



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

August 19, 2019

NMOCD District 1
 811 S. First Street
 Artesia, New Mexico 88210

To Whom it May Concern:

M&M Excavating, Inc. (MMX) has prepared this Remediation Closure Report for Devon Energy Production Company that describes the release of liquids at the Thistle Unit 33 State 1 Battery. The site is in Unit C, Section 33, Township 23S, Range 33E, Latitude 32.2662888, Longitude -103.5800247, 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 33 State 1 Battery is located approximately thirty (30) miles east of Loving, New Mexico on State land at an elevation of approximately 3,680 feet above mean sea level (amsl).

Based upon well water data. (Appendix B), depth to groundwater in the area is estimated to be between 386 and 398 feet below grade surface (bgs). There one known water well within ½ mile of the location, according to the New Mexico Office of the State Engineer (NMOSE) (Figure 1). The nearest significant watercourse is the unnamed pond to the east located approximately 10,350 feet to the east.

The applicable NMOCD Closure Criteria for groundwater is greater than 100 feet bgs. However, since the site has been decommissioned and reclaimed, the site has been restored to meet the standards of Table I of 19.15.29.12 NMAC.

Table 1 demonstrates the Closure Criteria applicable to this location. Pertinent well data is attached in Appendix B.

Release Information and Closure Criteria			
Name	Thistle Unit 33 State 1 Battery		
API Number	30-025-32138		
Incident Number	1RP-5175		
Source of Release	Produced Water Tank/Lightening Strike		
Released Material	Produced Water	Released Volume	0.5 BBLS
Recovered Volume	0 BBLS	Net Release	0.5 BBLS
NMOCD Closure Criteria	>100 feet to groundwater		

Release Information

On August 10, 2018, Devon was notified that the Thistle Unit 22 State 1 Battery was on fire due to a lightning strike. The fire department was able to extinguish the fire. Because the facility had not been active at the time, as it was in the process of being decommissioned and the tanks had already been mostly emptied, approximately one-half barrel of produced water was released. Shortly after the release, all material inside of the containment was disposed of and the site was plugged and reclaimed.

Figure 1 illustrates the vicinity and site location. Figure 2 illustrates the release location. The C-141 form is included in Appendix A.

Release Characterization and Remediation Activities

On July 30, 2019, MMX personnel arrived on site in response to the release associated with Thistle Unit 22 State 1 Battery. MMX collected soil samples around the release area, including the previous location of the tank battery containment, where the fire took place. A total of twelve (12) surface samples (S1-S12), were collected for laboratory analysis for 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, the results meet NMOCD Closure Criteria, as well as the NMOCD Reclamation Requirements for the location. Any contamination was removed and disposed of at an NMOCD approved facility during the site abandonment and reclamation process. All laboratory reports are included in Appendix C.

On behalf of Devon Energy, MMX recommends no further action for this site and requests closure for the release associated with 1RP-5175.

Submitted by:
M&M Excavating, Inc.

Lupe Carrasco

Lupe Carrasco

ATTACHMENTS:

Figures:

Figure 1: Vicinity and Well Head Protection Map

Figure 2: Surface Water Radius Map

Figure 3: Site and Sample Location Map

Tables:

Table 2: NMOCD Closure Criteria Justification

Table 3: Summary of Sample Results

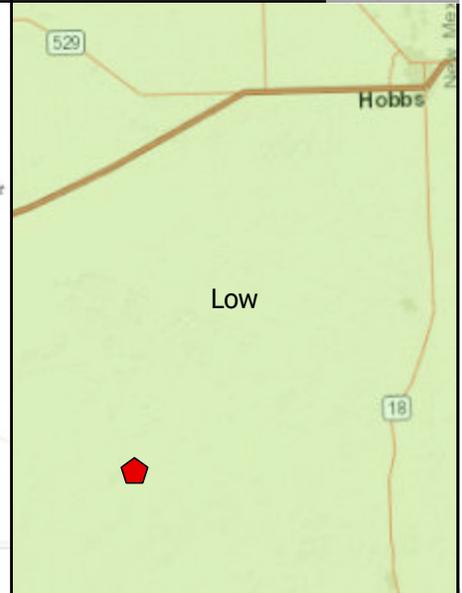
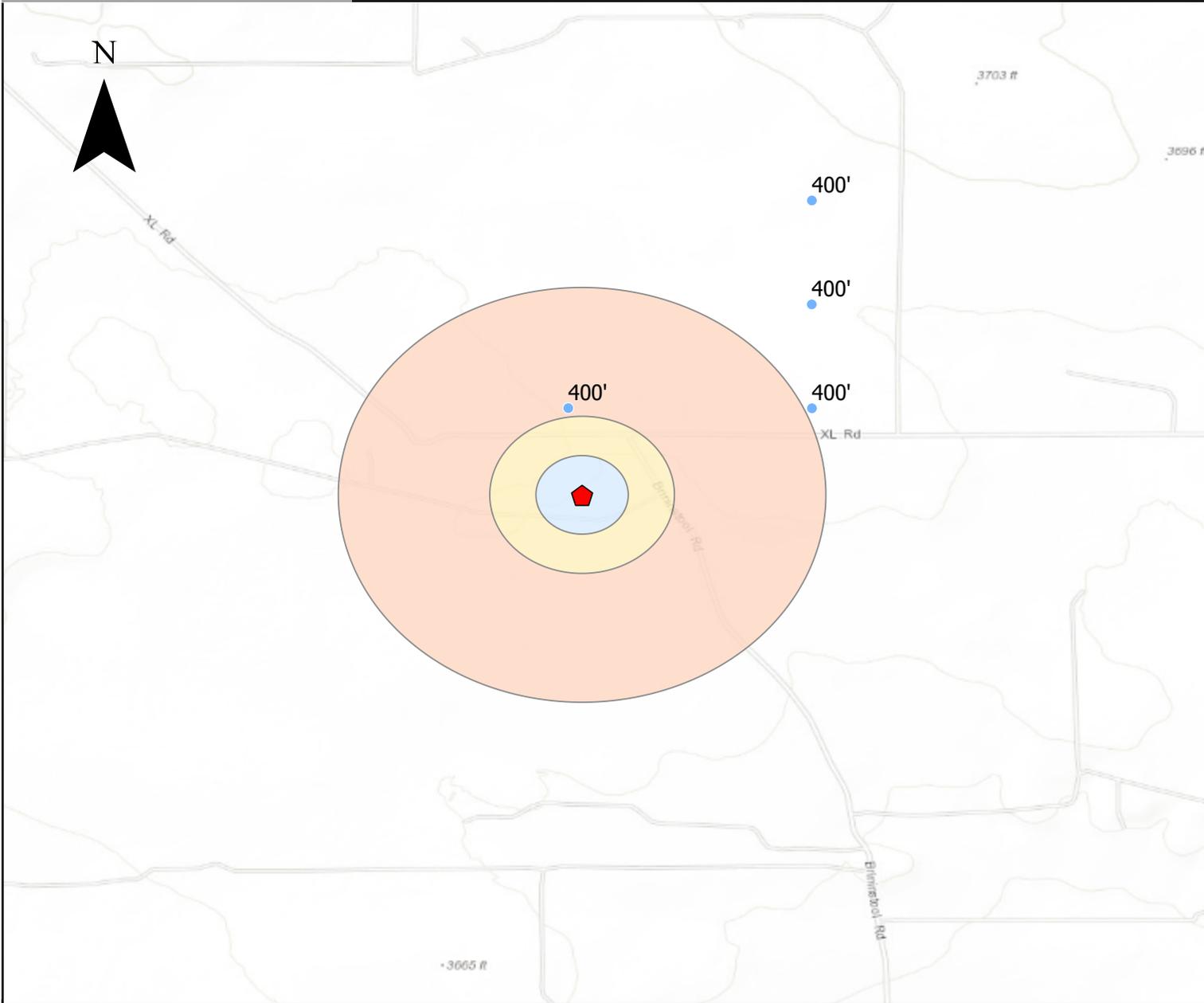
Appendices:

Appendix A: Form C-141

Appendix B: Water Well Data

Appendix C: Laboratory Analytical Reports

Figures



Karst Potential

- High
- Low
- Medium

- Point of Release
- OSE Waterwells
- USGS Waterwells

Buffer Distance

- .5 Mile
- 1000 Feet
- 500 Feet

0 0.15 0.3 0.6 Miles

Regional Vicinity & Wellhead Protection Map
 Thistle Unit 33 State 1 Battery - Devon Energy
 Sec 33 T23S R33E Lea County, New Mexico

Figure 1

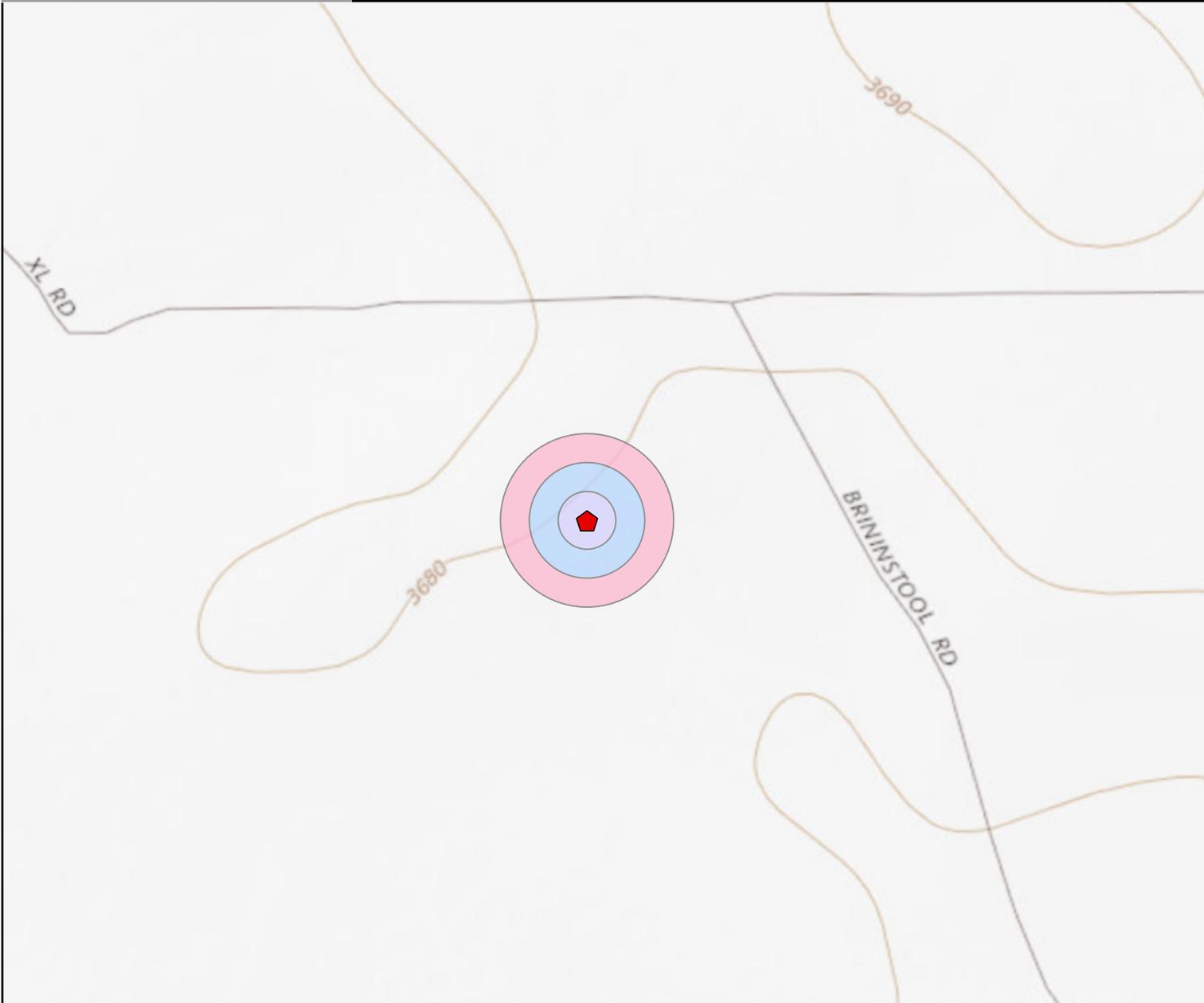
P:\5-MM Excavating (5128335)\GIS\ARCGIS\MMX_MIT.aprx

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

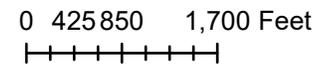
Drawn	LC
Date	7/17/2019
Checked	_____
Approved	_____



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



-  Point of Release
 -  Springs Seeps
 -  Streams Canals
 -  Rivers
 -  NM Wetlands
 -  Lakes Playas
 -  FEMA Flood Zones 2011
- Buffer Distance**
-  100 Feet
 -  200 Feet
 -  300 Feet
 -  Release Area



Surface Water Protection Map
 Thistle Unit 33 State 1 Battery - Devon Energy
 Sec 33 T23S R33E Lea County, New Mexico

Figure 2

P:\5-MM Excavating (5128335)\GIS\ARCGIS\MMX_MIT.aprx

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

Date Saved: 7/17/2019

Copyright 2019 M&M Excavating, Inc.- All Rights Reserved

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



78 Roberson Rd
 Carlsbad, NM 88220
 (575) 236-6600



- Release Area
- Sample Locations



33 Feet

Site & Sample Locations
 Thistle Unit 33 State 1 Battery - Devon Energy
 Sec 33 T23S R33E Lea County, NM

Figure 3

P:\5-MM Excavating (5128335)\GIS\ARCGIS\MMX_MIT.aprx

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

Copyright 2019 M&M Excavating, Inc. - All Rights Reserved

Drawn	LC
Date	8/9/2019
Checked	_____
Approved	_____



78 Roberson Rd
 Carlsbad, NM 88220
 (575) 236-6600

Tables

Table 2: NMOCD Closure Criteria

Thistle Unit 33 State 1 Battery
Devon Energy Production Company
1RP-5175

Site Information (19.15.29.11.A(2, 3, and 4) NMAC)	Source/Notes
Depth to Groundwater (feet bgs)	386-398 OSE (Appendix B)
Horizontal Distance From All Water Sources Within 1/2 Mile (ft)	--
Horizontal Distance to Nearest Significant Watercourse (ft)	10350 Unnamed pond to the east

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		if yes, then				
Less than 300' from continuously flowing watercourse or other significant watercourse?	x	600	100	1000	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 33 State 1 Battery
 Devon Energy Production Company
 2RP-5175

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				100	600
S1	7/30/2019	surface	<0.300	<0.050	<10.0	<10.0	<10.0	<30.0	16.0
S2		surface	<0.300	<0.050	<10.0	<10.0	<10.0	<30.0	16.0
S3		surface	<0.300	<0.050	<10.0	<10.0	<10.0	<30.0	<16.0
S4		surface	<0.300	<0.050	<10.0	<10.0	<10.0	<30.0	<16.0
S5		surface	<0.300	<0.050	<10.0	<10.0	<10.0	<30.0	<16.0
S6		surface	<0.300	<0.050	<10.0	11.3	<10.0	11.3	<16.0
S7		surface	<0.300	<0.050	<10.0	<10.0	<10.0	<30.0	<16.0
S8		surface	<0.300	<0.050	<10.0	<10.0	<10.0	<30.0	16.0
S9		surface	<0.300	<0.050	<10.0	<10.0	<10.0	<30.0	16.0
S10		surface	<0.300	<0.050	<10.0	<10.0	<10.0	<30.0	<16.0
S11		surface	<0.300	<0.050	<10.0	<10.0	<10.0	<30.0	<16.0
S12		surface	<0.300	<0.050	<10.0	<10.0	<10.0	<30.0	<16.0



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 33 State 1 Battery(well on location Thistle Unit 1)	Facility Type Battery

Surface Owner State	Mineral Owner State	API No. 30-025-32138
---------------------	---------------------	----------------------

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
C	33	23S	33E	790'	FNL	1780'	FWL	Lea

Latitude_32.2662888_ Longitude_103.5800247_ NAD83

NATURE OF RELEASE

Type of Release Produced Water	Volume of Release 1/2bbl	Volume Recovered 0bbls
Source of Release Produced Water Tank	Date and Hour of Occurrence August 10, 2018 @ 4:31 AM	Date and Hour of Discovery August 10, 2018 @ 4:31 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 Fulks, EHS Representative	Date and Hour August 11, 2018 @ 1:19 PM	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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.*
The Jal NM police department notified Devon that the battery was on fire due to a lightning strike. The Fire Department was able to extinguish the fire.

Describe Area Affected and Cleanup Action Taken.*
Approximately 1/2bbl produced water was released. This facility had mostly been emptied and was not active at the time of the strike. An Environmental contractor will be contacted to assist with further delineation and remediation efforts.

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: <i>Sheila Fisher</i>	OIL CONSERVATION DIVISION	
Printed Name: Sheila Fisher	Approved by Environmental Specialist: <i>EH</i>	
Title: Field Admin Support	Approval Date: 8/27/2018	Expiration Date:
E-mail Address: Sheila.Fisher@dvn.com	Conditions of Approval:	Attached <input type="checkbox"/>
Date: 8/13/18 Phone: 575.748.1829	<div style="border: 1px solid red; padding: 2px;"> NMAC 19.15.29 effective August 14, 2018. Complete release characterization before any significant remediation. </div>	

* Attach Additional Sheets If Necessary

1RP-5175

nCH1823931703

pCH1823932049

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

State of New Mexico
Energy Minerals and Natural
Resources Department

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

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

Incident ID	
District RP	
Facility ID	1RP-5175
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 32.2662888

Longitude -103.5800247
(NAD 83 in decimal degrees to 5 decimal places)

Site Name: Thistle Unit 33 State 1 Battery	Site Type: Tank Battery
Date Release Discovered: 8/10/18	API# (if applicable) 30-025-32138

Unit Letter	Section	Township	Range	County
C	33	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 checked="" type="checkbox"/> Produced Water	Volume Released (bbls) 1/2	Volume Recovered (bbls)
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	<input checked="" 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 caused by lightning strike. The facility had mostly been emptied and was not active at the time of the strike.

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	1RP-5175
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; 8/11/18 by Brett Faulks via email to District 1	

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 checked="" type="checkbox"/> Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices. <input checked="" 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: 	
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>Amanda Davis</u>	Title: <u>Environmental Professional</u>
Signature: <u>Amanda Davis</u>	Date: _____
email: <u>Amanda.Davis@dvn.com</u>	Telephone: <u>575-748-0176</u>
<u>OCD Only</u> Received by: _____ Date: _____	

Incident ID	
District RP	1RP-5175
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?	386 (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.

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	1RP-5175
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: Amanda Davis Title: Environmental Professional

Signature: *Amanda Davis* Date: _____

email: Amanda.Davis@dvn.com Telephone: 575-748-0176

OCD Only

Received by: _____ Date: _____

Incident ID	
District RP	1RP-5175
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) ****No remediation necessary**
- 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: Amanda Davis Title: Environmental Professional

Signature: Amanda Davis Date: _____

email: Amanda.Davis@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: _____

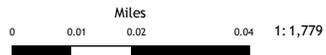
Thistle Unit 33 State 1 (well on location Thistle Unit 1)

1/2bbl pw_8.10.18



This map is for illustrative purposes only and is neither a legally recorded map nor survey and is not intended to be used as one. Devon makes no warranty, representation, or guarantee of any kind regarding this map.

WGS_1984_Web_Mercator_Auxiliary_Sphere
Prepared by: Sheila Fisher
Map is current as of: 13-Aug-2018



33 - 33E - 33
SWNW

23S

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 02279		CUB	LE	3	4	3	28	23S	33E	633691	3571173*	339	650	400	250
C 02281		CUB	LE	3	4	4	28	23S	33E	634495	3571183*	829	545	400	145
C 02280		CUB	LE	3	2	4	28	23S	33E	634489	3571586*	1058	650	400	250
C 02278		CUB	LE	3	4	2	28	23S	33E	634484	3571989*	1370	650	400	250
C 02277		CUB	LE	2	3	4	20	23S	33E	632663	3572970*	2389	550	400	150

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

Record Count: 5

UTMNAD83 Radius Search (in meters):

Easting (X): 633741

Northing (Y): 3570837

Radius: 2500

*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 3:47 PM

WATER COLUMN/ AVERAGE DEPTH TO
WATER

Appendix C Laboratory Analytical Reports



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

August 05, 2019

LUPE CARRASCO

MMX

2737 PECOS HWY

CARLSBAD, NM 88220

RE: THISTLE UNIT 33 STATE 1 BATTERY

Enclosed are the results of analyses for samples received by the laboratory on 07/31/19 9:45.

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".

Celey D. Keene

Lab Director/Quality Manager



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

Analytical Results For:

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

Received:	07/31/2019	Sampling Date:	07/30/2019
Reported:	08/05/2019	Sampling Type:	Soil
Project Name:	THISTLE UNIT 33 STATE 1 BATTERY	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

Sample ID: S 1 (H902602-01)

BTEX 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/02/2019	ND	1.95	97.5	2.00	2.95	
Toluene*	<0.050	0.050	08/02/2019	ND	2.07	103	2.00	2.48	
Ethylbenzene*	<0.050	0.050	08/02/2019	ND	2.01	100	2.00	2.59	
Total Xylenes*	<0.150	0.150	08/02/2019	ND	6.03	100	6.00	2.35	
Total BTEX	<0.300	0.300	08/02/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 100 % 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	16.0	16.0	07/31/2019	ND	400	100	400	3.92	

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	07/31/2019	ND	194	97.1	200	3.56	
DRO >C10-C28*	<10.0	10.0	07/31/2019	ND	185	92.4	200	6.64	
EXT DRO >C28-C36	<10.0	10.0	07/31/2019	ND					

Surrogate: 1-Chlorooctane 91.6 % 41-142

Surrogate: 1-Chlorooctadecane 101 % 37.6-147

Cardinal Laboratories

* = Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

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

Received:	07/31/2019	Sampling Date:	07/30/2019
Reported:	08/05/2019	Sampling Type:	Soil
Project Name:	THISTLE UNIT 33 STATE 1 BATTERY	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

Sample ID: S 2 (H902602-02)

BTEX 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/02/2019	ND	1.95	97.5	2.00	2.95	
Toluene*	<0.050	0.050	08/02/2019	ND	2.07	103	2.00	2.48	
Ethylbenzene*	<0.050	0.050	08/02/2019	ND	2.01	100	2.00	2.59	
Total Xylenes*	<0.150	0.150	08/02/2019	ND	6.03	100	6.00	2.35	
Total BTEX	<0.300	0.300	08/02/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 100 % 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	16.0	16.0	07/31/2019	ND	400	100	400	3.92	

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	07/31/2019	ND	194	97.1	200	3.56	
DRO >C10-C28*	<10.0	10.0	07/31/2019	ND	185	92.4	200	6.64	
EXT DRO >C28-C36	<10.0	10.0	07/31/2019	ND					

Surrogate: 1-Chlorooctane 89.4 % 41-142

Surrogate: 1-Chlorooctadecane 94.4 % 37.6-147

Cardinal Laboratories

* = Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

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

Received:	07/31/2019	Sampling Date:	07/30/2019
Reported:	08/05/2019	Sampling Type:	Soil
Project Name:	THISTLE UNIT 33 STATE 1 BATTERY	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

Sample ID: S 3 (H902602-03)

BTEX 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/02/2019	ND	1.95	97.5	2.00	2.95	
Toluene*	<0.050	0.050	08/02/2019	ND	2.07	103	2.00	2.48	
Ethylbenzene*	<0.050	0.050	08/02/2019	ND	2.01	100	2.00	2.59	
Total Xylenes*	<0.150	0.150	08/02/2019	ND	6.03	100	6.00	2.35	
Total BTEX	<0.300	0.300	08/02/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 100 % 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	<16.0	16.0	07/31/2019	ND	400	100	400	3.92	

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	07/31/2019	ND	194	97.1	200	3.56	
DRO >C10-C28*	<10.0	10.0	07/31/2019	ND	185	92.4	200	6.64	
EXT DRO >C28-C36	<10.0	10.0	07/31/2019	ND					

Surrogate: 1-Chlorooctane 95.7 % 41-142

Surrogate: 1-Chlorooctadecane 101 % 37.6-147

Cardinal Laboratories

* = Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

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

Received:	07/31/2019	Sampling Date:	07/30/2019
Reported:	08/05/2019	Sampling Type:	Soil
Project Name:	THISTLE UNIT 33 STATE 1 BATTERY	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

Sample ID: S 4 (H902602-04)

BTEX 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/02/2019	ND	1.95	97.5	2.00	2.95	
Toluene*	<0.050	0.050	08/02/2019	ND	2.07	103	2.00	2.48	
Ethylbenzene*	<0.050	0.050	08/02/2019	ND	2.01	100	2.00	2.59	
Total Xylenes*	<0.150	0.150	08/02/2019	ND	6.03	100	6.00	2.35	
Total BTEX	<0.300	0.300	08/02/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 102 % 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	<16.0	16.0	07/31/2019	ND	400	100	400	3.92	

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	07/31/2019	ND	194	97.1	200	3.56	
DRO >C10-C28*	<10.0	10.0	07/31/2019	ND	185	92.4	200	6.64	
EXT DRO >C28-C36	<10.0	10.0	07/31/2019	ND					

Surrogate: 1-Chlorooctane 91.0 % 41-142

Surrogate: 1-Chlorooctadecane 97.3 % 37.6-147

Cardinal Laboratories

* = Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

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

Received:	07/31/2019	Sampling Date:	07/30/2019
Reported:	08/05/2019	Sampling Type:	Soil
Project Name:	THISTLE UNIT 33 STATE 1 BATTERY	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

Sample ID: S 5 (H902602-05)

BTEX 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/02/2019	ND	1.95	97.5	2.00	2.95	
Toluene*	<0.050	0.050	08/02/2019	ND	2.07	103	2.00	2.48	
Ethylbenzene*	<0.050	0.050	08/02/2019	ND	2.01	100	2.00	2.59	
Total Xylenes*	<0.150	0.150	08/02/2019	ND	6.03	100	6.00	2.35	
Total BTEX	<0.300	0.300	08/02/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 102 % 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	<16.0	16.0	07/31/2019	ND	400	100	400	3.92	

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	07/31/2019	ND	194	97.1	200	3.56	
DRO >C10-C28*	<10.0	10.0	07/31/2019	ND	185	92.4	200	6.64	
EXT DRO >C28-C36	<10.0	10.0	07/31/2019	ND					

Surrogate: 1-Chlorooctane 88.7 % 41-142

Surrogate: 1-Chlorooctadecane 97.0 % 37.6-147

Cardinal Laboratories

* = Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

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

Received:	07/31/2019	Sampling Date:	07/30/2019
Reported:	08/05/2019	Sampling Type:	Soil
Project Name:	THISTLE UNIT 33 STATE 1 BATTERY	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

Sample ID: S 6 (H902602-06)

BTEX 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/02/2019	ND	1.95	97.5	2.00	2.95	
Toluene*	<0.050	0.050	08/02/2019	ND	2.07	103	2.00	2.48	
Ethylbenzene*	<0.050	0.050	08/02/2019	ND	2.01	100	2.00	2.59	
Total Xylenes*	<0.150	0.150	08/02/2019	ND	6.03	100	6.00	2.35	
Total BTEX	<0.300	0.300	08/02/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 100 % 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	<16.0	16.0	07/31/2019	ND	400	100	400	3.92	

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	08/05/2019	ND	194	97.1	200	3.56	
DRO >C10-C28*	<10.0	10.0	08/05/2019	ND	185	92.4	200	6.64	
EXT DRO >C28-C36	11.3	10.0	08/05/2019	ND					

Surrogate: 1-Chlorooctane 102 % 41-142

Surrogate: 1-Chlorooctadecane 110 % 37.6-147

Cardinal Laboratories

* = Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

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

Received:	07/31/2019	Sampling Date:	07/30/2019
Reported:	08/05/2019	Sampling Type:	Soil
Project Name:	THISTLE UNIT 33 STATE 1 BATTERY	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

Sample ID: S 7 (H902602-07)

BTEX 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/02/2019	ND	1.95	97.5	2.00	2.95	
Toluene*	<0.050	0.050	08/02/2019	ND	2.07	103	2.00	2.48	
Ethylbenzene*	<0.050	0.050	08/02/2019	ND	2.01	100	2.00	2.59	
Total Xylenes*	<0.150	0.150	08/02/2019	ND	6.03	100	6.00	2.35	
Total BTEX	<0.300	0.300	08/02/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 100 % 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	<16.0	16.0	07/31/2019	ND	400	100	400	3.92	

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	07/31/2019	ND	194	97.1	200	3.56	
DRO >C10-C28*	<10.0	10.0	07/31/2019	ND	185	92.4	200	6.64	
EXT DRO >C28-C36	<10.0	10.0	07/31/2019	ND					

Surrogate: 1-Chlorooctane 90.2 % 41-142

Surrogate: 1-Chlorooctadecane 98.8 % 37.6-147

Cardinal Laboratories

* = Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

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

Received:	07/31/2019	Sampling Date:	07/30/2019
Reported:	08/05/2019	Sampling Type:	Soil
Project Name:	THISTLE UNIT 33 STATE 1 BATTERY	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

Sample ID: S 8 (H902602-08)

BTEX 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/02/2019	ND	1.95	97.5	2.00	2.95	
Toluene*	<0.050	0.050	08/02/2019	ND	2.07	103	2.00	2.48	
Ethylbenzene*	<0.050	0.050	08/02/2019	ND	2.01	100	2.00	2.59	
Total Xylenes*	<0.150	0.150	08/02/2019	ND	6.03	100	6.00	2.35	
Total BTEX	<0.300	0.300	08/02/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 101 % 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	16.0	16.0	07/31/2019	ND	400	100	400	3.92	

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	07/31/2019	ND	194	97.1	200	3.56	
DRO >C10-C28*	<10.0	10.0	07/31/2019	ND	185	92.4	200	6.64	
EXT DRO >C28-C36	<10.0	10.0	07/31/2019	ND					

Surrogate: 1-Chlorooctane 88.3 % 41-142

Surrogate: 1-Chlorooctadecane 96.4 % 37.6-147

Cardinal Laboratories

* = Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

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

Received:	07/31/2019	Sampling Date:	07/30/2019
Reported:	08/05/2019	Sampling Type:	Soil
Project Name:	THISTLE UNIT 33 STATE 1 BATTERY	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

Sample ID: S 9 (H902602-09)

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/02/2019	ND	1.76	87.9	2.00	0.390	
Toluene*	<0.050	0.050	08/02/2019	ND	1.89	94.6	2.00	0.132	
Ethylbenzene*	<0.050	0.050	08/02/2019	ND	1.92	95.8	2.00	1.31	
Total Xylenes*	<0.150	0.150	08/02/2019	ND	5.82	96.9	6.00	1.22	
Total BTEX	<0.300	0.300	08/02/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 110 % 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	16.0	16.0	07/31/2019	ND	400	100	400	3.92	

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	07/31/2019	ND	194	97.1	200	3.56	
DRO >C10-C28*	<10.0	10.0	07/31/2019	ND	185	92.4	200	6.64	
EXT DRO >C28-C36	<10.0	10.0	07/31/2019	ND					

Surrogate: 1-Chlorooctane 82.0 % 41-142

Surrogate: 1-Chlorooctadecane 95.8 % 37.6-147

Cardinal Laboratories

* = Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

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

Received:	07/31/2019	Sampling Date:	07/30/2019
Reported:	08/05/2019	Sampling Type:	Soil
Project Name:	THISTLE UNIT 33 STATE 1 BATTERY	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

Sample ID: S 10 (H902602-10)

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/02/2019	ND	1.76	87.9	2.00	0.390	
Toluene*	<0.050	0.050	08/02/2019	ND	1.89	94.6	2.00	0.132	
Ethylbenzene*	<0.050	0.050	08/02/2019	ND	1.92	95.8	2.00	1.31	
Total Xylenes*	<0.150	0.150	08/02/2019	ND	5.82	96.9	6.00	1.22	
Total BTEX	<0.300	0.300	08/02/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 106 % 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	<16.0	16.0	07/31/2019	ND	400	100	400	3.92	

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	07/31/2019	ND	194	97.1	200	3.56	
DRO >C10-C28*	<10.0	10.0	07/31/2019	ND	185	92.4	200	6.64	
EXT DRO >C28-C36	<10.0	10.0	07/31/2019	ND					

Surrogate: 1-Chlorooctane 90.5 % 41-142

Surrogate: 1-Chlorooctadecane 97.9 % 37.6-147

Cardinal Laboratories

* = Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

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

Received:	07/31/2019	Sampling Date:	07/30/2019
Reported:	08/05/2019	Sampling Type:	Soil
Project Name:	THISTLE UNIT 33 STATE 1 BATTERY	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

Sample ID: S 11 (H902602-11)

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/02/2019	ND	1.76	87.9	2.00	0.390	
Toluene*	<0.050	0.050	08/02/2019	ND	1.89	94.6	2.00	0.132	
Ethylbenzene*	<0.050	0.050	08/02/2019	ND	1.92	95.8	2.00	1.31	
Total Xylenes*	<0.150	0.150	08/02/2019	ND	5.82	96.9	6.00	1.22	
Total BTEX	<0.300	0.300	08/02/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 106 % 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	<16.0	16.0	07/31/2019	ND	400	100	400	3.92	

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	07/31/2019	ND	194	97.1	200	3.56	
DRO >C10-C28*	<10.0	10.0	07/31/2019	ND	185	92.4	200	6.64	
EXT DRO >C28-C36	<10.0	10.0	07/31/2019	ND					

Surrogate: 1-Chlorooctane 88.6 % 41-142

Surrogate: 1-Chlorooctadecane 93.9 % 37.6-147

Cardinal Laboratories

* = Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

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

Received:	07/31/2019	Sampling Date:	07/30/2019
Reported:	08/05/2019	Sampling Type:	Soil
Project Name:	THISTLE UNIT 33 STATE 1 BATTERY	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

Sample ID: S 12 (H902602-12)

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/02/2019	ND	1.76	87.9	2.00	0.390	
Toluene*	<0.050	0.050	08/02/2019	ND	1.89	94.6	2.00	0.132	
Ethylbenzene*	<0.050	0.050	08/02/2019	ND	1.92	95.8	2.00	1.31	
Total Xylenes*	<0.150	0.150	08/02/2019	ND	5.82	96.9	6.00	1.22	
Total BTEX	<0.300	0.300	08/02/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 106 % 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	<16.0	16.0	07/31/2019	ND	400	100	400	3.92	

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	07/31/2019	ND	194	97.1	200	3.56	
DRO >C10-C28*	<10.0	10.0	07/31/2019	ND	185	92.4	200	6.64	
EXT DRO >C28-C36	<10.0	10.0	07/31/2019	ND					

Surrogate: 1-Chlorooctane 75.4 % 41-142

Surrogate: 1-Chlorooctadecane 80.5 % 37.6-147

Cardinal Laboratories

* = Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager



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

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

*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

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

BILL TO

ANALYSIS REQUEST

Company Name: <i>MMX</i>		P.O. #:	
Project Manager: <i>Lupe Carrasco</i>		Company: <i>MMX</i>	
Address:		Attn: <i>Lupe</i>	
City:		Address:	
Phone #:		City:	
Project #:		State:	
Project Name: <i>Right Unit 33 State 1 Battery</i>		Zip:	
Project Location:		Phone #:	
Sampler Name: <i>Pen</i>		Fax #:	
FOR LAB USE ONLY		MATRIX	
Lab I.D. <i>H902602</i>		PRESERV	
Sample I.D.		SAMPLING	
1 <i>S1</i>		DATE	
2 <i>S2</i>		TIME	
3 <i>S3</i>		BTEX	
4 <i>S4</i>		TPH	
5 <i>S5</i>		Chlorides	
6 <i>S6</i>			
7 <i>S7</i>			
8 <i>S8</i>			
9 <i>S9</i>			
10 <i>S10</i>			

PLEASE NOTE: Liability and Damages: Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Relinquished By: *Samuelson* Date: *7-31-19* Received By: *Lawrence*

Delivered By: (Circle One) *1.42* #97 Sample Condition Cool Intact Yes No No

Sampler - UPS - Bus - Other: *Converted 1.82* CHECKED BY: *AB*

REMARKS: *Lupe Carrasco*

4. Cardinal cannot accept verbal shipment. Please fax written shipment to (575) 393-2326

1002

