HRL COMPLIANCE SOLUTIONS
P.O. Box 1708 • Artesia, NM 88211
www.hrlcomp.com

June 1, 2020

Mr. Tom Bynum
Devon Energy
6488 Seven Rivers Highway
Artesia, New Mexico 88211
Email: tom.bynum@dvn.com

Subject: **Site Characterization and Closure Report**
Cotton Draw Unit 171H
2RP-2907
Eddy County, New Mexico

Dear Mr. Bynum:

HRL Compliance Solutions, Inc. (HRL) is pleased to present this site characterization and closure report for the March 15, 2015 release at the Cotton Draw Unit 171H (Site). The release is at latitude 32.1526200 and longitude -103.7320907 in Eddy County, New Mexico (Figure 1). Photographs of the Site can be found in Attachment A.

Site Background

On March 15, 2015, a release of 52 barrels (bbls.) of produced water and one barrel of oil was observed at the Site. The release was due to equipment failure. The frac tanks did not equalize, resulting in an overflow of produced water and oil which impacted the pad. The fluid flowed in a southeastern direction from the point of origin on the northwest side of the well pad. Initial response activities included opening the equalizer line to stop the overflow in addition to using a vacuum truck to recover 43 barrels of produced water and one barrel of oil.

Because the volume released was greater than 25 barrels; this is considered a major release according to New Mexico Oil Conservation Division (NMOCD). On March 20, 2015, Devon reported the release to the NMOCD on a Release Notification and Corrective Action Form (Form C-141) (Attachment B). The release was assigned Remediation Permit (RP) number 2RP-2907.

Scope of Work

Devon has requested HRL to provide the following deliverables:

- Research the information as specified in the Site Characterization on the NMOCD Form C-141
- Prepare a map with sample points labeled
- Prepare a table summarizing the results obtained during the site characterization activities
- Prepare a site characterization report including a remediation plan per NMOCD closure requirements and related cost estimates

New Mexico Administrative Code (NMAC) Site Characterization Criteria

Title 19, Chapter 15, Part 29, Section 11 of the New Mexico Administrative Code (NMAC) provides requirements for release characterization once the free liquids and recoverable materials have been removed from the Site.

Depth to Groundwater

Depth to groundwater at the release was estimated by evaluating data from the New Mexico Office of the State Engineer (NMOSE) and the United States Geological Survey (USGS) (Figure 2). The nearest groundwater well was approximately 1 mile from the Site; the depth to water in this well was 390 feet below ground surface (bgs).

Wellhead Protection Area

There are no sources of water, including springs, wells, or other sources of fresh water, within one-half mile of the release (Figure 2).

Distance to Nearest Significant Watercourse

A significant watercourse is defined as "…a watercourse with a defined bed and bank either named or identified by a dashed blue line on a USGS 7.5-minute quadrangle map or the next lower order tributary with a defined bed and bank" (19.15.17.7 NMAC) (Figure 2). There are no significant watercourses within one-half mile of the lateral extent of the release.

Additional Site Characterization Criteria

The following is additional information related to characterization of the Site.

Site Characterization	Response/Discussion
What is the shallowest depth to groundwater beneath the area affected by the release?	Greater than 100 feet
Did the release impact groundwater or surface water?	No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or other significant watercourse?	No
Are the lateral extents of the release within 200 feet of a lakebed, sinkhole, or playa lake?	No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital institution, or church?	No

Site Characterization	Response/Discussion
Are the lateral extents of the release within 500 feet of a spring or private, domestic fresh water well used by less than five households for domestic or stock watering purposes?	No
Are the lateral extents of the release within 1,000 feet of any fresh water well or spring?	No
Are the lateral extents of the release within any incorporated municipal boundaries?	No
Are the lateral extents of the release within a defined municipal fresh water well field?	No
Are the lateral extents of the release within 300 feet of a wetland?	No
Are the lateral extents of the release overlying a subsurface mine?	No
Are the lateral extents of the release overlying an unstable area such as karst geology?	The Site is in an area of low potential for karst topography
Are the lateral extents of the release within the 100-year floodplain?	No
Did the release impact areas not on an exploration, development, production, or storage site?	No

Site Delineation

Prior to initiating field activities, HRL submitted a Mechanical Excavation Permit to Devon Energy and had subsurface utilities located at the Site. On April 16, 2020, HRL mobilized to the Site to evaluate the release. Soil samples were collected from seventeen locations (FS1 through FS17). The soil samples were collected from ground surface; additionally, at one location (FS15), soil was also collected from two inches below ground surface (bgs). The soil samples were analyzed in the field (field screening) by one or more of the following methods:

- Chloride was approximated using an electrical conductivity (EC) meter in accordance with methods recommended by the U.S. Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS)
- Non-specific volatile organic compounds (VOCs) were measured using a photoionization detector (PID) with a 10.6 electron-volt (eV) lamp
- Total petroleum hydrocarbons (TPH) was measured using a PetroFlag® field test kit in accordance with U.S. Environmental Protection Agency (EPA) Method 9074

Of the eighteen soil samples, five (SP1, SP2, SP3, SP4, SP5@0" and SP5@2") were immediately placed on ice and kept under strict chain of custody protocol prior to submission to Hall Environmental Analysis Laboratory, Inc. in Albuquerque, New Mexico for analysis of:

- Chloride by United States Environmental Protection Agency (US EPA) Method 300.0
- Benzene, toluene, ethyl benzene, and total xylenes (BTEX) by US EPA Method 8021B
- Total petroleum hydrocarbons (TPH) – gasoline range organics (GRO), diesel range organics (DRO), and oil range organics (ORO) by US EPA Method 8015M

Closure Criteria

Based on the NMAC Site Characterization Criteria, HRL has applied the following NMOCD Closure Criteria to the Site:

Depth to Groundwater	Parameter	Closure Criteria in milligrams per kilogram (mg/kg)
Greater than 100 feet below ground surface	Chloride	20,000 mg/kg or natural background, whichever is greater
	Total Petroleum Hydrocarbons (TPH) *[Gasoline Range Organics (GRO) + Diesel Range Organics (DRO) + Oil Range Organics (ORO)]*	2,500 mg/kg
	Gasoline Range Organics (GRO) + Diesel Range Organics (DRO)	1,000 mg/kg
	Benzene	10 mg/kg
	Benzene, Toluene, Ethylbenzene, and Total Xylenes (BTEX)	50 mg/kg

Remediation and Reclamation

A scaled diagram depicting the area of investigation and nearby significant features, such as roads, site infrastructure, location of borings, sample points, monitoring wells (if present) and subsurface features (if data was available) has been prepared (Figure 3). HRL utilized a Trimble GeoXT global positioning system (GPS) unit to collect latitude and longitude data for the sample locations.

Chloride concentrations in soil ranged from non-detect to 18,000 milligrams per kilogram (mg/kg). Benzene, toluene, ethylbenzene, total xylenes (BTEX), gasoline range organics (GRO), diesel range organics (DRO), and oil range organics (ORO) were not detected in the soil samples. Based on evaluation of the laboratory results of the soil samples, remediation of the impacted soil is not necessary (Attachment B).

Conclusions and Recommendations

Results of soil samples were below the applicable cleanup standards specified in 19.15.29.12 NMAC. Therefore, no additional remedial action is required; HRL recommends closure of this release.

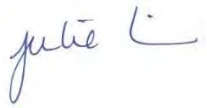
Scope and Limitations

The scope of HRL's services consists of performing site characterization, overseeing remedial activities, confirmation sampling, and preparation of this closure report. All work has been performed in accordance with generally accepted professional environmental consulting practices for oil and gas releases in the Permian Basin.

If you have any questions or concerns, please do not hesitate to contact Julie Linn at (970) 243-3271 or via email at jlinn@hrlcomp.com.

Sincerely,

HRL Compliance Solutions, Inc.



Julie Linn, PG, RG
Project Manager

Figures:

Figure 1: Site Location
Figure 2: Depth to Groundwater
Figure 3: Sample Location and Results

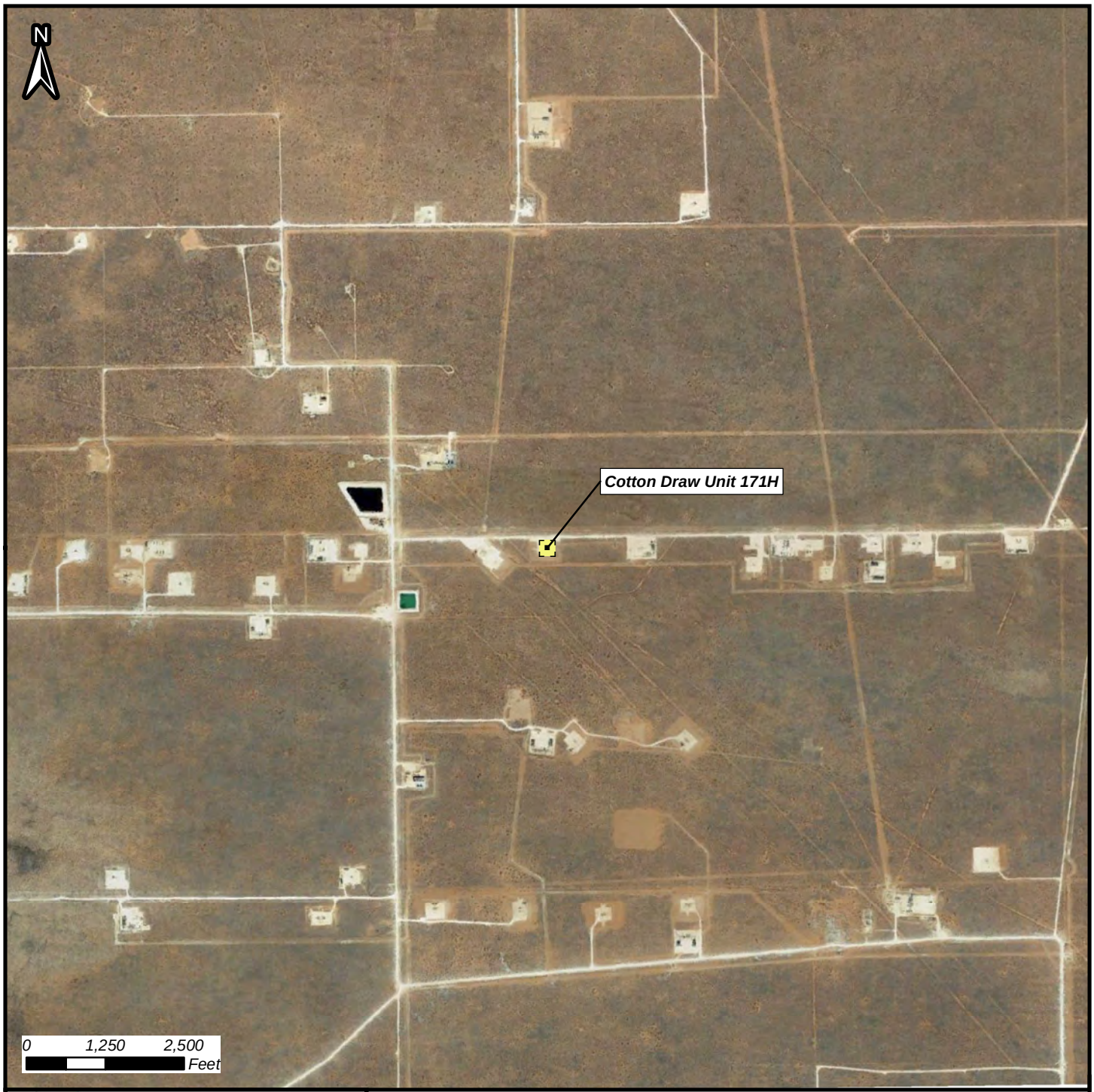
Tables:

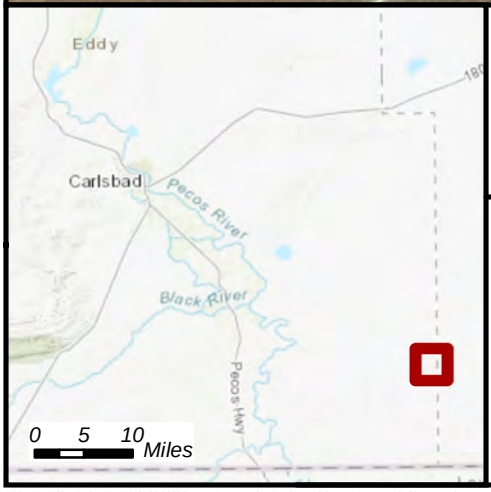
Table 1: Analytical Results Summary

Attachments:

Attachment A: Photographs
Attachment B: NMOCD Form C-141
Attachment C: Laboratory Analytical Reports

Figures





devon

Figure 1: Site Location Map

Cotton Draw Unit 171H
March 2015 Spill

32.1526200, -103.7320907
Section 1, Township 25 South, Range 31 East

NOTES / COMMENTS:

Mapped Features

Facility Location

HRL COMPLIANCE SOLUTIONS

Author: A. Asay
Revision: 0
Date: 4/15/2020

T:\CLIENTS\DEVON ENERGY\2020\Cotton Draw Unit 171H\Maps\Cotton Draw Unit Site Location Map (March 2015 Spill) 041520.mxd

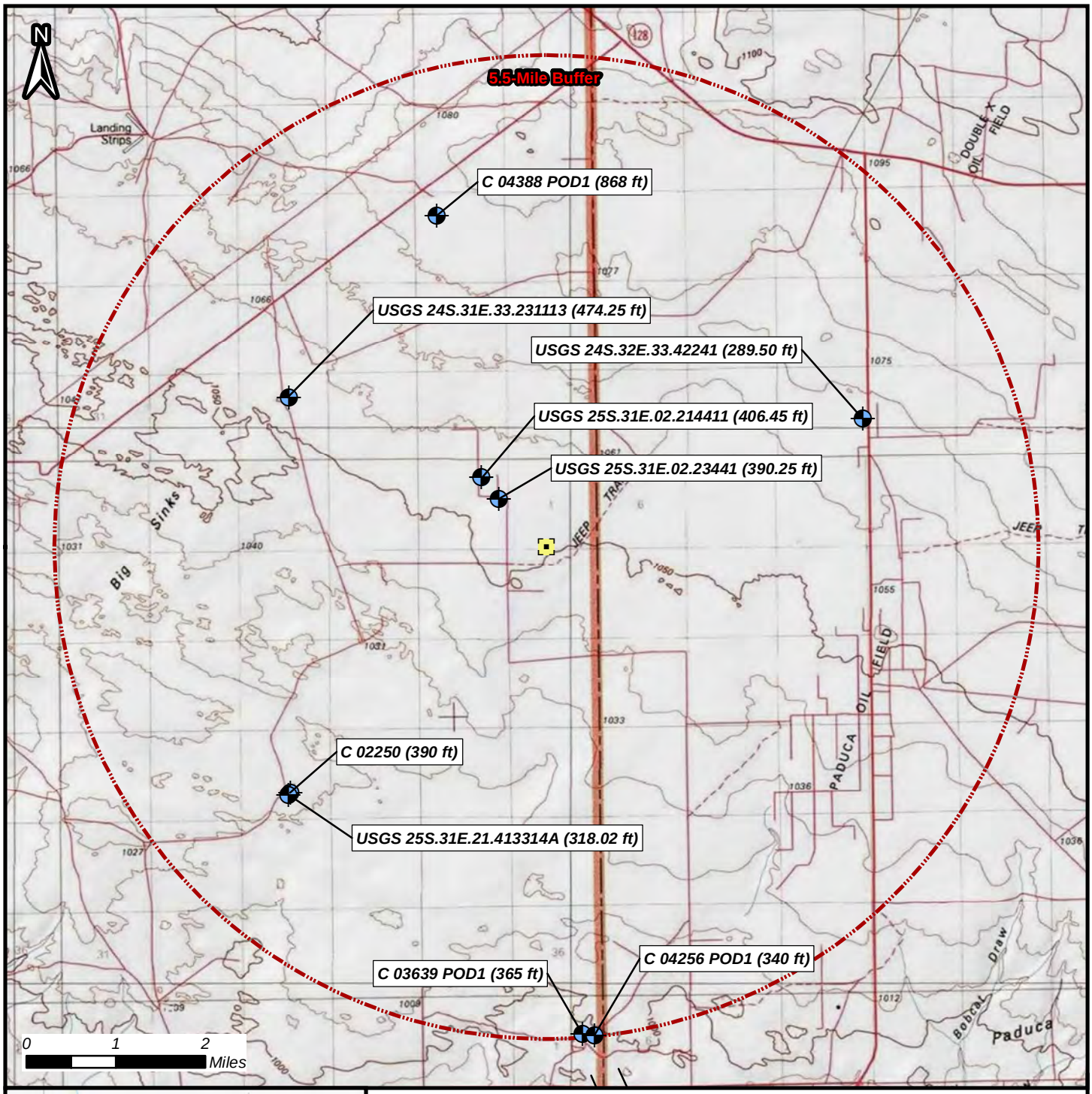


Figure 2: Depth to Groundwater Map

Cotton Draw Unit 171H
March 2015 Spill

32.1526200, -103.7320907
Section 1, Township 25 South, Range 31 East

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Mapped Features

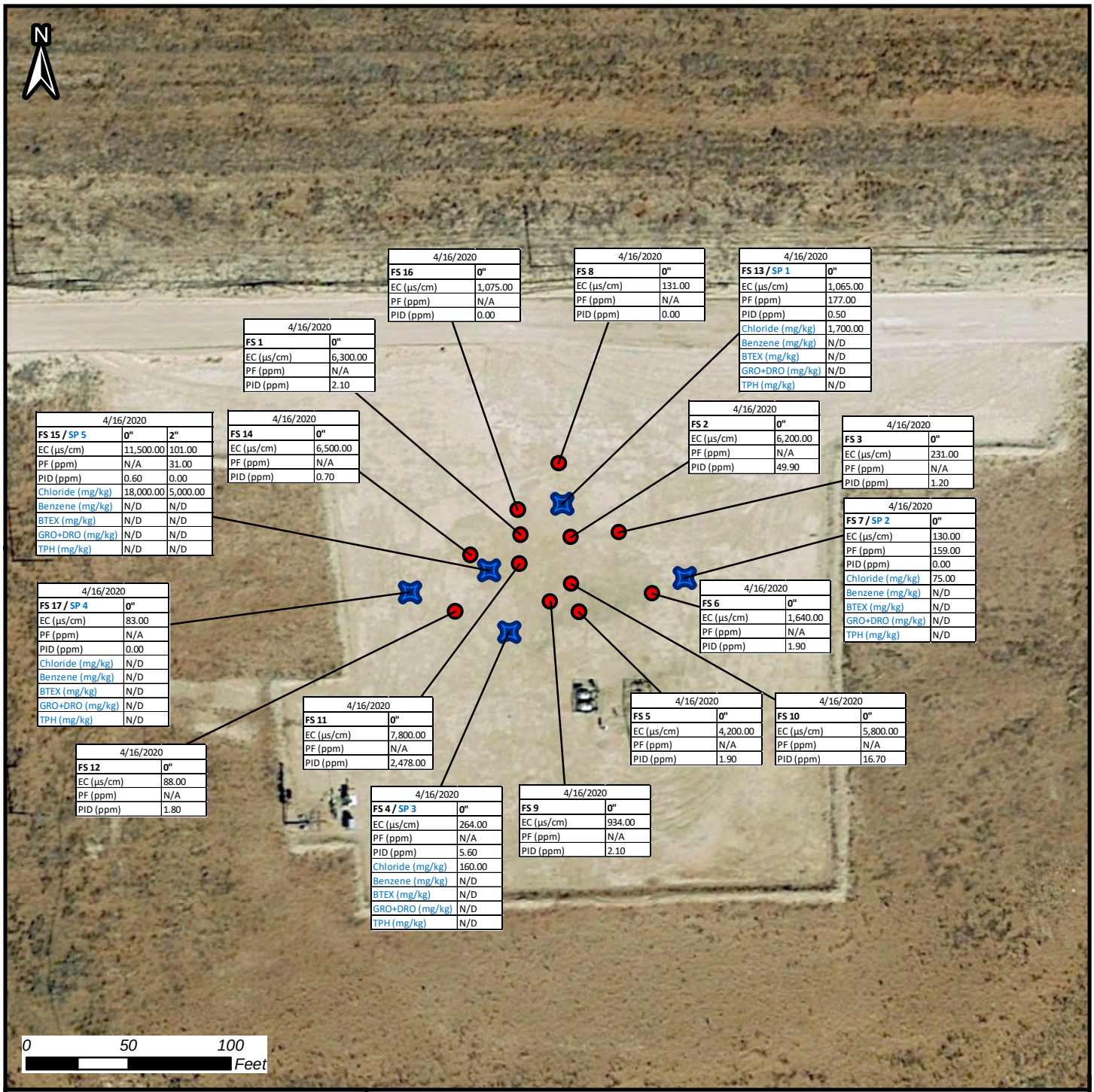
- Point of Release
- Groundwater Well
- 5.5-Mile Buffer

Well Number	Water Level Below Ground Surface (ft)	Distance from Source (mi)
C 04388 POD1	868.00	3.90
C 02250	390.00	3.97
C 03639 POD1	365.00	5.46
C 04256 POD1	340.00	5.48
USGS 25S.31E.02.23441	390.25	0.76
USGS 25S.31E.02.214411	406.45	1.06
USGS 25S.31E.21.413314A	318.02	4.00
USGS 24S.31E.33.231113	474.25	3.33
USGS 24S.32E.33.42241	289.50	3.82

HRL COMPLIANCE SOLUTIONS

Author: A. Asay
Revision: 0
Date: 5/15/2020

T:\CLIENTS\DEVON ENERGY\2020\Cotton Draw Unit 171H\Maps\Cotton Draw Unit 171H DTGW Map (March 2015 Spill) 051520.mxd



devon

Figure 2: Sample Location and Results

Cotton Draw Unit 171H

March 2015 Spill

32.1526200, -103.7320907

Section 1, Township 25 South, Range 31 East

NOTES / COMMENTS:

Mapped Features

- Sample Location (Submitted for Lab Analysis)
- Field Screen Sample Location

HRL COMPLIANCE SOLUTIONS

Author: A. Asay

Revision: 0

Date: 5/13/2020

T:\CLIENTS\DEVON ENERGY\2020\Cotton Draw Unit 171H\Maps\Cotton Draw Unit 171H Sample Location and Results Map (March 2015 Spill) 051320.mxd

Tables

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Table 1
Soil Sample Results
Devon Energy
Cotton Draw Unit 171H
Eddy County, New Mexico

Sample ID	Depth (inches)	Sample Date	Chloride	Benzene	BTEX	GRO + DRO	TPH
			Values are in milligrams per kilogram (mg/kg)				
NMOCD Closure Criteria (Groundwater greater than 100 feet) *			20,000	10	50	1,000	2,500
SP1	0	4/16/2020	1,700	ND	ND	ND	ND
SP2	0	4/16/2020	75	ND	ND	ND	ND
SP3	0	4/16/2020	160	ND	ND	ND	ND
SP4	0	4/16/2020	ND	ND	ND	ND	ND
SP5 @ 0"	0	4/16/2020	18,000	ND	ND	ND	ND
SP5 @ 2"	2	4/16/2020	5,000	ND	ND	ND	ND

Notes:

NMOCD: New Mexico Oil Conservation Division

BTEX: Benzene, Toluene, Ethylbenzene, Total Xylenes

GRO: Gasoline Range Organics

DRO: Diesel Range Organics

TPH: Total Petroleum Hydrocarbons

Bold results exceed closure criteria

* Closure Criteria specified in 19.15.29.12 NMAC

Attachment A

Photographs

View of the Site

View of the Site

Attachment B

NMOCD Form C-141

NM OIL CONSERVATION
ARTESIA DISTRICT
MAR 23 2015
RECEIVED

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

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

Form C-141
Revised August 8, 2011

Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

nAB1508251701

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company Devon Energy Production Company 6137	**Contact** Joah Weidemann; Production Foreman
Address 6488 Seven Rivers Hwy Artesia, NM 88210	**Telephone No.** 575-513-1528
Facility Name Cotton Draw Unit 171H	**Facility Type** Oil Well

Surface Owner Federal	**Mineral Owner** Federal	**API No** 30-015-42503

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
N	1	25S	31E	200	South	2480	West	Eddy

Latitude: 32.1526200 N **Longitude:** 103.7320907 W

NATURE OF RELEASE

Type of Release Oil & Produced Water Spill	**Volume of Release** 52 BBLS produced water & 1 BBL oil	**Volume Recovered** 43 BBLS produced water and 1 BBL oil
Source of Release Frac tank overflow	**Date and Hour of Occurrence** March 19, 2015 6:20 AM	**Date and Hour of Discovery** March 19, 2015 6:20 AM
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	**If YES, To Whom?** Jeff Robertson; BLM & Mike Bratcher; OCD	
By Whom? David Washington; Assistant Production Foreman	**Date and Hour both on** March 19, 2015 @ 6:30 PM	
Was a Watercourse Reached? ☐ Yes ☒ No	**If YES, Volume Impacting the Watercourse** N/A	

If a Watercourse was Impacted, Describe Fully.*
N/A

Describe Cause of Problem and Remedial Action Taken.*
Failure to equalize frac tanks resulted in an overflow of a mix of 52 BBLS produced water and 1 BBL oil. Opening the equalizing line stopped the overflow.

Describe Area Affected and Cleanup Action Taken.*
The released fluid; a mix of 52 BBLS produced water and 1 BBL oil covered approximately 5400 square feet on the well pad. All released fluid remained on pad. The fluid released flowed in a southeastern direction from the point of origin on the northwest side of the well pad. A vac truck recovered 43 BBLS of produced water and 1 BBL of oil.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD 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 NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD 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.

Signature: Sandy Farley	OIL CONSERVATION DIVISION
Printed Name: Sandra Farley	Signed By Mike Bratcher Approved by Environmental Specialist:
Title: **Field Admin Support**	Approval Date: 3/23/15 Expiration Date: N/A
E-mail Address: **sandy.farley@dvn.com**	Conditions of Approval: Attached ☐
Date: 3/20/15 Phone: **575.746.5587**	**Remediation per O.C.D. Rules & Guidelines** **SUBMIT REMEDIATION PROPOSAL NO LATER THAN: 4/23/15**

* Attach Additional Sheets If Necessary

2RP-2907

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	nAB1508251701
District RP	2RP-2907
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

State of New Mexico
Oil Conservation Division

Incident ID	nAB1508251701
District RP	2RP-2907
Facility ID	
Application ID	

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.

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: Tom Bynum Title: EHS Consultant

Signature: Tom Bynum Date: 6/1/2020

email: tom.bynum@dvn.com Telephone: 575-748-0176

OCD Only

Received by: _____ Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	nAB1508251701
District RP	2RP-2907
Facility ID	
Application ID	

Remediation Plan

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

☒ Detailed description of proposed remediation technique
☒ Scaled sitemap with GPS coordinates showing delineation points
☒ Estimated volume of material to be remediated
☒ Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(4) NMAC
☒ 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: Tom Bynum Title: EHS Consultant

Signature: Tom Bynum Date: 6/1/2020

email: tom.bynum@dvn.com Telephone: 575-748-0176

OCD Only

Received by: _____ Date: _____

☐ Approved ☐ Approved with Attached Conditions of Approval ☐ Denied ☐ Deferral Approved

Signature: _____ Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	nAB1508251701
District RP	2RP-2907
Facility ID	
Application ID	

Closure

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

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

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

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

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

☒ Description of remediation activities

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

Printed Name: Tom Bynum Title: EHS Consultant

Signature: Tom Bynum Date: 6/1/2020

email: tom.bynum@dvn.com Telephone: 575-748-0176

OCD Only

Received by: _____ Date: _____

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

Closure Approved by: _____ Date: _____

Printed Name: _____ Title: _____

Attachment C

Laboratory Analytical Reports

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

April 24, 2020

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

RE: Cotton Draw Unit 171H OrderNo.: 2004847

Dear Tom Bynum:

Hall Environmental Analysis Laboratory received 6 sample(s) on 4/18/2020 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **2004847**
Date Reported: **4/24/2020**

CLIENT: Devon Energy
Project: Cotton Draw Unit 171H
Lab ID: 2004847-001 **Matrix:** SOIL

Client Sample ID: SP1
Collection Date: 4/16/2020 2:18:00 PM
Received Date: 4/18/2020 10:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	4/20/2020 6:14:08 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	4/20/2020 6:14:08 PM
Surr: DNOP	79.0	55.1-146		%Rec	1	4/20/2020 6:14:08 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	4/22/2020 1:06:01 PM
Surr: BFB	102	66.6-105		%Rec	1	4/22/2020 1:06:01 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.023		mg/Kg	1	4/22/2020 1:06:01 PM
Toluene	ND	0.046		mg/Kg	1	4/22/2020 1:06:01 PM
Ethylbenzene	ND	0.046		mg/Kg	1	4/22/2020 1:06:01 PM
Xylenes, Total	ND	0.092		mg/Kg	1	4/22/2020 1:06:01 PM
Surr: 4-Bromofluorobenzene	102	80-120		%Rec	1	4/22/2020 1:06:01 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	1700	60		mg/Kg	20	4/22/2020 6:39:26 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
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 **2004847**
Date Reported: **4/24/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Cotton Draw Unit 171H
Lab ID: 2004847-002 **Matrix:** SOIL

Client Sample ID: SP2
Collection Date: 4/16/2020 12:59:00 PM
Received Date: 4/18/2020 10:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	4/20/2020 6:38:36 PM
Motor Oil Range Organics (MRO)	ND	51		mg/Kg	1	4/20/2020 6:38:36 PM
Surr: DNOP	98.5	55.1-146		%Rec	1	4/20/2020 6:38:36 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	4/22/2020 1:29:24 PM
Surr: BFB	100	66.6-105		%Rec	1	4/22/2020 1:29:24 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.023		mg/Kg	1	4/22/2020 1:29:24 PM
Toluene	ND	0.046		mg/Kg	1	4/22/2020 1:29:24 PM
Ethylbenzene	ND	0.046		mg/Kg	1	4/22/2020 1:29:24 PM
Xylenes, Total	ND	0.092		mg/Kg	1	4/22/2020 1:29:24 PM
Surr: 4-Bromofluorobenzene	99.6	80-120		%Rec	1	4/22/2020 1:29:24 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	75	60		mg/Kg	20	4/22/2020 7:16:28 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
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 **2004847**
Date Reported: **4/24/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: SP3
Project: Cotton Draw Unit 171H
Collection Date: 4/16/2020 12:42:00 PM
Lab ID: 2004847-003 **Matrix:** SOIL **Received Date:** 4/18/2020 10:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**
Diesel Range Organics (DRO)	ND	9.1		mg/Kg	1	4/20/2020 7:02:47 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	4/20/2020 7:02:47 PM
Surr: DNOP	73.6	55.1-146		%Rec	1	4/20/2020 7:02:47 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	4/22/2020 1:52:55 PM
Surr: BFB	102	66.6-105		%Rec	1	4/22/2020 1:52:55 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	4/22/2020 1:52:55 PM
Toluene	ND	0.048		mg/Kg	1	4/22/2020 1:52:55 PM
Ethylbenzene	ND	0.048		mg/Kg	1	4/22/2020 1:52:55 PM
Xylenes, Total	ND	0.097		mg/Kg	1	4/22/2020 1:52:55 PM
Surr: 4-Bromofluorobenzene	101	80-120		%Rec	1	4/22/2020 1:52:55 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	160	60		mg/Kg	20	4/22/2020 7:28:50 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	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 **2004847**
Date Reported: **4/24/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: SP4
Project: Cotton Draw Unit 171H
Collection Date: 4/16/2020 2:51:00 PM
Lab ID: 2004847-004 **Matrix:** SOIL **Received Date:** 4/18/2020 10:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	4/20/2020 7:27:18 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	4/20/2020 7:27:18 PM
Surr: DNOP	61.8	55.1-146		%Rec	1	4/20/2020 7:27:18 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	4/22/2020 2:16:25 PM
Surr: BFB	101	66.6-105		%Rec	1	4/22/2020 2:16:25 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	4/22/2020 2:16:25 PM
Toluene	ND	0.047		mg/Kg	1	4/22/2020 2:16:25 PM
Ethylbenzene	ND	0.047		mg/Kg	1	4/22/2020 2:16:25 PM
Xylenes, Total	ND	0.095		mg/Kg	1	4/22/2020 2:16:25 PM
Surr: 4-Bromofluorobenzene	100	80-120		%Rec	1	4/22/2020 2:16:25 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	ND	60		mg/Kg	20	4/22/2020 7:41:11 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 **2004847**
Date Reported: **4/24/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Cotton Draw Unit 171H
Lab ID: 2004847-005 **Matrix:** SOIL

Client Sample ID: SP5 @ 0"
Collection Date: 4/16/2020 2:22:00 PM
Received Date: 4/18/2020 10:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	4/20/2020 7:51:27 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	4/20/2020 7:51:27 PM
Surr: DNOP	62.3	55.1-146		%Rec	1	4/20/2020 7:51:27 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	4/22/2020 2:40:03 PM
Surr: BFB	101	66.6-105		%Rec	1	4/22/2020 2:40:03 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	4/22/2020 2:40:03 PM
Toluene	ND	0.047		mg/Kg	1	4/22/2020 2:40:03 PM
Ethylbenzene	ND	0.047		mg/Kg	1	4/22/2020 2:40:03 PM
Xylenes, Total	ND	0.095		mg/Kg	1	4/22/2020 2:40:03 PM
Surr: 4-Bromofluorobenzene	100	80-120		%Rec	1	4/22/2020 2:40:03 PM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	18000	600		mg/Kg	200	4/23/2020 10:36:34 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2004847**
Date Reported: **4/24/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Cotton Draw Unit 171H
Lab ID: 2004847-006 **Matrix:** SOIL

Client Sample ID: SP5 @ 2"
Collection Date: 4/16/2020 3:40:00 PM
Received Date: 4/18/2020 10:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	4/20/2020 8:15:50 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	4/20/2020 8:15:50 PM
Surr: DNOP	55.8	55.1-146		%Rec	1	4/20/2020 8:15:50 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	4/22/2020 3:03:23 PM
Surr: BFB	101	66.6-105		%Rec	1	4/22/2020 3:03:23 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.023		mg/Kg	1	4/22/2020 3:03:23 PM
Toluene	ND	0.046		mg/Kg	1	4/22/2020 3:03:23 PM
Ethylbenzene	ND	0.046		mg/Kg	1	4/22/2020 3:03:23 PM
Xylenes, Total	ND	0.092		mg/Kg	1	4/22/2020 3:03:23 PM
Surr: 4-Bromofluorobenzene	99.8	80-120		%Rec	1	4/22/2020 3:03:23 PM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	5000	300		mg/Kg	100	4/23/2020 11:13:48 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	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#: **2004847**

24-Apr-20

Client: Devon Energy

Project: Cotton Draw Unit 171H

Sample ID: **MB-52033** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**

Client ID: **PBS** Batch ID: **52033** RunNo: **68324**

Prep Date: **4/22/2020** Analysis Date: **4/22/2020** SeqNo: **2364906** Units: **mg/Kg**

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

Sample ID: **LCS-52033** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**

Client ID: **LCSS** Batch ID: **52033** RunNo: **68324**

Prep Date: **4/22/2020** Analysis Date: **4/22/2020** SeqNo: **2364907** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.2	90	110			

Sample ID: **MB-52033** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**

Client ID: **PBS** Batch ID: **52033** RunNo: **68356**

Prep Date: **4/22/2020** Analysis Date: **4/23/2020** SeqNo: **2365666** Units: **mg/Kg**

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

Sample ID: **LCS-52033** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**

Client ID: **LCSS** Batch ID: **52033** RunNo: **68356**

Prep Date: **4/22/2020** Analysis Date: **4/23/2020** SeqNo: **2365667** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	95.1	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2004847**

24-Apr-20

Client: Devon Energy

Project: Cotton Draw Unit 171H

Sample ID: **LCS-51944** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**

Client ID: **LCSS** Batch ID: **51944** RunNo: **68265**

Prep Date: **4/19/2020** Analysis Date: **4/20/2020** SeqNo: **2361901** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	57	10	50.00	0	113	70	130			
Surr: DNOP	6.2		5.000		124	55.1	146			

Sample ID: **LCS-51945** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**

Client ID: **LCSS** Batch ID: **51945** RunNo: **68265**

Prep Date: **4/19/2020** Analysis Date: **4/20/2020** SeqNo: **2361902** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	3.7		5.000		73.6	55.1	146			

Sample ID: **MB-51944** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**

Client ID: **PBS** Batch ID: **51944** RunNo: **68265**

Prep Date: **4/19/2020** Analysis Date: **4/20/2020** SeqNo: **2361903** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	12		10.00		115	55.1	146			

Sample ID: **MB-51945** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**

Client ID: **PBS** Batch ID: **51945** RunNo: **68265**

Prep Date: **4/19/2020** Analysis Date: **4/20/2020** SeqNo: **2361904** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	7.4		10.00		74.4	55.1	146			

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#: **2004847**

24-Apr-20

Client: Devon Energy

Project: Cotton Draw Unit 171H

Sample ID: **mb-51937**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **51937**	RunNo: **68306**
Prep Date: **4/19/2020**	Analysis Date: **4/22/2020**	SeqNo: **2363135** 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		101	66.6	105			

Sample ID: **lcs-51937**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **51937**	RunNo: **68306**
Prep Date: **4/19/2020**	Analysis Date: **4/22/2020**	SeqNo: **2363136** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	21	5.0	25.00	0	84.6	80	120			
Surr: BFB	1100		1000		112	66.6	105			S

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2004847**

24-Apr-20

Client: Devon Energy

Project: Cotton Draw Unit 171H

Sample ID: **mb-51937**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **51937**	RunNo: **68306**
Prep Date: **4/19/2020**	Analysis Date: **4/22/2020**	SeqNo: **2363182** 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	1.0		1.000		100	80	120			

Sample ID: **LCS-51937**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **51937**	RunNo: **68306**
Prep Date: **4/19/2020**	Analysis Date: **4/22/2020**	SeqNo: **2363183** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.89	0.025	1.000	0	89.0	80	120			
Toluene	0.92	0.050	1.000	0	91.8	80	120			
Ethylbenzene	0.94	0.050	1.000	0	94.0	80	120			
Xylenes, Total	2.8	0.10	3.000	0	94.3	80	120			
Surr: 4-Bromofluorobenzene	1.0		1.000		102	80	120			

Qualifiers:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: DEVON ENERGY Work Order Number: 2004847 RcptNo: 1

Received By: Isaiah Ortiz 4/18/2020 10:20:00 AM I-Ox

Completed By: Isaiah Ortiz 4/18/2020 11:46:18 AM I-Ox

Reviewed By: dam 4/18/2020

Chain of Custody

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

Log In

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

# of preserved bottles checked for pH: 4/18/20
(<2 or >12 unless noted)
Adjusted?
Checked by:

11. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
13. Is it clear what analyses were requested? Yes ☑ No ☐
14. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

Special Handling (if applicable)

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

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

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.4	Good	Not Present			

Chain-of-Custody Record

Client: Devon Energy
Tom Bynum
Mailing Address: 6488 7 Rivers Hwy
Artesia NM 88211
Phone #: 580-748-1613
email or Fax#: tom.bynum@dvn.com
QA/QC Package:
☑ Standard ☐ Level 4 (Full Validation)
Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other
☐ EDD (Type)

Turn-Around Time:
☑ Standard ☐ Rush
Project Name: Cotton Draw Unit 711H
Project #: 2085454
Project Manager: Tom Bynum
Sampler: T. Elwell (HRL)
On Ice: ☑ Yes ☐ No
# of Coolers: 1
Cooler Temp(including CF): 3.4-0(CF)=3.4 (°C)

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

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2004847	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)
4/16/20	14:18	Soil	SP1	4oz Glass	Ice	-001	X	X					X			
4/16/20	12:59	Soil	SP2	4oz Glass	Ice	-002	X	X					X			
4/16/20	12:42	Soil	SP3	4oz Glass	Ice	-003	X	X					X			
4/16/20	14:51	Soil	SP4	4oz Glass	Ice	-004	X	X					X			
4/16/20	14:22	Soil	SP5 @ 0"	4oz Glass	Ice	-005	X	X					X			
4/16/20	15:40	Soil	SP5 @ 2"	4oz Glass	Ice	-006	X	X					X			

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
4/17/20	13:40	Taylor Elwell				
4/17	1500			courier	4/18/20	1020

Remarks: Please send Report to:
jlinn@hrlcomp.com
tlwell@hrlcomp.com

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.