



PO Box 1120
Carlsbad, New Mexico 88221
Phone (575) 236-6600

October 10, 2019

NMOCD District 2
1625 N. French Drive
Hobbs, New Mexico 88240

To Whom It May Concern:

M&M Excavating, Inc. (MMX) has prepared this Remediation Closure Report for Devon Energy Production Company that describes the site characterization and remediation of the fire associated with 1RP-5176 at the Thistle Unit #118H site. The site is in Unit N, Section 34, Township 23S, Range 33E, Latitude 32.2556006, Longitude - 103.5616293, Lea County, New Mexico, on State land. Figure 1 provides the vicinity and site location on an USGS 7.5-minute quadrangle map.

Site Information and Closure Criteria

The Thistle Unit #118H is located approximately thirty (30) miles east of Malaga, New Mexico on State land at an elevation of approximately 3,650 feet above mean sea level (amsl).

Based upon well water data. (Appendix B), depth to groundwater in the area is estimated to be between 135 and 150 feet below grade surface (bgs). There are no known water wells within ½ mile of the location, according to the New Mexico Office of the State Engineer (NMOSE) and USGS. The nearest significant watercourse is an unnamed pond located approximately 5975 feet to the southwest.

The site has been remediated to the applicable NMOCD Closure Criteria for groundwater greater than 100 feet bgs. The site has been restored to meet the standards of Table I of 19.15.29.12 NMAC.

Table 2 demonstrates the Closure Criteria applicable to this location. Pertinent well data is attached in Appendix B.

Release Information and Closure Criteria			
Name	Thistle Unit #118H		
API Number	30-025-43451		
Incident Number	1RP-5176		
Source of Release	Fire/Compressor		
Released Material	N/A	Released Volume	0 BBLS
Recovered Volume	0 BBLS	Net Release	0 BBLS
NMOCD Closure Criteria	>100 feet to groundwater		

Release Information

On August 10, 2018, a lease operator arrived on location and discovered a 2-foot flame coming from the top of the compressor on the blowdown line. Shortly after, the flame went out on its own with no apparent release associated with the fire. Figures 1 and 2 illustrate the vicinity and site location. Figure 3 illustrates the release location. The C-141 forms are included in Appendix A.

Release Characterization and Remediation Activities

On August 22, 2019, MMX personnel arrived on site in response to the release associated with Thistle Unit #118H. MMX collected soil samples at the surface and at six inch depth at five (5) sample locations (L1-L5) around the source of the fire. A total of ten (10) samples were collected for laboratory analysis of a combination of total chloride using EPA Method 300.0; benzene, toluene, ethylbenzene and total xylenes (BTEX) using EPA Method 8021B; and motor, diesel and gasoline range organics (MRO, DRO, and GRO) by EPA Method 8015D.

As summarized in Table 3, sample location L1 exceeded NMOCD Closure Criteria for TPH at the surface, but was below closure criteria at six inches. The remainder of the sample locations met the closure criteria for the location.

On September 20, 2019, MMX personnel returned to the location to excavate the area represented by sample location L1. A five-point composite confirmation sample was collected from the bottom of the 10-inch excavation (BH) and from the sidewalls (SW). Sample SW and BH were analyzed using the methods listed above. Figure 3 shows the final extent of the excavation and sample locations.

NMOCD was notified on 9/18/2019 that confirmation samples were to be collected within 48 hours. All laboratory results are summarized in Table 3 and all laboratory reports are included in Appendix C.

Contaminated soils were removed and replaced with clean backfill material to return the surface to previous contours. The contaminated soil was transported and disposed of at an NMOCD permitted disposal facility. A photo of the excavation prior to backfill is included in Appendix D.

On behalf of Devon Energy, MMX requests closure for the release associated with 1RP-5176.

Submitted by:
M&M Excavating, Inc.

Lupe Carrasco

Lupe Carrasco

ATTACHMENTS:

Tables:

Table 2: NMOCD Closure Criteria Justification

Table 3: Summary of Sample Results

Figures:

Figure 1: Vicinity and Well Head Protection

Map Figure 2: Surface Water Radius Map

Figure 3: Site and Sample Location Map

Appendices:

Appendix A: Form C-141

Appendix B: Water Well Data

Appendix C: Laboratory Analytical Reports

Appendix D: Excavation Photo

Tables

Table 2: NMOCD Closure Criteria

Thistle Unit #118H
Devon Energy Production Company

Site Information (19.15.29.11.A(2, 3, and 4) NMAC)		Source/Notes	
Depth to Groundwater (feet bgs)		135-150	OSE & USGS (Appendix B)
Horizontal Distance From All Water Sources Within 1/2 Mile (ft)		--	
Horizontal Distance to Nearest Significant Watercourse (ft)		5975	Unnamed pond/lake to the southwest

Closure Criteria (19.15.29.12.B(4) and Table 1 NMAC)						
Depth to Groundwater			Closure Criteria (units in mg/kg)			
			Chloride *numerical limit or background, whichever is greater	TPH	GRO + DRO	BTEX Benzene
Less than 50' BGS			600	100		50 10
51' to 100'			10000	2500	1000	50 10
Greater than 100'		x	20000	2500	1000	50 10
Surface Water	Yes	No	if yes, then			
Less than 300' from continuously flowing watercourse or other significant watercourse?		x	600	100		50 10
Less than 200' from lakebed, sinkhole or playa lake?		x				
Water Well or Water Source						
Less than 500 feet from spring or a private, domestic fresh water well used by less than 5 households for domestic or stock watering purposes?		x				
Less than 1000' from fresh water well or spring?		x				
Human and Other Areas						
Less than 300' from an occupied permanent residence, school, hospital, institution or church?		x				
Within incorporated municipal boundaries or within a defined municipal fresh water well field?		x				
Less than 100' from wetland?		x				
Within area overlying a subsurface mine		x				
Within an unstable area?		x				
Within a 100-year floodplain?		x				



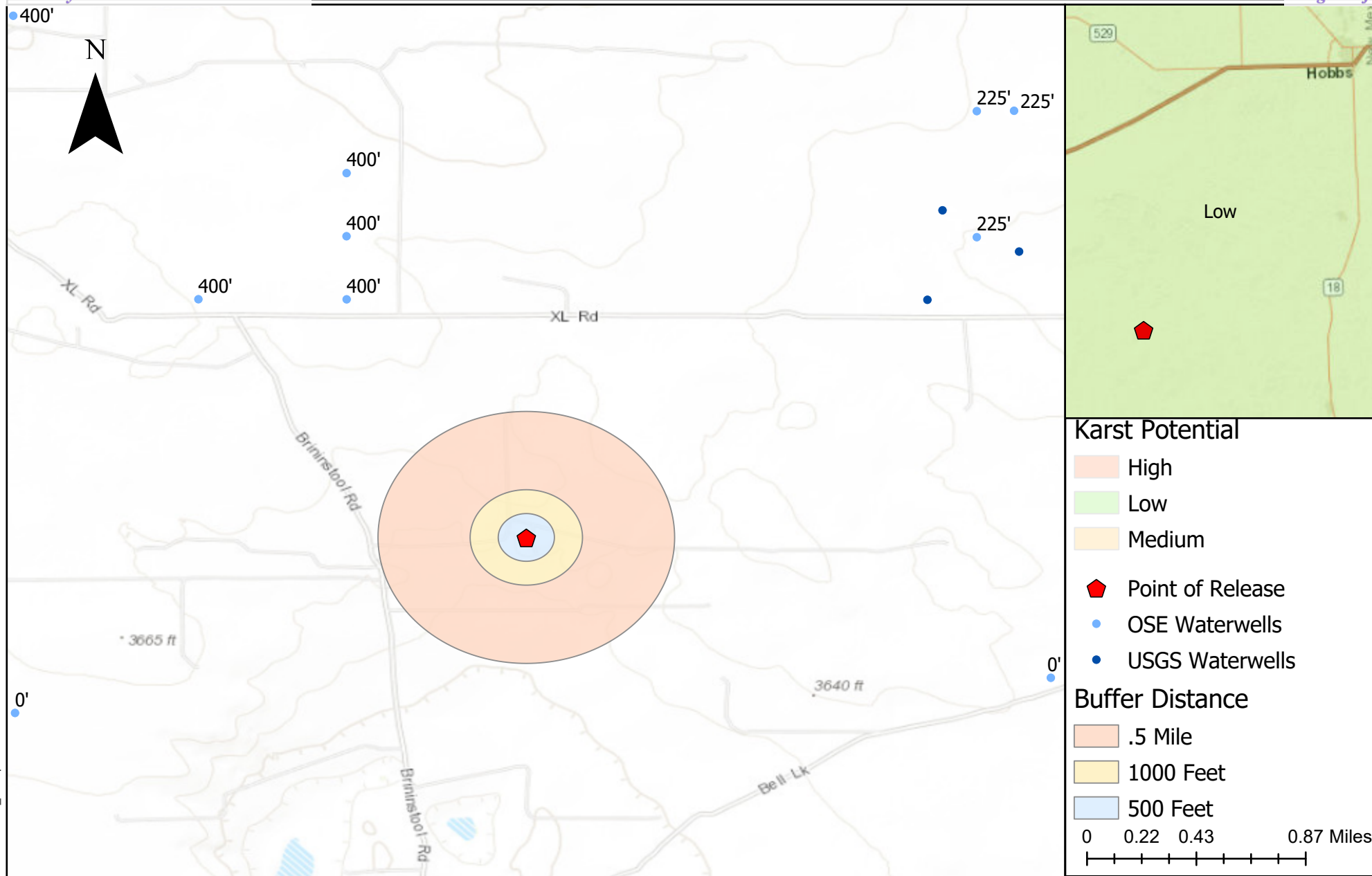
Table 3: Summary of Sample Results

Thistle Unit #118H
Devon Energy Production Company
1RP-5176

Sample ID	Sample Date	Depth (feet bgs)	BTEX mg/Kg	Benzene mg/Kg	GRO mg/Kg	DRO mg/Kg	MRO mg/Kg	Total TPH mg/Kg	Cl- mg/Kg
NMOCD Closure Criteria			50	10				2,500	20,000
Compressor									
L1	8/22/2019	surface	1.45	<0.050	20.9	701	2560	3281.9	32
		0.5	--	--	<10.0	29.4	318	347.4	48
L2		surface	<0.300	<0.050	<10.0	<10.0	21.7	21.7	96
		0.5	--	--	--	--	--	--	96
L3		surface	<0.300	<0.050	<10.0	<10.0	<10.0	<30.0	3840
		0.5	--	--	--	--	--	--	8930
		3	--	--	--	--	--	--	640
L4		surface	<0.300	<0.050	<10.0	<10.0	<10.0	<30.0	128
	9/20/2019	0.5	--	--	--	--	--	--	96
L5		surface	<0.300	<0.050	<10.0	<10.0	<10.0	<30.0	32
		0.5	--	--	--	--	--	--	32
BH		0.8	<0.300	<0.050	<10.0	<10.0	<10.0	<30.0	96
SW		0-0.8	<0.300	<0.050	<10.0	<10.0	<10.0	<30.0	96



Figures



Regional Vicinity & Wellhead Protection Map
 Thistle Unit #118H - Devon Energy
 Sec 34 T23S R33E Lea County, New Mexico

Figure 1

Revisions

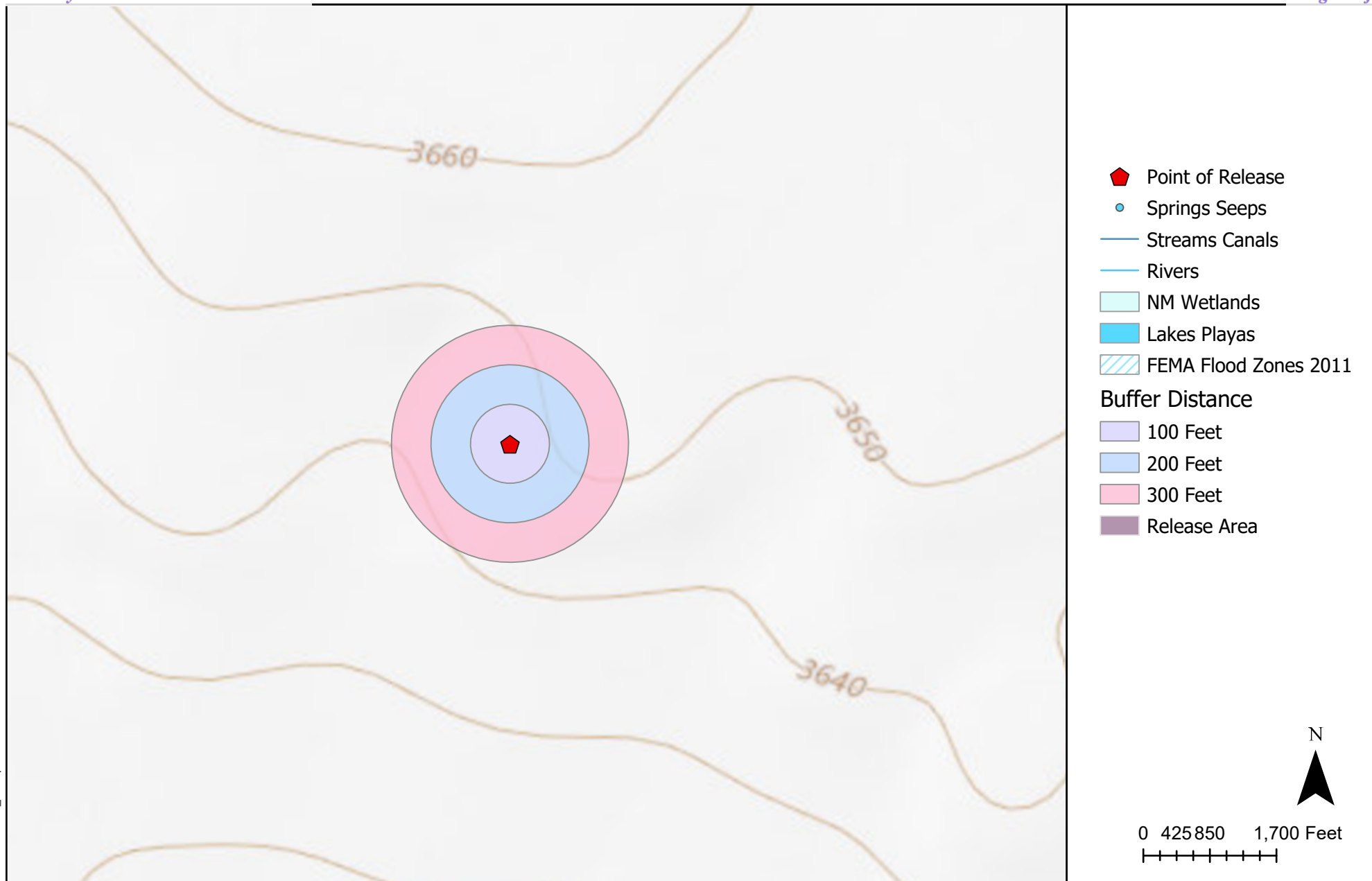
By: _____ Date: _____ Descr: _____
 By: _____ Date: _____ Descr: _____

Drawn _____
 Date 7/17/2019
 Checked _____
 Approved _____



78 Roberson Rd
 Carlsbad, NM 88220
 (575) 230-6600

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Surface Water Protection Map
 Thistle Unit #118H - Devon Energy
 Sec 34 T23S R33E Lea County, New Mexico

Figure 2

Revisions

By: _____ Date: _____ Descr: _____
 By: _____ Date: _____ Descr: _____

Drawn LC
 Date 7/17/2019
 Checked _____
 Approved _____



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Site & Sample Locations
 Thistle Unit #118H - Devon Energy
 Sec. 33 T23S R33E, Lea County, NM

Figure 3

Revisions
 By: _____ Date: _____ Descr: _____
 By: _____ Date: _____ Descr: _____
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Drawn _____
 Date 9/20/2019
 Checked _____
 Approved _____



78 Roberson Rd
 Carlsbad, NM 88220
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Appendix A Form C-141

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 April 3, 2017

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

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☒ Final Report

Name of Company Devon Energy Production Company	Contact Merle Lewis, Production Foreman
Address 6488 Seven Rivers Hwy Artesia, NM 88210	Telephone No. 575-748-3371
Facility Name Thistle Unit 118H	Facility Type
Surface Owner State	Mineral Owner State
API No. 30-025-43451	

LOCATION OF RELEASE

Unit Letter N	Section 34	Township 23S	Range 33E	Feet from the 621'	North/South Line FSL	Feet from the 2199'	East/West Line FWL	County Lea
------------------	---------------	-----------------	--------------	-----------------------	-------------------------	------------------------	-----------------------	---------------

Latitude_32.2556006_ Longitude_103.5616293_ NAD83

NATURE OF RELEASE


Type of Release Fire	Volume of Release 0	Volume Recovered 0
Source of Release Compressor	Date and Hour of Occurrence August 10, 2018 @ 5:00 AM	Date and Hour of Discovery August 10, 2018 @ 5:00 AM
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? Olivia Yu, OCD Chistina Hernandez, BLM	
By Whom? Brett Fuls, EHS Representative	Date and Hour August 11, 2018 @ 1:29 PM	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse. N/A	

RECEIVED

By CHernandez at 9:19 am, Aug 27, 2018

If a Watercourse was Impacted, Describe Fully.* N/A
Describe Cause of Problem and Remedial Action Taken.* Lease Operator arrived on location and discovered a 2' flame coming from the top of the compressor on the blowdown line.
Describe Area Affected and Cleanup Action Taken.* The flame went out on its own and no release was associated with the fire.

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: Sheila Fisher	OIL CONSERVATION DIVISION	
Printed Name: Sheila Fisher	Approved by Environmental Specialist: 	
Title: Field Admin Support	Approval Date: 8/27/2018	Expiration Date:
E-mail Address: Sheila.Fisher@dmn.com	Conditions of Approval:	Attached <input type="checkbox"/>
Date: 8/14/18 Phone: 575.748.1829	NMAC 19.15.29 effective August 14, 2018. Complete release characterization before any significant remediation. Dated photo documentation of the fire site.	

* Attach Additional Sheets If Necessary

1RP-5176

nCH1823935024

pCH1823939786

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	1RP-5176
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party: Devon Energy	OGRID: 6137
Contact Name: Amanda Davis	Contact Telephone: 575-748-0176
Contact email: Amanda.davis@dvn.com	Incident # (assigned by OCD)
Contact mailing address: 6488 Seven Rivers Highway Artesia NM 88210	

Location of Release Source

Latitude 32.2556006

Longitude -103.5616293
(NAD 83 in decimal degrees to 5 decimal places)

Site Name: Thistle Unit #118H	Site Type: Oil Well
Date Release Discovered: 8/10/2018	API# (if applicable) 30-025-43451

Unit Letter	Section	Township	Range	County
N	34	23S	33E	Lea

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

Nature and Volume of Release

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

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

Cause of Release

Fire. Lease operator arrived on location and discovered a 2' flame coming from the top of the compressor on the blowdown line

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	1RP-5176
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If YES, for what reason(s) does the responsible party consider this a major release? Fire
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? Yes. To Olivia Yu (District 2) & BLM by Brett Faulks 8/11/2018 via email	

Initial Response

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

<input checked="" type="checkbox"/> The source of the release has been stopped. <input checked="" type="checkbox"/> The impacted area has been secured to protect human health and the environment. <input type="checkbox"/> Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices. <input type="checkbox"/> All free liquids and recoverable materials have been removed and managed appropriately.	
If all the actions described above have <u>not</u> been undertaken, explain why: No recoverable liquids/materials	
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: <u>Kendra DeHoyos</u>	Title: <u>EHS Associate</u>
Signature: <u>Kendra DeHoyos</u>	Date: _____
email: <u>Kendra.DeHoyos@dvn.com</u>	Telephone: _____
<u>OCD Only</u>	
Received by: _____	Date: _____

Incident ID	
District RP	1RP-5176
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?	<u>135</u> (ft bgs)
Did this release impact groundwater or surface water?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a wetland?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying a subsurface mine?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying an unstable area such as karst geology?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within a 100-year floodplain?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Did the release impact areas not on an exploration, development, production, or storage site?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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.

Incident ID	
District RP	1RP-5176
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: Kendra DeHoyos Title: EHS Associate

Signature: Kendra DeHoyos Date: _____

email: Kendra.DeHoyos@dm.com Telephone: _____

OCD Only

Received by: _____ Date: _____

Incident ID	nCH1823935024
District RP	1RP-5176
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 OCD 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: Kendra DeHoyos Title: EHS Associate

Signature: Kendra DeHoyos Date: _____

email: Kendra.DeHoyos@dvn.com Telephone: _____

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: Bradford Billings Date: 09/20/2021

Printed Name: Bradford Billings Title: Envi.Spec.A

Appendix B Water Well Data



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	DepthWell	DepthWater	Water Column
C 02281		CUB	LE	3	4	4	28	23S	33E	634495	3571183*	1806	545	400	145
C 02280		CUB	LE	3	2	4	28	23S	33E	634489	3571586*	2157	650	400	250
C 02279		CUB	LE	3	4	3	28	23S	33E	633691	3571173*	2341	650	400	250
C 02308		CUB	LE	1	3	1	10	24S	33E	634953	3567364*	2372	40	20	20
C 02278		CUB	LE	3	4	2	28	23S	33E	634484	3571989*	2523	650	400	250
C 03591 POD1		CUB	LE	2	1	4	05	24S	33E	632731	3568518	2991			

Average Depth to Water: **324 feet**

Minimum Depth: **20 feet**

Maximum Depth: **400 feet**

Record Count: 6

UTM NAD83 Radius Search (in meters):

Easting (X): 635490

Northing (Y): 3569675

Radius: 3000

*UTM location was derived from PLSS - see Help

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

7/17/19 4:41 PM

WATER COLUMN/ AVERAGE DEPTH TO WATER



USGS Home
Contact USGS
Search USGS

National Water Information System: Web Interface

USGS Water Resources

Data Category:

Groundwater

Geographic Area:

United States

GO

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- [Full News](#) 

Groundwater levels for the Nation

Search Results -- 1 sites found

site_no list =

- 321611103321601

Minimum number of levels = 1

[Save file of selected sites](#) to local disk for future upload

USGS 321611103321601 23S.33E.26.42100

Available data for this site

Groundwater: Field measurements

GO

Lea County, New Mexico

Hydrologic Unit Code 13070007

Latitude 32°16'28.0", Longitude 103°32'15.6" NAD83

Land-surface elevation 3,641 feet above NAVD88

The depth of the well is 190 feet below land surface.

This well is completed in the Chinle Formation (231CHNL) local aquifer.

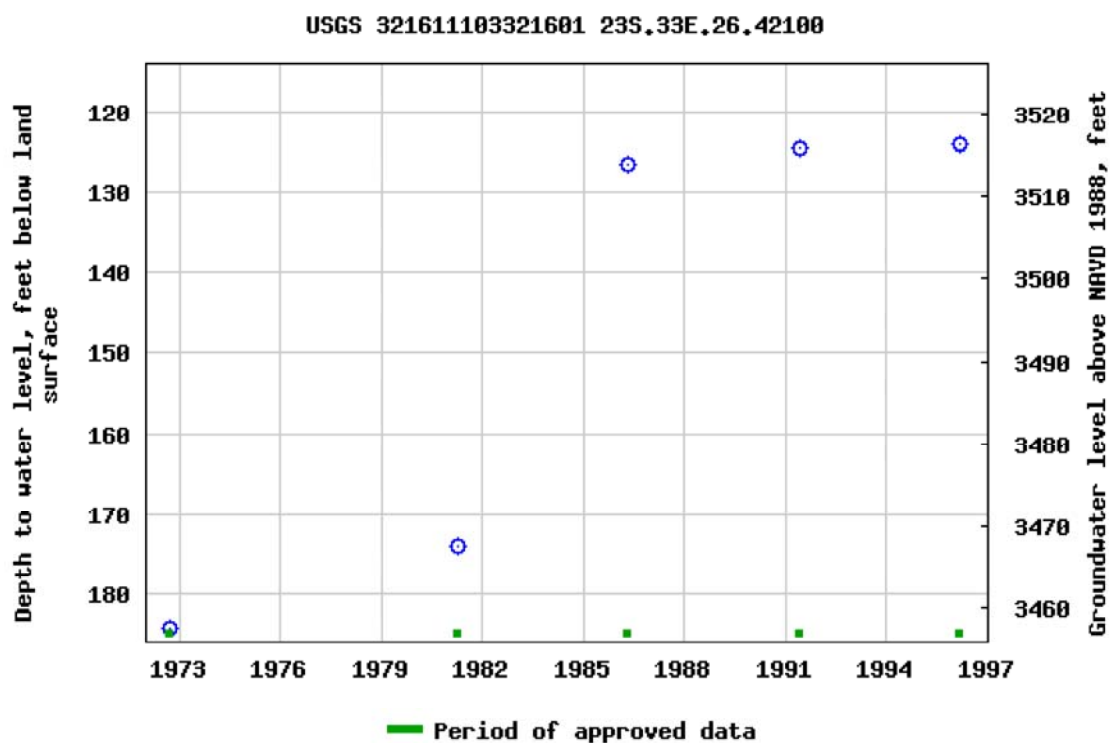
Output formats

[Table of data](#)

[Tab-separated data](#)

[Graph of data](#)

[Reselect period](#)



Breaks in the plot represent a gap of at least one year between field measurements.

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Title: Groundwater for USA: Water Levels

URL: <https://nwis.waterdata.usgs.gov/nwis/gwlevels?>



Page Contact Information: [USGS Water Data Support Team](#)

Page Last Modified: 2019-07-17 19:00:46 EDT

1.25 1.09 nadww01



USGS Home
Contact USGS
Search USGS

National Water Information System: Web Interface

USGS Water Resources

Data Category:


Groundwater

Geographic Area:

United States

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Groundwater levels for the Nation

Search Results -- 1 sites found

site_no list =

- 321609103321701

Minimum number of levels = 1

[Save file of selected sites](#) to local disk for future upload

USGS 321609103321701 23S.33E.26.421342

Available data for this site

Groundwater: Field measurements

GO

Lea County, New Mexico

Hydrologic Unit Code 13070007

Latitude 32°16'09", Longitude 103°32'17" NAD27

Land-surface elevation 3,648 feet above NAVD88

The depth of the well is 173 feet below land surface.

This well is completed in the Chinle Formation (231CHNL) local aquifer.

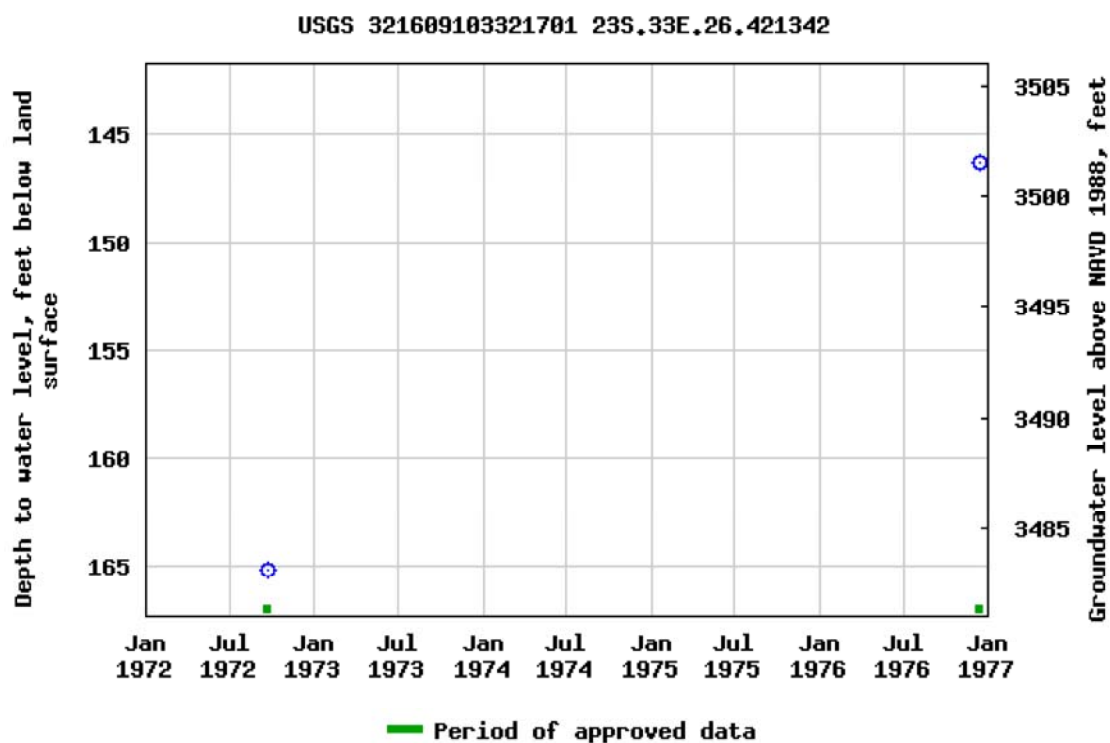
Output formats

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Breaks in the plot represent a gap of at least one year between field measurements.

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[U.S. Department of the Interior](#) | [U.S. Geological Survey](#)

Title: Groundwater for USA: Water Levels

URL: <https://nwis.waterdata.usgs.gov/nwis/gwlevels?>



Page Contact Information: [USGS Water Data Support Team](#)

Page Last Modified: 2019-07-17 18:59:27 EDT

1.04 0.91 nadww01

Appendix C

Laboratory Analytical Reports

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

September 05, 2019

MELODIE SANJARI

MMX

2737 PECOS HWY

CARLSBAD, NM 88220

RE: 118 H - COMP

Enclosed are the results of analyses for samples received by the laboratory on 08/26/19 11:15.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-18-11. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/ga/lab_accred_certif.html.

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Total Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Cardinal Laboratories is accredited through the State of New Mexico Environment Department for:

Method SM 9223-B	Total Coliform and E. coli (Colilert MMO-MUG)
Method EPA 524.2	Regulated VOCs and Total Trihalomethanes (TTHM)
Method EPA 552.2	Total Haloacetic Acids (HAA-5)

Accreditation applies to public drinking water matrices for State of Colorado and New Mexico.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

MMX
2737 PECOS HWY
CARLSBAD NM, 88220

Project: 118 H - COMP
Project Number: NONE GIVEN
Project Manager: MELODIE SANJARI
Fax To: (575) 236-6201

Reported:
05-Sep-19 09:05

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
L 1 - SURFACE	H902927-01	Soil	22-Aug-19 06:00	26-Aug-19 11:15
L 1 - 0.5'	H902927-02	Soil	22-Aug-19 06:10	26-Aug-19 11:15
L 2 - SURFACE	H902927-03	Soil	22-Aug-19 07:00	26-Aug-19 11:15
L 2 - 0.5'	H902927-04	Soil	22-Aug-19 07:10	26-Aug-19 11:15
L 3 - SURFACE	H902927-05	Soil	22-Aug-19 08:00	26-Aug-19 11:15
L 3 - 0.5'	H902927-06	Soil	22-Aug-19 08:10	26-Aug-19 11:15
L 4 - SURFACE	H902927-07	Soil	22-Aug-19 09:00	26-Aug-19 11:15
L 4 - 0.5'	H902927-08	Soil	22-Aug-19 09:10	26-Aug-19 11:15
L 5 - SURFACE	H902927-09	Soil	22-Aug-19 10:00	26-Aug-19 11:15
L 5 - 0.5'	H902927-10	Soil	22-Aug-19 10:10	26-Aug-19 11:15

09/04/19 - Client added TPH to sampe -02.

09/05/19 - This is the revised report and will replace the one sent on 08/29/19.

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

MMX
2737 PECOS HWY
CARLSBAD NM, 88220

Project: 118 H - COMP
Project Number: NONE GIVEN
Project Manager: MELODIE SANJARI
Fax To: (575) 236-6201

Reported:
05-Sep-19 09:05

L 1 - SURFACE**H902927-01 (Soil)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	32.0		16.0	mg/kg	4	9082818	CK	28-Aug-19	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	9082803	BF	28-Aug-19	8021B	
Toluene*	0.083		0.050	mg/kg	50	9082803	BF	28-Aug-19	8021B	
Ethylbenzene*	0.227		0.050	mg/kg	50	9082803	BF	28-Aug-19	8021B	
Total Xylenes*	1.14		0.150	mg/kg	50	9082803	BF	28-Aug-19	8021B	
Total BTEX	1.45		0.300	mg/kg	50	9082803	BF	28-Aug-19	8021B	

Surrogate: 4-Bromofluorobenzene (PID)			89.7 %		73.3-129	9082803	BF	28-Aug-19	8021B	
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Petroleum Hydrocarbons by GC FID

GRO C6-C10*	20.9		10.0	mg/kg	1	9082706	CK	28-Aug-19	8015B	
DRO >C10-C28*	701		10.0	mg/kg	1	9082706	CK	28-Aug-19	8015B	
EXT DRO >C28-C36	2560		10.0	mg/kg	1	9082706	CK	28-Aug-19	8015B	

Surrogate: 1-Chlorooctane			104 %		41-142	9082706	CK	28-Aug-19	8015B	
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Surrogate: 1-Chlorooctadecane			118 %		37.6-147	9082706	CK	28-Aug-19	8015B	
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Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

MMX
2737 PECOS HWY
CARLSBAD NM, 88220

Project: 118 H - COMP
Project Number: NONE GIVEN
Project Manager: MELODIE SANJARI
Fax To: (575) 236-6201

Reported:
05-Sep-19 09:05

L 1 - 0.5'
H902927-02 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	48.0		16.0	mg/kg	4	9082818	CK	28-Aug-19	4500-Cl-B	
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Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	9090401	MS	04-Sep-19	8015B	
DRO >C10-C28*	29.4		10.0	mg/kg	1	9090401	MS	04-Sep-19	8015B	
EXT DRO >C28-C36	318		10.0	mg/kg	1	9090401	MS	04-Sep-19	8015B	
Surrogate: 1-Chlorooctane			73.8 %	41-142		9090401	MS	04-Sep-19	8015B	
Surrogate: 1-Chlorooctadecane			76.9 %	37.6-147		9090401	MS	04-Sep-19	8015B	

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

MMX
2737 PECOS HWY
CARLSBAD NM, 88220

Project: 118 H - COMP
Project Number: NONE GIVEN
Project Manager: MELODIE SANJARI
Fax To: (575) 236-6201

Reported:
05-Sep-19 09:05

L 2 - SURFACE**H902927-03 (Soil)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	96.0		16.0	mg/kg	4	9082818	CK	28-Aug-19	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	9082803	BF	28-Aug-19	8021B	
Toluene*	<0.050		0.050	mg/kg	50	9082803	BF	28-Aug-19	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	9082803	BF	28-Aug-19	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	9082803	BF	28-Aug-19	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	9082803	BF	28-Aug-19	8021B	
Surrogate: 4-Bromofluorobenzene (PID)			87.1 %	73.3-129		9082803	BF	28-Aug-19	8021B	

Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	9082706	CK	28-Aug-19	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	9082706	CK	28-Aug-19	8015B	
EXT DRO >C28-C36	21.7		10.0	mg/kg	1	9082706	CK	28-Aug-19	8015B	
Surrogate: 1-Chlorooctane			103 %	41-142		9082706	CK	28-Aug-19	8015B	
Surrogate: 1-Chlorooctadecane			116 %	37.6-147		9082706	CK	28-Aug-19	8015B	

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

MMX
2737 PECOS HWY
CARLSBAD NM, 88220

Project: 118 H - COMP
Project Number: NONE GIVEN
Project Manager: MELODIE SANJARI
Fax To: (575) 236-6201

Reported:
05-Sep-19 09:05

L 2 - 0.5'
H902927-04 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	96.0		16.0	mg/kg	4	9082818	CK	28-Aug-19	4500-Cl-B	
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Analytical Results For:

MMX
2737 PECOS HWY
CARLSBAD NM, 88220

Project: 118 H - COMP
Project Number: NONE GIVEN
Project Manager: MELODIE SANJARI
Fax To: (575) 236-6201

Reported:
05-Sep-19 09:05

L 3 - SURFACE**H902927-05 (Soil)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	3840		16.0	mg/kg	4	9082818	CK	28-Aug-19	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050	0.050	mg/kg	50	9082803	BF	28-Aug-19	8021B	
Toluene*	<0.050	0.050	mg/kg	50	9082803	BF	28-Aug-19	8021B	
Ethylbenzene*	<0.050	0.050	mg/kg	50	9082803	BF	28-Aug-19	8021B	
Total Xylenes*	<0.150	0.150	mg/kg	50	9082803	BF	28-Aug-19	8021B	
Total BTEX	<0.300	0.300	mg/kg	50	9082803	BF	28-Aug-19	8021B	

<i>Surrogate: 4-Bromofluorobenzene (PID)</i>		87.9 %		73.3-129	9082803	BF	28-Aug-19	8021B	
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Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0	10.0	mg/kg	1	9082706	CK	28-Aug-19	8015B	
DRO >C10-C28*	<10.0	10.0	mg/kg	1	9082706	CK	28-Aug-19	8015B	
EXT DRO >C28-C36	<10.0	10.0	mg/kg	1	9082706	CK	28-Aug-19	8015B	

<i>Surrogate: 1-Chlorooctane</i>		102 %		41-142	9082706	CK	28-Aug-19	8015B	
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<i>Surrogate: 1-Chlorooctadecane</i>		116 %		37.6-147	9082706	CK	28-Aug-19	8015B	
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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

MMX
2737 PECOS HWY
CARLSBAD NM, 88220

Project: 118 H - COMP
Project Number: NONE GIVEN
Project Manager: MELODIE SANJARI
Fax To: (575) 236-6201

Reported:
05-Sep-19 09:05

L 3 - 0.5'
H902927-06 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	8930		16.0	mg/kg	4	9082818	CK	28-Aug-19	4500-Cl-B	
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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

MMX
2737 PECOS HWY
CARLSBAD NM, 88220

Project: 118 H - COMP
Project Number: NONE GIVEN
Project Manager: MELODIE SANJARI
Fax To: (575) 236-6201

Reported:
05-Sep-19 09:05

L 4 - SURFACE**H902927-07 (Soil)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	128		16.0	mg/kg	4	9082818	CK	28-Aug-19	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	9082803	BF	28-Aug-19	8021B	
Toluene*	<0.050		0.050	mg/kg	50	9082803	BF	28-Aug-19	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	9082803	BF	28-Aug-19	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	9082803	BF	28-Aug-19	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	9082803	BF	28-Aug-19	8021B	

Surrogate: 4-Bromofluorobenzene (PID)			89.6 %	73.3-129		9082803	BF	28-Aug-19	8021B	
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Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	9082706	CK	28-Aug-19	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	9082706	CK	28-Aug-19	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	9082706	CK	28-Aug-19	8015B	

Surrogate: 1-Chlorooctane			92.9 %	41-142		9082706	CK	28-Aug-19	8015B	
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Surrogate: 1-Chlorooctadecane			104 %	37.6-147		9082706	CK	28-Aug-19	8015B	
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Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

MMX
2737 PECOS HWY
CARLSBAD NM, 88220

Project: 118 H - COMP
Project Number: NONE GIVEN
Project Manager: MELODIE SANJARI
Fax To: (575) 236-6201

Reported:
05-Sep-19 09:05

L 4 - 0.5'
H902927-08 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	96.0		16.0	mg/kg	4	9082818	CK	28-Aug-19	4500-Cl-B	
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Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

MMX
2737 PECOS HWY
CARLSBAD NM, 88220

Project: 118 H - COMP
Project Number: NONE GIVEN
Project Manager: MELODIE SANJARI
Fax To: (575) 236-6201

Reported:
05-Sep-19 09:05

L 5 - SURFACE**H902927-09 (Soil)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	32.0		16.0	mg/kg	4	9082818	CK	28-Aug-19	4500-Cl-B	
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Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	9082803	BF	28-Aug-19	8021B	
Toluene*	<0.050		0.050	mg/kg	50	9082803	BF	28-Aug-19	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	9082803	BF	28-Aug-19	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	9082803	BF	28-Aug-19	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	9082803	BF	28-Aug-19	8021B	

Surrogate: 4-Bromofluorobenzene (PID)			89.8 %	73.3-129		9082803	BF	28-Aug-19	8021B	
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Petroleum Hydrocarbons by GC FID

GRO C6-C10*	<10.0		10.0	mg/kg	1	9082706	CK	28-Aug-19	8015B	
DRO >C10-C28*	<10.0		10.0	mg/kg	1	9082706	CK	28-Aug-19	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	9082706	CK	28-Aug-19	8015B	

Surrogate: 1-Chlorooctane			107 %	41-142		9082706	CK	28-Aug-19	8015B	
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Surrogate: 1-Chlorooctadecane			122 %	37.6-147		9082706	CK	28-Aug-19	8015B	
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Celey D. Keene, Lab Director/Quality Manager



PHONE (575) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

Analytical Results For:

MMX
2737 PECOS HWY
CARLSBAD NM, 88220

Project: 118 H - COMP
Project Number: NONE GIVEN
Project Manager: MELODIE SANJARI
Fax To: (575) 236-6201

Reported:
05-Sep-19 09:05

L 5 - 0.5'
H902927-10 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Chloride	32.0		16.0	mg/kg	4	9082818	CK	28-Aug-19	4500-Cl-B	
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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

MMX
2737 PECOS HWY
CARLSBAD NM, 88220

Project: 118 H - COMP
Project Number: NONE GIVEN
Project Manager: MELODIE SANJARI
Fax To: (575) 236-6201

Reported:
05-Sep-19 09:05

Inorganic Compounds - Quality Control**Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Batch 9082818 - 1:4 DI Water									
Blank (9082818-BLK1)									
					Prepared & Analyzed: 28-Aug-19				
Chloride	ND	16.0	mg/kg						
LCS (9082818-BS1)									
					Prepared & Analyzed: 28-Aug-19				
Chloride	400	16.0	mg/kg	400		100	80-120		
LCS Dup (9082818-BSD1)									
					Prepared & Analyzed: 28-Aug-19				
Chloride	416	16.0	mg/kg	400		104	80-120	3.92	20

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Analytical Results For:

MMX
2737 PECOS HWY
CARLSBAD NM, 88220

Project: 118 H - COMP
Project Number: NONE GIVEN
Project Manager: MELODIE SANJARI
Fax To: (575) 236-6201

Reported:
05-Sep-19 09:05

Volatile Organic Compounds by EPA Method 8021 - Quality Control**Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 9082803 - Volatiles**Blank (9082803-BLK1)**

Prepared & Analyzed: 28-Aug-19

Benzene	ND	0.050	mg/kg							
Toluene	ND	0.050	mg/kg							
Ethylbenzene	ND	0.050	mg/kg							
Total Xylenes	ND	0.150	mg/kg							
Total BTEX	ND	0.300	mg/kg							
Surrogate: 4-Bromofluorobenzene (PID)	0.0887		mg/kg	0.100		88.7	73.3-129			

LCS (9082803-BS1)

Prepared & Analyzed: 28-Aug-19

Benzene	1.77	0.050	mg/kg	2.00		88.6	72.2-131			
Toluene	1.95	0.050	mg/kg	2.00		97.5	71.7-126			
Ethylbenzene	2.09	0.050	mg/kg	2.00		105	68.9-126			
Total Xylenes	6.27	0.150	mg/kg	6.00		104	71.4-125			
Surrogate: 4-Bromofluorobenzene (PID)	0.0889		mg/kg	0.100		88.9	73.3-129			

LCS Dup (9082803-BSD1)

Prepared & Analyzed: 28-Aug-19

Benzene	1.68	0.050	mg/kg	2.00		83.9	72.2-131	5.48	6.91	
Toluene	1.86	0.050	mg/kg	2.00		92.8	71.7-126	4.88	7.12	
Ethylbenzene	2.01	0.050	mg/kg	2.00		101	68.9-126	4.00	7.88	
Total Xylenes	6.05	0.150	mg/kg	6.00		101	71.4-125	3.52	7.46	
Surrogate: 4-Bromofluorobenzene (PID)	0.0873		mg/kg	0.100		87.3	73.3-129			

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

MMX
2737 PECOS HWY
CARLSBAD NM, 88220

Project: 118 H - COMP
Project Number: NONE GIVEN
Project Manager: MELODIE SANJARI
Fax To: (575) 236-6201

Reported:
05-Sep-19 09:05

Petroleum Hydrocarbons by GC FID - Quality Control**Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 9082706 - General Prep - Organics**Blank (9082706-BLK1)**

Prepared: 27-Aug-19 Analyzed: 28-Aug-19

GRO C6-C10	ND	10.0	mg/kg							
DRO >C10-C28	ND	10.0	mg/kg							
EXT DRO >C28-C36	ND	10.0	mg/kg							
Surrogate: 1-Chlorooctane	53.1		mg/kg	50.0		106	41-142			
Surrogate: 1-Chlorooctadecane	59.3		mg/kg	50.0		119	37.6-147			

LCS (9082706-BS1)

Prepared: 27-Aug-19 Analyzed: 28-Aug-19

GRO C6-C10	227	10.0	mg/kg	200		113	76.5-133			
DRO >C10-C28	234	10.0	mg/kg	200		117	72.9-138			
Total TPH C6-C28	461	10.0	mg/kg	400		115	78-132			
Surrogate: 1-Chlorooctane	59.7		mg/kg	50.0		119	41-142			
Surrogate: 1-Chlorooctadecane	63.1		mg/kg	50.0		126	37.6-147			

LCS Dup (9082706-BS1)

Prepared: 27-Aug-19 Analyzed: 28-Aug-19

GRO C6-C10	227	10.0	mg/kg	200		114	76.5-133	0.151	20.6	
DRO >C10-C28	241	10.0	mg/kg	200		121	72.9-138	3.14	20.6	
Total TPH C6-C28	468	10.0	mg/kg	400		117	78-132	1.68	18	
Surrogate: 1-Chlorooctane	60.8		mg/kg	50.0		122	41-142			
Surrogate: 1-Chlorooctadecane	63.7		mg/kg	50.0		127	37.6-147			

Batch 9090401 - General Prep - Organics**Blank (9090401-BLK1)**

Prepared & Analyzed: 04-Sep-19

GRO C6-C10	ND	10.0	mg/kg							
DRO >C10-C28	ND	10.0	mg/kg							
EXT DRO >C28-C36	ND	10.0	mg/kg							
Surrogate: 1-Chlorooctane	41.4		mg/kg	50.0		82.8	41-142			
Surrogate: 1-Chlorooctadecane	43.5		mg/kg	50.0		87.0	37.6-147			

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Analytical Results For:

MMX
2737 PECOS HWY
CARLSBAD NM, 88220

Project: 118 H - COMP
Project Number: NONE GIVEN
Project Manager: MELODIE SANJARI
Fax To: (575) 236-6201

Reported:
05-Sep-19 09:05

Petroleum Hydrocarbons by GC FID - Quality Control**Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 9090401 - General Prep - Organics**LCS (9090401-BS1)**

Prepared & Analyzed: 04-Sep-19

GRO C6-C10	203	10.0	mg/kg	200		101	76.5-133			
DRO >C10-C28	211	10.0	mg/kg	200		105	72.9-138			
Total TPH C6-C28	414	10.0	mg/kg	400		103	78-132			
Surrogate: 1-Chlorooctane	44.9		mg/kg	50.0		89.8	41-142			
Surrogate: 1-Chlorooctadecane	45.0		mg/kg	50.0		90.0	37.6-147			

LCS Dup (9090401-BS1)

Prepared & Analyzed: 04-Sep-19

GRO C6-C10	199	10.0	mg/kg	200		99.3	76.5-133	2.19	20.6	
DRO >C10-C28	204	10.0	mg/kg	200		102	72.9-138	3.43	20.6	
Total TPH C6-C28	402	10.0	mg/kg	400		101	78-132	2.82	18	
Surrogate: 1-Chlorooctane	44.8		mg/kg	50.0		89.5	41-142			
Surrogate: 1-Chlorooctadecane	44.5		mg/kg	50.0		89.0	37.6-147			

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Notes and Definitions

ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

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A handwritten signature in cursive script, appearing to read "Celey D. Keene", written in black ink.

Celey D. Keene, Lab Director/Quality Manager



CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

Company Name: MMX		BILL TO		ANALYSIS REQUEST	
Project Manager: Melodie Sanjaric		P.O. #:			
Address:		Company: MMX			
City:	State:	Zip:	Attn: Lupe Carrasco		
Phone #:	Fax #:	Address:	City:		
Project #:	Project Owner:	State:	Zip:		
Project Name: 1184-Comp		Phone #:			
Project Location:		Fax #:			
Sampler Name: MRS					

Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX						DATE	TIME	BTEX	TPH	CI	TPH added 9/18 Rush	
				GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :							ACID/BASE:
4902937	L1-Surf									8/12	6:00	✓	✓	✓		
	L1-0.5'									10:10		✓	✓	✓		
	L2-Surf									7:00		✓	✓	✓		
	L2-0.5'									7:10		✓	✓	✓		
	L3-Surf									8:00		✓	✓	✓		
	L3-0.5'									8:10		✓	✓	✓		
	L4-Surf									9:00		✓	✓	✓		
	L4-0.5'									9:10		✓	✓	✓		
	L5-Surf									10:00		✓	✓	✓		
	L5-0.5'									10:00		✓	✓	✓		

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Relinquished By:	Date: 8-26-19	Received By:	Date: 9-15
Relinquished By:	Date: 11-15	Received By:	Date: 11-15

Delivered By: (Circle One) 0.92	Sample Condition	CHECKED BY: (Initials)
Sampler - UPS - Bus - Other: 0.97	Cool <input type="checkbox"/> Intact <input type="checkbox"/>	
	Yes <input type="checkbox"/> No <input type="checkbox"/>	
	Yes <input type="checkbox"/> No <input type="checkbox"/>	

REMARKS: email results to Melodie Sanjaric@soudermiller.com.

111



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

September 11, 2019

MELODIE SANJARI

MMX

2737 PECOS HWY

CARLSBAD, NM 88220

RE: 118 H - COMP

Enclosed are the results of analyses for samples received by the laboratory on 09/09/19 10:00.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-18-11. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is written in a cursive style with a large, stylized 'C' and 'K'.

Celey D. Keene

Lab Director/Quality Manager



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

MMX
 MELODIE SANJARI
 2737 PECOS HWY
 CARLSBAD NM, 88220
 Fax To: (575) 236-6201

Received: 09/09/2019
 Reported: 09/11/2019
 Project Name: 118 H - COMP
 Project Number: NONE GIVEN
 Project Location: MMX

Sampling Date: 08/22/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: L 3 - 3' (H903096-01)**Chloride, SM4500Cl-B****mg/kg****Analyzed By: AC**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	640	16.0	09/10/2019	ND	416	104	400	0.00	

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Celey D. Keene, Lab Director/Quality Manager

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Notes and Definitions

ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

Cardinal Laboratories

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A handwritten signature in cursive script, appearing to read "Celey D. Keene".

Celey D. Keene, Lab Director/Quality Manager



CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

[illegible]



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

September 26, 2019

LUPE CARRASCO

MMX

2737 PECOS HWY

CARLSBAD, NM 88220

RE: THISTLE UNIT 118H

Enclosed are the results of analyses for samples received by the laboratory on 09/23/19 12:30.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-18-11. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is written in a cursive, flowing style.

Celey D. Keene

Lab Director/Quality Manager



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Analytical Results For:

MMX
 LUPE CARRASCO
 2737 PECOS HWY
 CARLSBAD NM, 88220
 Fax To: (575) 236-6201

Received: 09/23/2019
 Reported: 09/26/2019
 Project Name: THISTLE UNIT 118H
 Project Number: NONE GIVEN
 Project Location: MMX

Sampling Date: 09/20/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: BH (H903261-01)

BTX 8021B		mg/kg		Analyzed By: BF					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	09/24/2019	ND	1.87	93.4	2.00	4.41	
Toluene*	<0.050	0.050	09/24/2019	ND	1.80	90.2	2.00	2.88	
Ethylbenzene*	<0.050	0.050	09/24/2019	ND	1.78	89.1	2.00	2.93	
Total Xylenes*	<0.150	0.150	09/24/2019	ND	5.30	88.3	6.00	3.54	
Total BTX	<0.300	0.300	09/24/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 82.0 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	96.0	16.0	09/24/2019	ND	432	108	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/24/2019	ND	202	101	200	0.0144	
DRO >C10-C28*	<10.0	10.0	09/24/2019	ND	199	99.6	200	10.3	
EXT DRO >C28-C36	<10.0	10.0	09/24/2019	ND					

Surrogate: 1-Chlorooctane 78.4 % 41-142

Surrogate: 1-Chlorooctadecane 84.2 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

MMX
 LUPE CARRASCO
 2737 PECOS HWY
 CARLSBAD NM, 88220
 Fax To: (575) 236-6201

Received: 09/23/2019
 Reported: 09/26/2019
 Project Name: THISTLE UNIT 118H
 Project Number: NONE GIVEN
 Project Location: MMX

Sampling Date: 09/20/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SW (H903261-02)

BTEx 8021B		mg/kg		Analyzed By: BF					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	09/25/2019	ND	1.87	93.4	2.00	4.41	
Toluene*	<0.050	0.050	09/25/2019	ND	1.80	90.2	2.00	2.88	
Ethylbenzene*	<0.050	0.050	09/25/2019	ND	1.78	89.1	2.00	2.93	
Total Xylenes*	<0.150	0.150	09/25/2019	ND	5.30	88.3	6.00	3.54	
Total BTEX	<0.300	0.300	09/25/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 81.3 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	96.0	16.0	09/24/2019	ND	432	108	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/24/2019	ND	202	101	200	0.0144	
DRO >C10-C28*	<10.0	10.0	09/24/2019	ND	199	99.6	200	10.3	
EXT DRO >C28-C36	<10.0	10.0	09/24/2019	ND					

Surrogate: 1-Chlorooctane 82.9 % 41-142

Surrogate: 1-Chlorooctadecane 88.5 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

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Notes and Definitions

QR-03	The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

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A handwritten signature in black ink, appearing to read "Celey D. Keene".

Celey D. Keene, Lab Director/Quality Manager

101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

+ Cardinal cannot accept verbal change. Please for ...

Appendix D Excavation Photo



District I
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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 5027

CONDITIONS

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 5027
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
bbillings	DTW not adequately defined, but values found are appropriate for closure.	9/20/2021