS** Batch ID: **60981** RunNo: **79563**
Prep Date: **6/28/2021** Analysis Date: **7/2/2021** SeqNo: **2798542** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.93		1.000		92.5	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: **Vertex Resources Services, Inc.** Work Order Number: **2106D66** RcptNo: 1

Received By: **Juan Rojas** **6/25/2021 7:30:00 AM**

Completed By: **Cheyenne Cason** **6/25/2021 9:37:57 AM**

Reviewed By: DAD 6.25.21

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 ☑ (Not Frozen)	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: T.C. 6.25.21

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	-0.1	Good				

Chain-of-Custody Record

Client: Vertex

Mailing Address: ON FILE

Phone #:

email or Fax#: Permian@vertex.ca

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time: 5 DAY
☑ Standard ☐ Rush

Project Name: Helios 6 Fed Com 1H

Project #: 21E-00580-003

Project Manager: John Hurt

Sampler: Dustin Harris
On Ice: ☒ Yes ☐ No
# of Coolers: 1
Cooler Temp(including CF): 0.1 - 0 = 0.1 (°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. 2106066	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)
6-22-21	1000	Soil	BH21-01 0-0.5'	6 Glass Jar	ICE	001	X	X					X			
	1010		BH21-01 1.0'			002										
	1015		BH21-01 2.0'			003										
	1100		BH21-01 0-0.5'			004										
	1130		BH21-02 0-0.5'			005										
	1300		BH21-03 0-0.5'			006										
	1330		BH21-04 0-0.5'			007										

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
					6/25/21	1100
6/24/21	1900			Courier	6/25/21	7:30

Remarks: CC: jhurt@vertex.ca
aharris@vertex.ca

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: Vertex

Mailing Address: ON FILE

Phone #:

email or Fax#: Permian @ vertex. ca

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other
☐ EDD (Type)

Turn-Around Time: 5 DAY
☑ Standard ☐ Rush

Project Name: Helios 6 Fed Com 1H

Project #: 21E-00580-003

Project Manager: John Hart

Sampler: Austin Harris

On Ice: ☒ Yes ☐ No

# of Coolers: 1

Cooler Temp (including CF): -0.1 - 0 = -0.1 (°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. 2106D66	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)
6-23-21	0900	Soil	BH21-05	Glass Jar	ICE	008	X	X					X			
↓	0930	↓	BH21-06	↓	↓	009	↓	↓					↓			
↓	1000	↓	BH21-08	↓	↓	010	↓	↓					↓			
↓	1015	↓	BH21-09	↓	↓	011	↓	↓					↓			
↓	1030	↓	BH21-11	↓	↓	012	↓	↓					↓			
↓	1100	↓	BH21-12	↓	↓	013	↓	↓					↓			
↓	1130	↓	BH21-13	↓	↓	014	↓	↓					↓			
↓	1145	↓	BH21-14	↓	↓	015	↓	↓					↓			

Date	Time	Relinquished by	Received by	Via	Date	Time
			A Cummings		6/23/21	1100
6/24/21	1900	A Cummings	[signature]	courier	6/25/21	7:30

Remarks: CC: jhart@vertex.ca
aharris@vertex.ca

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

July 08, 2021

Wesley Mathews

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

RE: Helios 6 OrderNo.: 2107069

Dear Wesley Mathews:

Hall Environmental Analysis Laboratory received 4 sample(s) on 7/2/2021 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 **2107069**
Date Reported: **7/8/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Helios 6
Lab ID: 2107069-001 **Matrix:** SOIL

Client Sample ID: BH21-01 11'
Collection Date: 6/30/2021 9:00:00 AM
Received Date: 7/2/2021 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	7/6/2021 1:10:04 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	7/6/2021 1:10:04 PM
Surr: DNOP	102	70-130		%Rec	1	7/6/2021 1:10:04 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **mb**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/6/2021 9:56:00 PM
Surr: BFB	98.1	70-130		%Rec	1	7/6/2021 9:56:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **mb**
Benzene	ND	0.024		mg/Kg	1	7/6/2021 9:56:00 PM
Toluene	ND	0.049		mg/Kg	1	7/6/2021 9:56:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	7/6/2021 9:56:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	7/6/2021 9:56:00 PM
Surr: 4-Bromofluorobenzene	90.3	70-130		%Rec	1	7/6/2021 9:56:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	11000	600		mg/Kg	200	7/7/2021 2:22:37 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 **2107069**
Date Reported: **7/8/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Helios 6
Lab ID: 2107069-002 **Matrix:** SOIL

Client Sample ID: BH21-02 12'
Collection Date: 6/30/2021 10:00:00 AM
Received Date: 7/2/2021 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	7/6/2021 1:22:22 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	7/6/2021 1:22:22 PM
Surr: DNOP	97.7	70-130		%Rec	1	7/6/2021 1:22:22 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **mb**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/6/2021 10:56:00 PM
Surr: BFB	99.3	70-130		%Rec	1	7/6/2021 10:56:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **mb**
Benzene	ND	0.024		mg/Kg	1	7/6/2021 10:56:00 PM
Toluene	ND	0.049		mg/Kg	1	7/6/2021 10:56:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	7/6/2021 10:56:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	7/6/2021 10:56:00 PM
Surr: 4-Bromofluorobenzene	93.5	70-130		%Rec	1	7/6/2021 10:56:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	150	60		mg/Kg	20	7/7/2021 2:22:52 AM

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 **2107069**
Date Reported: **7/8/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Helios 6
Lab ID: 2107069-003 **Matrix:** SOIL

Client Sample ID: BH21-03 12'
Collection Date: 6/30/2021 11:00:00 AM
Received Date: 7/2/2021 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	ND	8.9		mg/Kg	1	7/6/2021 1:34:32 PM
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	7/6/2021 1:34:32 PM
Surr: DNOP	101	70-130		%Rec	1	7/6/2021 1:34:32 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **mb**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/6/2021 11:16:00 PM
Surr: BFB	100	70-130		%Rec	1	7/6/2021 11:16:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **mb**
Benzene	ND	0.024		mg/Kg	1	7/6/2021 11:16:00 PM
Toluene	ND	0.048		mg/Kg	1	7/6/2021 11:16:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	7/6/2021 11:16:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	7/6/2021 11:16:00 PM
Surr: 4-Bromofluorobenzene	95.9	70-130		%Rec	1	7/6/2021 11:16:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	170	61		mg/Kg	20	7/7/2021 2:35:16 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 **2107069**
Date Reported: **7/8/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Helios 6
Lab ID: 2107069-004 **Matrix:** SOIL

Client Sample ID: BH21-04 15'
Collection Date: 6/30/2021 12:00:00 PM
Received Date: 7/2/2021 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **SB**
Diesel Range Organics (DRO)	ND	9.0		mg/Kg	1	7/6/2021 1:46:37 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	7/6/2021 1:46:37 PM
Surr: DNOP	101	70-130		%Rec	1	7/6/2021 1:46:37 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **mb**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	7/6/2021 11:36:00 PM
Surr: BFB	104	70-130		%Rec	1	7/6/2021 11:36:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **mb**
Benzene	ND	0.025		mg/Kg	1	7/6/2021 11:36:00 PM
Toluene	ND	0.050		mg/Kg	1	7/6/2021 11:36:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	7/6/2021 11:36:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	7/6/2021 11:36:00 PM
Surr: 4-Bromofluorobenzene	98.2	70-130		%Rec	1	7/6/2021 11:36:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	6700	300		mg/Kg	100	7/7/2021 2:35:01 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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2107069**
08-Jul-21

Client: Devon Energy
Project: Helios 6

Sample ID: **MB-61148**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **61148**	RunNo: **79587**							
Prep Date: **7/6/2021**	Analysis Date: **7/6/2021**	SeqNo: **2799455**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-61148**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **61148**	RunNo: **79587**							
Prep Date: **7/6/2021**	Analysis Date: **7/6/2021**	SeqNo: **2799456**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	15	1.5	15.00	0	97.8	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#: **2107069**
08-Jul-21

Client: Devon Energy
Project: Helios 6

Sample ID: **MB-61118**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **61118**	RunNo: **79594**
Prep Date: **7/3/2021**	Analysis Date: **7/6/2021**	SeqNo: **2799172** 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	10		10.00		101	70	130			

Sample ID: **LCS-61118**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **61118**	RunNo: **79594**
Prep Date: **7/3/2021**	Analysis Date: **7/6/2021**	SeqNo: **2799173** 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	94.7	68.9	141			
Surr: DNOP	5.2		5.000		104	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#: **2107069**

08-Jul-21

Client: Devon Energy

Project: Helios 6

Sample ID: **mb-61115**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **61115**	RunNo: **79580**
Prep Date: **7/2/2021**	Analysis Date: **7/6/2021**	SeqNo: **2799569** 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		100	70	130			

Sample ID: **lcs-61115**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **61115**	RunNo: **79580**
Prep Date: **7/2/2021**	Analysis Date: **7/6/2021**	SeqNo: **2799571** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	5.0	25.00	0	95.5	78.6	131			
Surr: BFB	1100		1000		107	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#: **2107069**
08-Jul-21

Client: Devon Energy
Project: Helios 6

Sample ID: **mb-61115** SampType: **MBLK** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS** Batch ID: **61115** RunNo: **79580**
Prep Date: **7/2/2021** Analysis Date: **7/6/2021** SeqNo: **2799582** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.95		1.000		94.5	70	130			

Sample ID: **lcs-61115** SampType: **LCS** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS** Batch ID: **61115** RunNo: **79580**
Prep Date: **7/2/2021** Analysis Date: **7/6/2021** SeqNo: **2799584** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.99	0.025	1.000	0	99.3	80	120			
Toluene	0.99	0.050	1.000	0	99.0	80	120			
Ethylbenzene	1.0	0.050	1.000	0	100	80	120			
Xylenes, Total	3.0	0.10	3.000	0	100	80	120			
Surr: 4-Bromofluorobenzene	0.92		1.000		92.2	70	130			

Sample ID: **2107069-001ams** SampType: **MS** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH21-01 11'** Batch ID: **61115** RunNo: **79580**
Prep Date: **7/2/2021** Analysis Date: **7/6/2021** SeqNo: **2799586** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.92	0.024	0.9497	0	97.4	80	120			
Toluene	0.93	0.047	0.9497	0	97.9	80	120			
Ethylbenzene	0.95	0.047	0.9497	0	100	80	120			
Xylenes, Total	2.9	0.095	2.849	0	101	80	120			
Surr: 4-Bromofluorobenzene	0.89		0.9497		93.5	70	130			

Sample ID: **2107069-001amsd** SampType: **MSD** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH21-01 11'** Batch ID: **61115** RunNo: **79580**
Prep Date: **7/2/2021** Analysis Date: **7/6/2021** SeqNo: **2799588** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.98	0.025	0.9921	0	98.6	80	120	5.62	20	
Toluene	0.98	0.050	0.9921	0	98.4	80	120	4.81	20	
Ethylbenzene	1.0	0.050	0.9921	0	102	80	120	6.46	20	
Xylenes, Total	3.1	0.099	2.976	0	104	80	120	6.56	20	
Surr: 4-Bromofluorobenzene	0.95		0.9921		96.2	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

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: **2107069** RcptNo: 1

Received By: **Juan Rojas** **7/2/2021 7:30:00 AM**

Completed By: **Cheyenne Cason** **7/2/2021 8:21:01 AM**

Reviewed By: JR 7/2/21

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: T.C 7-2-21

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	1.6	Good				

Chain-of-Custody Record

Client: [redacted] 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: Helios 6

Project #: 21E-00580-003

Project Manager: John Hurt

Sampler: CD

On Ice: ☑ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): 1.6+0=1.6 (°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. 2107069	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)
6/30	9:00	Soil	BH21-01 11'	4oz	Ice	001	✓	✓					✓			
6/30	10:00	"	BH21-02 12'	"	"	002	"	"					"			
6/30	11:00	"	BH21-03 12'	"	"	003	"	"					"			
6/30	12:00	"	BH21-04 15'	"	"	004	"	"					"			

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
7/1/21	0904	[signature]	[signature]		7/1/21	0804
7/1/21	1900	[signature]	[signature]		7/2/21	7:30

Remarks: CC: Chance Dixon, Austin Harris, John Hurt

Direct Bill Devon

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

November 17, 2022

Chance Dixon

Vertex Resources Services, Inc.
3101 Boyd Drive
Carlsbad, NM 88220
TEL: (505) 506-0040
FAX:

RE: Hackberry 6 Fed 1 Well Pad OrderNo.: 2211297

Dear Chance Dixon:

Hall Environmental Analysis Laboratory received 18 sample(s) on 11/5/2022 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 **2211297**
Date Reported: **11/17/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH22-01 0'
Project: Hackberry 6 Fed 1 Well Pad **Collection Date:** 11/3/2022 9:00:00 AM
Lab ID: 2211297-001 **Matrix:** SOIL **Received Date:** 11/5/2022 2:10:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	11/9/2022 10:07:03 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	11/9/2022 10:07:03 PM
Surr: DNOP	96.4	21-129		%Rec	1	11/9/2022 10:07:03 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	11/9/2022 11:20:44 PM
Surr: BFB	88.6	37.7-212		%Rec	1	11/9/2022 11:20:44 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	11/9/2022 11:20:44 PM
Toluene	ND	0.049		mg/Kg	1	11/9/2022 11:20:44 PM
Ethylbenzene	ND	0.049		mg/Kg	1	11/9/2022 11:20:44 PM
Xylenes, Total	ND	0.098		mg/Kg	1	11/9/2022 11:20:44 PM
Surr: 4-Bromofluorobenzene	93.7	70-130		%Rec	1	11/9/2022 11:20:44 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	ND	60		mg/Kg	20	11/11/2022 10:01:21 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	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2211297**
Date Reported: **11/17/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH22-01 2'
Project: Hackberry 6 Fed 1 Well Pad **Collection Date:** 11/3/2022 9:05:00 AM
Lab ID: 2211297-002 **Matrix:** SOIL **Received Date:** 11/5/2022 2:10:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	11/9/2022 10:17:35 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	11/9/2022 10:17:35 PM
Surr: DNOP	59.7	21-129		%Rec	1	11/9/2022 10:17:35 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	11/9/2022 11:44:15 PM
Surr: BFB	90.1	37.7-212		%Rec	1	11/9/2022 11:44:15 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	11/9/2022 11:44:15 PM
Toluene	ND	0.048		mg/Kg	1	11/9/2022 11:44:15 PM
Ethylbenzene	ND	0.048		mg/Kg	1	11/9/2022 11:44:15 PM
Xylenes, Total	ND	0.095		mg/Kg	1	11/9/2022 11:44:15 PM
Surr: 4-Bromofluorobenzene	94.5	70-130		%Rec	1	11/9/2022 11:44:15 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	ND	60		mg/Kg	20	11/11/2022 10:13:46 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	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2211297**
Date Reported: **11/17/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH22-02 0'
Project: Hackberry 6 Fed 1 Well Pad **Collection Date:** 11/3/2022 9:10:00 AM
Lab ID: 2211297-003 **Matrix:** SOIL **Received Date:** 11/5/2022 2:10:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	11/9/2022 10:28:06 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	11/9/2022 10:28:06 PM
Surr: DNOP	71.5	21-129		%Rec	1	11/9/2022 10:28:06 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	11/10/2022 12:07:40 AM
Surr: BFB	88.9	37.7-212		%Rec	1	11/10/2022 12:07:40 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	11/10/2022 12:07:40 AM
Toluene	ND	0.049		mg/Kg	1	11/10/2022 12:07:40 AM
Ethylbenzene	ND	0.049		mg/Kg	1	11/10/2022 12:07:40 AM
Xylenes, Total	ND	0.098		mg/Kg	1	11/10/2022 12:07:40 AM
Surr: 4-Bromofluorobenzene	93.1	70-130		%Rec	1	11/10/2022 12:07:40 AM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	ND	60		mg/Kg	20	11/11/2022 10:26:10 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	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2211297**
Date Reported: **11/17/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH22-02 2'
Project: Hackberry 6 Fed 1 Well Pad **Collection Date:** 11/3/2022 9:15:00 AM
Lab ID: 2211297-004 **Matrix:** SOIL **Received Date:** 11/5/2022 2:10:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	11/9/2022 10:38:36 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	11/9/2022 10:38:36 PM
Surr: DNOP	68.3	21-129		%Rec	1	11/9/2022 10:38:36 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	11/10/2022 12:31:09 AM
Surr: BFB	86.6	37.7-212		%Rec	1	11/10/2022 12:31:09 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	11/10/2022 12:31:09 AM
Toluene	ND	0.050		mg/Kg	1	11/10/2022 12:31:09 AM
Ethylbenzene	ND	0.050		mg/Kg	1	11/10/2022 12:31:09 AM
Xylenes, Total	ND	0.099		mg/Kg	1	11/10/2022 12:31:09 AM
Surr: 4-Bromofluorobenzene	91.5	70-130		%Rec	1	11/10/2022 12:31:09 AM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	ND	60		mg/Kg	20	11/14/2022 12:29:49 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2211297**
Date Reported: **11/17/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH22-03 0'
Project: Hackberry 6 Fed 1 Well Pad **Collection Date:** 11/3/2022 9:20:00 AM
Lab ID: 2211297-005 **Matrix:** SOIL **Received Date:** 11/5/2022 2:10:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	11/9/2022 10:49:06 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	11/9/2022 10:49:06 PM
Surr: DNOP	75.6	21-129		%Rec	1	11/9/2022 10:49:06 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	11/10/2022 12:54:34 AM
Surr: BFB	88.4	37.7-212		%Rec	1	11/10/2022 12:54:34 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	11/10/2022 12:54:34 AM
Toluene	ND	0.048		mg/Kg	1	11/10/2022 12:54:34 AM
Ethylbenzene	ND	0.048		mg/Kg	1	11/10/2022 12:54:34 AM
Xylenes, Total	ND	0.097		mg/Kg	1	11/10/2022 12:54:34 AM
Surr: 4-Bromofluorobenzene	92.7	70-130		%Rec	1	11/10/2022 12:54:34 AM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	ND	60		mg/Kg	20	11/14/2022 1:07:04 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	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2211297**
Date Reported: **11/17/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH22-03 2'
Project: Hackberry 6 Fed 1 Well Pad **Collection Date:** 11/3/2022 9:25:00 AM
Lab ID: 2211297-006 **Matrix:** SOIL **Received Date:** 11/5/2022 2:10:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	11/9/2022 10:59:36 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	11/9/2022 10:59:36 PM
Surr: DNOP	72.6	21-129		%Rec	1	11/9/2022 10:59:36 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	11/10/2022 1:18:03 AM
Surr: BFB	87.0	37.7-212		%Rec	1	11/10/2022 1:18:03 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	11/10/2022 1:18:03 AM
Toluene	ND	0.050		mg/Kg	1	11/10/2022 1:18:03 AM
Ethylbenzene	ND	0.050		mg/Kg	1	11/10/2022 1:18:03 AM
Xylenes, Total	ND	0.10		mg/Kg	1	11/10/2022 1:18:03 AM
Surr: 4-Bromofluorobenzene	92.2	70-130		%Rec	1	11/10/2022 1:18:03 AM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	ND	60		mg/Kg	20	11/14/2022 1:19:29 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	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2211297**
Date Reported: **11/17/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH22-04 0'
Project: Hackberry 6 Fed 1 Well Pad **Collection Date:** 11/3/2022 9:30:00 AM
Lab ID: 2211297-007 **Matrix:** SOIL **Received Date:** 11/5/2022 2:10:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	11/9/2022 11:10:08 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	11/9/2022 11:10:08 PM
Surr: DNOP	66.0	21-129		%Rec	1	11/9/2022 11:10:08 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	11/10/2022 1:41:29 AM
Surr: BFB	86.3	37.7-212		%Rec	1	11/10/2022 1:41:29 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	11/10/2022 1:41:29 AM
Toluene	ND	0.050		mg/Kg	1	11/10/2022 1:41:29 AM
Ethylbenzene	ND	0.050		mg/Kg	1	11/10/2022 1:41:29 AM
Xylenes, Total	ND	0.099		mg/Kg	1	11/10/2022 1:41:29 AM
Surr: 4-Bromofluorobenzene	91.2	70-130		%Rec	1	11/10/2022 1:41:29 AM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	ND	60		mg/Kg	20	11/14/2022 1:31:53 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2211297**
Date Reported: **11/17/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH22-04 2'
Project: Hackberry 6 Fed 1 Well Pad **Collection Date:** 11/3/2022 9:35:00 AM
Lab ID: 2211297-008 **Matrix:** SOIL **Received Date:** 11/5/2022 2:10:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	11/9/2022 11:20:40 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	11/9/2022 11:20:40 PM
Surr: DNOP	71.5	21-129		%Rec	1	11/9/2022 11:20:40 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	11/10/2022 2:04:56 AM
Surr: BFB	86.9	37.7-212		%Rec	1	11/10/2022 2:04:56 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	11/10/2022 2:04:56 AM
Toluene	ND	0.050		mg/Kg	1	11/10/2022 2:04:56 AM
Ethylbenzene	ND	0.050		mg/Kg	1	11/10/2022 2:04:56 AM
Xylenes, Total	ND	0.10		mg/Kg	1	11/10/2022 2:04:56 AM
Surr: 4-Bromofluorobenzene	91.3	70-130		%Rec	1	11/10/2022 2:04:56 AM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	130	60		mg/Kg	20	11/14/2022 1:44:18 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	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2211297**
Date Reported: **11/17/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH22-05 0'
Project: Hackberry 6 Fed 1 Well Pad **Collection Date:** 11/3/2022 9:40:00 AM
Lab ID: 2211297-009 **Matrix:** SOIL **Received Date:** 11/5/2022 2:10:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	11/9/2022 11:31:11 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	11/9/2022 11:31:11 PM
Surr: DNOP	67.8	21-129		%Rec	1	11/9/2022 11:31:11 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	11/10/2022 2:28:22 AM
Surr: BFB	86.9	37.7-212		%Rec	1	11/10/2022 2:28:22 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	11/10/2022 2:28:22 AM
Toluene	ND	0.050		mg/Kg	1	11/10/2022 2:28:22 AM
Ethylbenzene	ND	0.050		mg/Kg	1	11/10/2022 2:28:22 AM
Xylenes, Total	ND	0.099		mg/Kg	1	11/10/2022 2:28:22 AM
Surr: 4-Bromofluorobenzene	91.3	70-130		%Rec	1	11/10/2022 2:28:22 AM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	ND	60		mg/Kg	20	11/14/2022 2:46:23 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	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2211297**
Date Reported: **11/17/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH22-05 2'
Project: Hackberry 6 Fed 1 Well Pad **Collection Date:** 11/3/2022 9:45:00 AM
Lab ID: 2211297-010 **Matrix:** SOIL **Received Date:** 11/5/2022 2:10:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	11/9/2022 11:41:44 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	11/9/2022 11:41:44 PM
Surr: DNOP	75.0	21-129		%Rec	1	11/9/2022 11:41:44 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	11/10/2022 3:15:12 AM
Surr: BFB	87.0	37.7-212		%Rec	1	11/10/2022 3:15:12 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	11/10/2022 3:15:12 AM
Toluene	ND	0.050		mg/Kg	1	11/10/2022 3:15:12 AM
Ethylbenzene	ND	0.050		mg/Kg	1	11/10/2022 3:15:12 AM
Xylenes, Total	ND	0.099		mg/Kg	1	11/10/2022 3:15:12 AM
Surr: 4-Bromofluorobenzene	92.2	70-130		%Rec	1	11/10/2022 3:15:12 AM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	ND	59		mg/Kg	20	11/14/2022 2:58:48 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2211297**
Date Reported: **11/17/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH22-06 0'
Project: Hackberry 6 Fed 1 Well Pad **Collection Date:** 11/3/2022 9:50:00 AM
Lab ID: 2211297-011 **Matrix:** SOIL **Received Date:** 11/5/2022 2:10:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	11/11/2022 11:40:04 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	11/11/2022 11:40:04 AM
Surr: DNOP	112	21-129		%Rec	1	11/11/2022 11:40:04 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	11/10/2022 3:51:48 PM
Surr: BFB	90.3	37.7-212		%Rec	1	11/10/2022 3:51:48 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	11/10/2022 3:51:48 PM
Toluene	ND	0.048		mg/Kg	1	11/10/2022 3:51:48 PM
Ethylbenzene	ND	0.048		mg/Kg	1	11/10/2022 3:51:48 PM
Xylenes, Total	ND	0.097		mg/Kg	1	11/10/2022 3:51:48 PM
Surr: 4-Bromofluorobenzene	93.6	70-130		%Rec	1	11/10/2022 3:51:48 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	ND	59		mg/Kg	20	11/14/2022 3:11:13 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	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2211297**
Date Reported: **11/17/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH22-06 2'
Project: Hackberry 6 Fed 1 Well Pad **Collection Date:** 11/3/2022 9:55:00 AM
Lab ID: 2211297-012 **Matrix:** SOIL **Received Date:** 11/5/2022 2:10:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	11/14/2022 3:01:53 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	11/14/2022 3:01:53 PM
Surr: DNOP	111	21-129		%Rec	1	11/14/2022 3:01:53 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	11/10/2022 5:02:03 PM
Surr: BFB	86.1	37.7-212		%Rec	1	11/10/2022 5:02:03 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.023		mg/Kg	1	11/10/2022 5:02:03 PM
Toluene	ND	0.047		mg/Kg	1	11/10/2022 5:02:03 PM
Ethylbenzene	ND	0.047		mg/Kg	1	11/10/2022 5:02:03 PM
Xylenes, Total	ND	0.093		mg/Kg	1	11/10/2022 5:02:03 PM
Surr: 4-Bromofluorobenzene	90.8	70-130		%Rec	1	11/10/2022 5:02:03 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	ND	60		mg/Kg	20	11/14/2022 3:23:38 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	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2211297**
Date Reported: **11/17/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH22-07 0'
Project: Hackberry 6 Fed 1 Well Pad
Collection Date: 11/3/2022 10:00:00 AM
Lab ID: 2211297-013 **Matrix:** SOIL
Received Date: 11/5/2022 2:10:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	11/11/2022 1:07:37 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	11/11/2022 1:07:37 PM
Surr: DNOP	100	21-129		%Rec	1	11/11/2022 1:07:37 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	11/10/2022 6:12:51 PM
Surr: BFB	89.8	37.7-212		%Rec	1	11/10/2022 6:12:51 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	11/10/2022 6:12:51 PM
Toluene	ND	0.048		mg/Kg	1	11/10/2022 6:12:51 PM
Ethylbenzene	ND	0.048		mg/Kg	1	11/10/2022 6:12:51 PM
Xylenes, Total	ND	0.097		mg/Kg	1	11/10/2022 6:12:51 PM
Surr: 4-Bromofluorobenzene	93.7	70-130		%Rec	1	11/10/2022 6:12:51 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	9000	300		mg/Kg	100	11/14/2022 3:36:02 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	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2211297**
Date Reported: **11/17/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH22-07 2'
Project: Hackberry 6 Fed 1 Well Pad
Collection Date: 11/3/2022 10:05:00 AM
Lab ID: 2211297-014 **Matrix:** SOIL
Received Date: 11/5/2022 2:10:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	14		mg/Kg	1	11/11/2022 1:18:12 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	11/11/2022 1:18:12 PM
Surr: DNOP	132	21-129	S	%Rec	1	11/11/2022 1:18:12 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	11/10/2022 6:36:23 PM
Surr: BFB	87.8	37.7-212		%Rec	1	11/10/2022 6:36:23 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	11/10/2022 6:36:23 PM
Toluene	ND	0.047		mg/Kg	1	11/10/2022 6:36:23 PM
Ethylbenzene	ND	0.047		mg/Kg	1	11/10/2022 6:36:23 PM
Xylenes, Total	ND	0.095		mg/Kg	1	11/10/2022 6:36:23 PM
Surr: 4-Bromofluorobenzene	93.1	70-130		%Rec	1	11/10/2022 6:36:23 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	7000	300		mg/Kg	100	11/14/2022 3:48:26 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	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2211297**
Date Reported: **11/17/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH22-07 4'
Project: Hackberry 6 Fed 1 Well Pad **Collection Date:** 11/3/2022 10:10:00 AM
Lab ID: 2211297-015 **Matrix:** SOIL **Received Date:** 11/5/2022 2:10:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	14	14		mg/Kg	1	11/14/2022 4:40:12 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	11/14/2022 4:40:12 PM
Surr: DNOP	116	21-129		%Rec	1	11/14/2022 4:40:12 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	11/10/2022 6:59:54 PM
Surr: BFB	88.7	37.7-212		%Rec	1	11/10/2022 6:59:54 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.023		mg/Kg	1	11/10/2022 6:59:54 PM
Toluene	ND	0.046		mg/Kg	1	11/10/2022 6:59:54 PM
Ethylbenzene	ND	0.046		mg/Kg	1	11/10/2022 6:59:54 PM
Xylenes, Total	ND	0.092		mg/Kg	1	11/10/2022 6:59:54 PM
Surr: 4-Bromofluorobenzene	92.2	70-130		%Rec	1	11/10/2022 6:59:54 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	6600	300		mg/Kg	100	11/14/2022 4:00:51 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	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.

Analytical Report
Lab Order **2211297**
Date Reported: **11/17/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH22-08 0'
Project: Hackberry 6 Fed 1 Well Pad
Collection Date: 11/3/2022 10:15:00 AM
Lab ID: 2211297-016 **Matrix:** SOIL
Received Date: 11/5/2022 2:10:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	11/11/2022 1:39:24 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	11/11/2022 1:39:24 PM
Surr: DNOP	107	21-129		%Rec	1	11/11/2022 1:39:24 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	11/10/2022 7:23:14 PM
Surr: BFB	92.7	37.7-212		%Rec	1	11/10/2022 7:23:14 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	11/10/2022 7:23:14 PM
Toluene	ND	0.048		mg/Kg	1	11/10/2022 7:23:14 PM
Ethylbenzene	ND	0.048		mg/Kg	1	11/10/2022 7:23:14 PM
Xylenes, Total	ND	0.097		mg/Kg	1	11/10/2022 7:23:14 PM
Surr: 4-Bromofluorobenzene	97.3	70-130		%Rec	1	11/10/2022 7:23:14 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	7100	300		mg/Kg	100	11/14/2022 4:13:15 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2211297**
Date Reported: **11/17/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH22-08 2'
Project: Hackberry 6 Fed 1 Well Pad **Collection Date:** 11/3/2022 10:20:00 AM
Lab ID: 2211297-017 **Matrix:** SOIL **Received Date:** 11/5/2022 2:10:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	15		mg/Kg	1	11/11/2022 1:50:01 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	11/11/2022 1:50:01 PM
Surr: DNOP	105	21-129		%Rec	1	11/11/2022 1:50:01 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	11/10/2022 7:46:49 PM
Surr: BFB	89.0	37.7-212		%Rec	1	11/10/2022 7:46:49 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	11/10/2022 7:46:49 PM
Toluene	ND	0.048		mg/Kg	1	11/10/2022 7:46:49 PM
Ethylbenzene	ND	0.048		mg/Kg	1	11/10/2022 7:46:49 PM
Xylenes, Total	ND	0.095		mg/Kg	1	11/10/2022 7:46:49 PM
Surr: 4-Bromofluorobenzene	92.6	70-130		%Rec	1	11/10/2022 7:46:49 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	5600	300		mg/Kg	100	11/14/2022 4:50:29 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	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.

Analytical Report
Lab Order **2211297**
Date Reported: **11/17/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH22-08 4'
Project: Hackberry 6 Fed 1 Well Pad **Collection Date:** 11/3/2022 10:25:00 AM
Lab ID: 2211297-018 **Matrix:** SOIL **Received Date:** 11/5/2022 2:10:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	41	15		mg/Kg	1	11/14/2022 5:12:12 PM
Motor Oil Range Organics (MRO)	110	49		mg/Kg	1	11/14/2022 5:12:12 PM
Surr: DNOP	121	21-129		%Rec	1	11/14/2022 5:12:12 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	11/10/2022 8:10:22 PM
Surr: BFB	88.4	37.7-212		%Rec	1	11/10/2022 8:10:22 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	11/10/2022 8:10:22 PM
Toluene	ND	0.048		mg/Kg	1	11/10/2022 8:10:22 PM
Ethylbenzene	ND	0.048		mg/Kg	1	11/10/2022 8:10:22 PM
Xylenes, Total	ND	0.097		mg/Kg	1	11/10/2022 8:10:22 PM
Surr: 4-Bromofluorobenzene	92.7	70-130		%Rec	1	11/10/2022 8:10:22 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	7300	300		mg/Kg	100	11/14/2022 5:02:54 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2211297**

17-Nov-22

Client: Vertex Resources Services, Inc.

Project: Hackberry 6 Fed 1 Well Pad

Sample ID: **MB-71445**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **71445**	RunNo: **92527**
Prep Date: **11/11/2022**	Analysis Date: **11/11/2022**	SeqNo: **3328186** Units: **mg/Kg**

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

Sample ID: **LCS-71445**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **71445**	RunNo: **92527**
Prep Date: **11/11/2022**	Analysis Date: **11/11/2022**	SeqNo: **3328187** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	95.6	90	110			

Sample ID: **MB-71469**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **71469**	RunNo: **92581**
Prep Date: **11/14/2022**	Analysis Date: **11/14/2022**	SeqNo: **3329299** Units: **mg/Kg**

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

Sample ID: **LCS-71469**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **71469**	RunNo: **92581**
Prep Date: **11/14/2022**	Analysis Date: **11/14/2022**	SeqNo: **3329300** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	15	1.5	15.00	0	96.7	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 standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2211297**

17-Nov-22

Client: Vertex Resources Services, Inc.

Project: Hackberry 6 Fed 1 Well Pad

Sample ID: **LCS-71362**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **71362**	RunNo: **92430**
Prep Date: **11/8/2022**	Analysis Date: **11/9/2022**	SeqNo: **3324031** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	45	15	50.00	0	90.7	64.4	127			
Surr: DNOP	5.3		5.000		106	21	129			

Sample ID: **MB-71362**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **71362**	RunNo: **92430**
Prep Date: **11/8/2022**	Analysis Date: **11/9/2022**	SeqNo: **3324033** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	15								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	9.5		10.00		95.2	21	129			

Sample ID: **LCS-71411**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **71411**	RunNo: **92519**
Prep Date: **11/10/2022**	Analysis Date: **11/11/2022**	SeqNo: **3325799** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	45	15	50.00	0	90.1	64.4	127			
Surr: DNOP	5.6		5.000		111	21	129			

Sample ID: **MB-71411**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **71411**	RunNo: **92519**
Prep Date: **11/10/2022**	Analysis Date: **11/11/2022**	SeqNo: **3325801** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	15								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	11		10.00		108	21	129			

Sample ID: **LCS-71413**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **71413**	RunNo: **92519**
Prep Date: **11/10/2022**	Analysis Date: **11/11/2022**	SeqNo: **3327399** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	6.1		5.000		121	21	129			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2211297**

17-Nov-22

Client: Vertex Resources Services, Inc.

Project: Hackberry 6 Fed 1 Well Pad

Sample ID: **MB-71413** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **71413** RunNo: **92519**
Prep Date: **11/10/2022** Analysis Date: **11/11/2022** SeqNo: **3327400** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	12		10.00		117	21	129			

Sample ID: **LCS-71461** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **71461** RunNo: **92557**
Prep Date: **11/14/2022** Analysis Date: **11/14/2022** SeqNo: **3327869** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	5.0		5.000		101	21	129			

Sample ID: **MB-71461** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **71461** RunNo: **92557**
Prep Date: **11/14/2022** Analysis Date: **11/14/2022** SeqNo: **3327870** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	9.3		10.00		92.6	21	129			

Sample ID: **2211297-012AMS** SampType: **MS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH22-06 2'** Batch ID: **71411** RunNo: **92557**
Prep Date: **11/10/2022** Analysis Date: **11/14/2022** SeqNo: **3329449** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	66	15	49.60	0	133	36.1	154			
Surr: DNOP	7.4		4.960		148	21	129			S

Sample ID: **2211297-012AMSD** SampType: **MSD** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH22-06 2'** Batch ID: **71411** RunNo: **92557**
Prep Date: **11/10/2022** Analysis Date: **11/14/2022** SeqNo: **3329450** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	50	15	50.10	0	99.7	36.1	154	27.4	33.9	
Surr: DNOP	5.9		5.010		117	21	129	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 standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2211297**

17-Nov-22

Client: Vertex Resources Services, Inc.

Project: Hackberry 6 Fed 1 Well Pad

Sample ID: **mb-71353**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **71353**	RunNo: **92451**
Prep Date: **11/7/2022**	Analysis Date: **11/9/2022**	SeqNo: **3322711** 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	930		1000		93.0	37.7	212			

Sample ID: **lcs-71353**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **71353**	RunNo: **92451**
Prep Date: **11/7/2022**	Analysis Date: **11/9/2022**	SeqNo: **3322712** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	5.0	25.00	0	94.8	72.3	137			
Surr: BFB	1900		1000		190	37.7	212			

Sample ID: **mb-71393**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **71393**	RunNo: **92479**
Prep Date: **11/9/2022**	Analysis Date: **11/10/2022**	SeqNo: **3327238** 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	900		1000		90.0	37.7	212			

Sample ID: **LCS-71393**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **71393**	RunNo: **92479**
Prep Date: **11/9/2022**	Analysis Date: **11/10/2022**	SeqNo: **3327239** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	5.0	25.00	0	89.7	72.3	137			
Surr: BFB	1800		1000		184	37.7	212			

Sample ID: **2211297-011ams**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH22-06 0'**	Batch ID: **71393**	RunNo: **92479**
Prep Date: **11/9/2022**	Analysis Date: **11/10/2022**	SeqNo: **3327241** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	4.9	24.49	0	97.3	70	130			
Surr: BFB	1900		979.4		195	37.7	212			

Sample ID: **2211297-011amsd**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH22-06 0'**	Batch ID: **71393**	RunNo: **92479**
Prep Date: **11/9/2022**	Analysis Date: **11/10/2022**	SeqNo: **3327242** Units: **mg/Kg**

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

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 standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2211297**

17-Nov-22

Client: Vertex Resources Services, Inc.

Project: Hackberry 6 Fed 1 Well Pad

Sample ID: **2211297-011amsd**	SampType: **MSD**		TestCode: **EPA Method 8015D: Gasoline Range**		
Client ID: **BH22-06 0'**	Batch ID: **71393**		RunNo: **92479**		
Prep Date: **11/9/2022**	Analysis Date: **11/10/2022**		SeqNo: **3327242**	Units: **mg/Kg**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	24.83	0	101	70	130	5.05	20	
Surr: BFB	2000		993.0		200	37.7	212	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2211297**

17-Nov-22

Client: Vertex Resources Services, Inc.

Project: Hackberry 6 Fed 1 Well Pad

Sample ID: **mb-71353**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **71353**	RunNo: **92451**
Prep Date: **11/7/2022**	Analysis Date: **11/9/2022**	SeqNo: **3322823** 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		95.9	70	130			

Sample ID: **LCS-71353**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **71353**	RunNo: **92451**
Prep Date: **11/7/2022**	Analysis Date: **11/9/2022**	SeqNo: **3322837** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.94	0.025	1.000	0	94.4	80	120			
Toluene	0.96	0.050	1.000	0	96.4	80	120			
Ethylbenzene	0.97	0.050	1.000	0	96.7	80	120			
Xylenes, Total	2.9	0.10	3.000	0	97.4	80	120			
Surr: 4-Bromofluorobenzene	0.96		1.000		95.8	70	130			

Sample ID: **mb-71393**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **71393**	RunNo: **92479**
Prep Date: **11/9/2022**	Analysis Date: **11/10/2022**	SeqNo: **3327270** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.95		1.000		94.8	70	130			

Sample ID: **lcs-71393**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **71393**	RunNo: **92479**
Prep Date: **11/9/2022**	Analysis Date: **11/10/2022**	SeqNo: **3327271** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.93	0.025	1.000	0	92.9	80	120			
Toluene	0.95	0.050	1.000	0	95.4	80	120			
Ethylbenzene	0.96	0.050	1.000	0	96.1	80	120			
Xylenes, Total	2.9	0.10	3.000	0	95.7	80	120			
Surr: 4-Bromofluorobenzene	0.96		1.000		95.8	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 standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2211297**

17-Nov-22

Client: Vertex Resources Services, Inc.

Project: Hackberry 6 Fed 1 Well Pad

Sample ID: **2211297-012ams**	SampType: **MS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH22-06 2'**	Batch ID: **71393**	RunNo: **92479**
Prep Date: **11/9/2022**	Analysis Date: **11/10/2022**	SeqNo: **3327274** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.97	0.025	0.9843	0	98.4	68.8	120			
Toluene	1.0	0.049	0.9843	0	103	73.6	124			
Ethylbenzene	1.0	0.049	0.9843	0	104	72.7	129			
Xylenes, Total	3.1	0.098	2.953	0.01740	104	75.7	126			
Surr: 4-Bromofluorobenzene	0.92		0.9843		93.2	70	130			

Sample ID: **2211297-012amsd**	SampType: **MSD**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH22-06 2'**	Batch ID: **71393**	RunNo: **92479**
Prep Date: **11/9/2022**	Analysis Date: **11/10/2022**	SeqNo: **3327278** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.99	0.025	0.9960	0	99.7	68.8	120	2.48	20	
Toluene	1.0	0.050	0.9960	0	104	73.6	124	2.76	20	
Ethylbenzene	1.1	0.050	0.9960	0	106	72.7	129	3.26	20	
Xylenes, Total	3.2	0.10	2.988	0.01740	107	75.7	126	3.76	20	
Surr: 4-Bromofluorobenzene	0.95		0.9960		95.2	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 standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
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: Vertex Resources Services, Inc.

Work Order Number: 2211297

RcptNo: 1

Received By: Andy Freeman 11/5/2022 2:10:00 PM

Completed By: Juan Rojas 11/7/2022 7:09:44 AM

Reviewed By: KPA 11.7.22

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: JN 11/7/22

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	3.5	Good				
2	4.4	Good				
3	2.8	Good				

Chain-of-Custody Record

Client: Devon / Vertex

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: Hackberry 6 Fed / Well Pad

Project #: 22E-02537

Project Manager: Chance Dixon

Sampler: CD

On Ice: ☒ Yes ☐ No

# of Coolers: 3 on 11/7/22

Cooler Temp(including CF): 7 (°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. 2211297	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)
11/3/22	9:00	Soil	BH22-01 0'	4 oz	Ice	-001	✓	✓					✓			
	9:05		BH22-01 2'			-002										
	9:10		BH22-02 0'			-003										
	9:15		BH22-02 2'			-004										
	9:20		BH22-03 0'			-005										
	9:25		BH22-03 2'			-006										
	9:30		BH22-04 0'			-007										
	9:35		BH22-04 2'			-008										
	9:40		BH22-05 0'			-009										
	9:45		BH22-05 2'			-010										
	9:50		BH22-06 0'			-011										
	9:55		BH22-06 2'			-012										

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
11/4/22	1030				11/4/22	1030
11/4/22	1900				11/5/22	1410

Remarks: CC: Kent Stallings
Direct Bill Devon (100701301)
3.6 - 0.1 = 3.5, 4.5 - 0.1 = 4.4, 2.9 - 0.1 = 2.8

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/Vertex

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: Hackberry G Fed 1 well pad

Project #: 22E-02537

Project Manager: Chance Dixon

Sampler: CD

On Ice: ☒ Yes ☐ No

# of Coolers: 3

Cooler Temp(Including CF): (°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. 2211297	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)
11/3/22	10:00	Soil	BHZZ-07 0'	4 oz	Ice	-013	✓	✓					✓			
	10:05		BHZZ-07 2'			-014										
	10:10		BHZZ-07 4'			-015										
	10:15		BHZZ-08 0'			-016										
	10:20		BHZZ-08 2'			-017										
	10:25		BHZZ-08 4'			-018										

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
11/4/22	1030				11/4/22	1030
11/4/22	1900				11/5/22	1410

Remarks: CC: Kent Stallings
Direct Bill Devon 21007101301

3.6 - 0.1 - 3.5
4.5 - 0.1 - 4.4
2.4 - 0.1 - 2.8

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 174804

CONDITIONS

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 174804
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
rhamlet	The Remediation Plan is Conditionally Approved. All samples must be analyzed for all constituents listed in Table I of 19.15.29.12 NMAC. Floor confirmation samples should be delineated/excavated to meet closure criteria standards for site assessment/characterization/proven depth to water determination. Sidewall samples should be delineated/excavated to 600 mg/kg for chlorides and 100 mg/kg for TPH to define the edge of the release. The variance is approved for confirmation floor samples to be collected every 400 ft2. Confirmation sidewall samples should be collected every 200 ft2. Please, include in the closure report the driller's log for the borehole to 100 feet for depth to groundwater determination. All off pad areas must meet reclamation standards set forth in the OCD Spill Rule. The work will need to occur in 90 days after the work plan has been reviewed.	5/10/2023