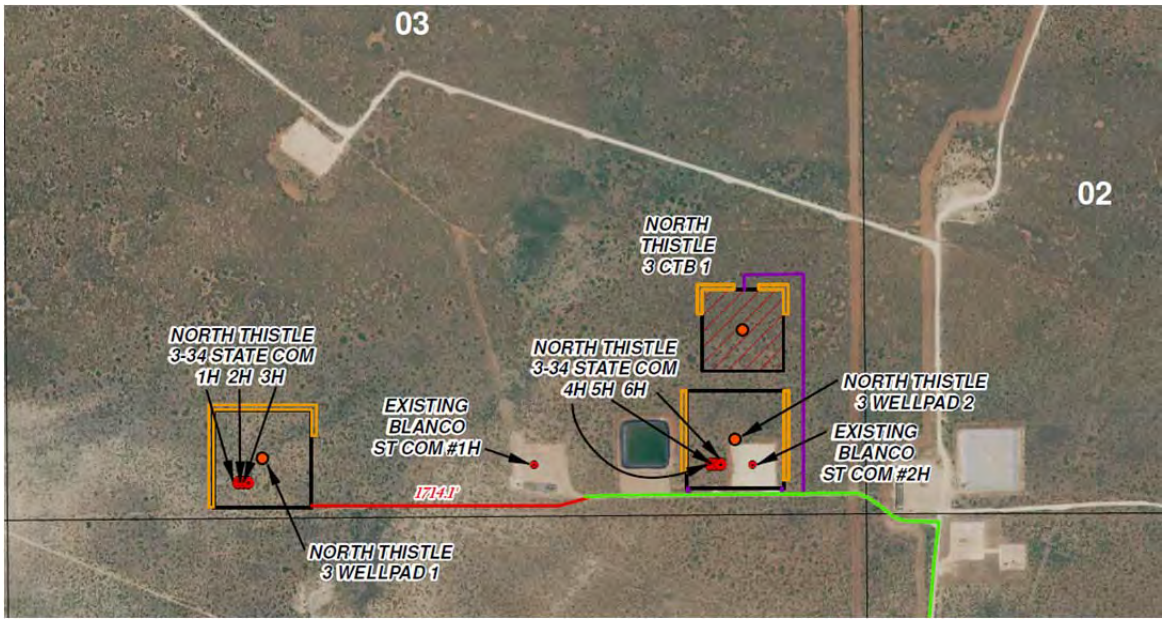
September 2018

C-144 Permit Application Package for

North Thistle 3-34 State 5H

Temporary Pit (Reserve Pit)

Section 3, T23 R33E, Lea County



North Thistle 3-34 State 5H is the central well in the eastern location shown in the image above. One reserve pit will be used to drill 4H,5H, and 6H.

Prepared for
Devon Energy Production Co. LP
Oklahoma City, OK

Prepared by
R.T. Hicks Consultants, Ltd.
Albuquerque, New Mexico

R. T. HICKS CONSULTANTS, LTD.

901 Rio Grande Blvd NW ▲ Suite F-142 ▲ Albuquerque, NM 87104 ▲ 505.266.5004 ▲ Since 1996
Artesia ▲ Carlsbad ▲ Durango ▲ Midland

September 30, 2018

Mr. Jim Griswold
Ms. Olivia Yu
NMOCD District 1
1625 French Drive
Hobbs, New Mexico 88240
VIA EMAIL

RE: Devon Energy Production Co. LP Temporary Pit C-144 Application
NORTH THISTLE 3-34 STATE COM 5H

Dear Mr. Griswold and Ms. Yu:

On behalf of Devon Energy Production Company, LP, Hicks Consultants is pleased to submit the attached C-144 application for temporary pit at the above-referenced well. Devon completed construction of the temporary pit as designed and installed a liner last week in accordance with this application and the Rule. Drilling fluid will not be discharged into the pit until this application is approved.

Please note the following:

1. The proposed temporary pit is a reserve pit. It will capture cuttings from the shale shaker and circulate the drilling fluid as the rig drills the referenced well and 2 additional wells located on the same pad (State Com 4H and State Com 6H).

2. This application is identical to the C-144 submitted for the 1H last month except for the cover, site inspection photographs, page 1 of the C-144 form, the C-102.

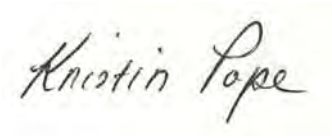
3. On September 21-22, I logged the cuttings from the drilling of the 3H conductor pipe hole located on the pad just west (1H) of this location. A memorandum summarizing this work is attached to this transmittal letter. While no groundwater was encountered to the total depth of 80 feet, we will continue to investigate the nature of the 3 feet of wet cuttings observed during the drilling of the hole (70-73 feet) by logging the drilling of one of the conductor holes at the subject site (4H, 5H, or 6H).

4. Supporting information in this submission is presented in the same order as the C-144 form to ease review. This is the same format used in the previously-submitted application for the 1H.

5. The submission requests the use of previously-approved variances, also included in the application package.

The State of New Mexico is the surface owner and a copy of this application is provided to the SLO via email. Please contact me if you have any questions or concerns regarding this application.

Sincerely,
R.T. Hicks Consultants



Kristin Pope
Senior Project Geologist

Copy: Devon Energy Production Company, LP
State Land Office

R. T. HICKS CONSULTANTS, LTD.
901 Rio Grande Blvd NW ▲ Suite F-142 ▲ Albuquerque, NM 87104 ▲ 505.266.5004 ▲ Fax: 505.266-0745

Memorandum

From: Kristin Pope

Date: September 27, 2018

RE: Devon Energy, North Thistle 3-34 State Com 3H Conductor Pipe Log

Summary

1. Dust dry cuttings from the auger from ground surface to a depth of 65 feet
2. At 65 feet, the clay in the auger was moist
3. "Wet" cuttings were evident from 70-73 feet
4. After cessation of drilling for 45 minutes at the 73-foot depth, no saturated conditions were observed in the boring
5. From 73-80 feet, moisture content decreased with depth
6. Dust dry cuttings from the auger were observed at 80 feet below grade
7. The driller reported that the conductor pipes for 1H and 2H, which are 30 and 60 feet west of the 3H conductor pipe, did not detect any wet cuttings

The gray and red claystone encountered by the auger from 15-80 feet below grade are consistent with the Chinle/Dockum Formation. Discontinuous sandstone lenses of various thicknesses are observed in the Chinle/Dockum as are thicker, more extensive sandstones that can produce water for beneficial use. The lack of wet cuttings from adjacent borings, the thin "wet" horizon from 70-73 feet and the lack of saturated conditions after standing for 45 minutes is not indicative of groundwater for beneficial use.

Logging of a conductor pipe boring at the 4H, 5H and 6H boring is planned to further investigate the nature of the observed "wet" zone that may be about 60 feet below the bottom of the reserve pit.

Method Description

The location of the North Thistle 3-34 St. 1H, 2H, and 3H wells has a surface elevation of 3,596 feet ASL and is located approximately 26 miles northwest of the city of Jal in Lea County. According to the submitted C-144 temporary pit application the uppermost water-bearing zone was expected to be encountered within the upper units of the Chinle/Dockum Group, approximately 216 feet below the location or 3,380 feet ASL. To gather the most accurate groundwater data at the site, we logged the cuttings during the installation of the borehole for the conductor pipe at the 1H and 3H wells sites.

On September 21, 2018, I arrived on location to witness the drilling of the cellar of the 1H by Butch's Rat Hole & Anchor Service to a total depth of 8 feet using a track-mounted AF-125 auger rig. I inspected the cuttings with each trip out of the hole and the lithology of the cuttings consisted of fine, light-pink sand with caliche cobbles and boulders.

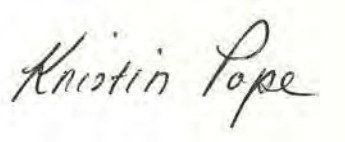
On September 22, 2018, I returned to the location at approximately 10:00 AM to find the rig drilling the conductor hole at the 3H well site. At the time of my arrival, the hole was advanced

to approximately 45 feet but the driller reported to me that the auger was in the same lithologic material since 15 feet BGS. From 45 feet to a total depth of 80 feet, I inspected the cuttings from each trip of the auger and logged the lithologic description and the presence or absence of moisture. Each trip advanced the hole approximately 2.0-2.5 feet of depth. Samples were collected from intervals in order to describe the lithology or to detect moisture. Inspection during drilling from 45 feet revealed dry cuttings. At 65 feet, moisture was observed in the clay. At 70-73 feet, the cuttings were described as "wet." During this time, the driller took a lunch break lasting approximately 45 minutes with the auger in this stratum. When drilling resumed, I observed no change in the degree of wetness of the cuttings, nor any standing water. At 73 feet, wetness dissipated and no longer described the cuttings as moisture continued decreasing with depth until 80 feet where I described cuttings as "dry."

The following lithological descriptions were observed and recorded:

45-65 feet	Mudstone, gray, slaty cleavage, dry *driller reports this material began at 15 ft*
65-70 feet	Medium clay, gray, globular-massive, ~10% pebbles & cobbles (gray, sub-rounded), moist
70-73 feet	Medium clay, red-brown, 15% pebbles (gray, angular), wet
73-80 feet	Clay, red, very fine, consolidated with platy structure, friable, moist
80-82 feet	Clay, gray, dry

The driller reported that during the drilling of the 1H conductor hole drilled earlier in the day, wet cuttings, as observed at 70-73 feet in the 3H, were not encountered. He said that if wetness was encountered in the 2H, which was to be drilled next, that the company would notify us. In subsequent communication, the driller indicated that no wet cuttings were evident.



Representative samples from each stratum encountered

Final TOOH: Dry, gray clay at 80 ft is visible at bottom half of auger

SITE PHOTOGRAPHS

View north from southern edge of location with well stakes in the center.
Location pad is under construction.

Southeast corner of location, viewing west, approx. 400 feet from nearest well stake.
Caliche road is visible on left side; well stakes in right background.

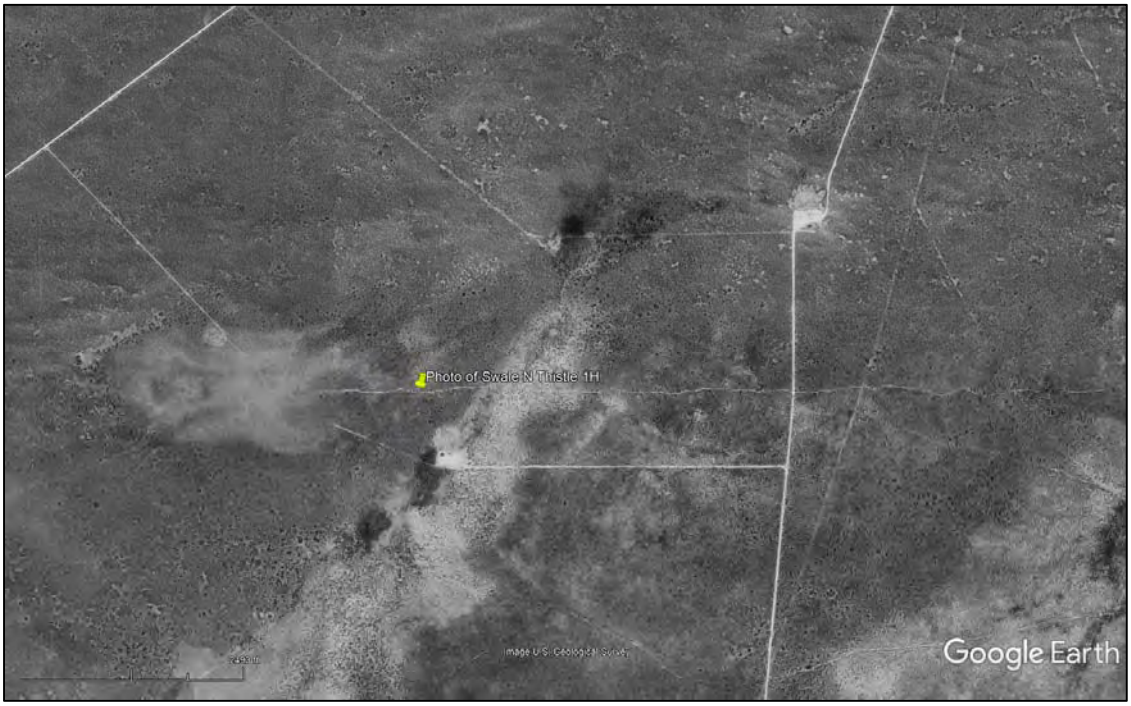
View south from the southern edge of the staked location, 150 feet south of the well stakes.
Caliche lease road at southern edge of location.

View south from the southern side of the caliche road, 200 feet south of well stakes.
Typical vegetation in the vicinity consists of shrubs such as mesquite and rabbitbrush.
Exposed soil consists of silty sand with gently sloping, low dunes.

View east from the eastern edge of the location,
approximately 400 feet east of the nearest well stake.

Northern edge of location, 450 feet north of wells stakes; view north.
Construction of location for another Devon drilling location is occurring in the background.

Shallow swale south of location along section line, viewing east 250 feet south of North Thistle 3-34 St #1H. Runs east-west parallel to dirt road and tapers out approximately 100 feet east and a few hundred feet west of #1H. Not a watercourse as defined by NMOCD Rules – is abandoned road.



This is a 2005 Google Earth image showing location of swale south of location photograph. Obviously the swale is an old, abandoned dirt track possibly an oil field road as it leads to an old location.

FORM C-144

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-144
Revised June 6, 2013

For temporary pits, below-grade tanks, and multi-well fluid management pits, submit to the appropriate NMOCD District Office.
For permanent pits submit to the Santa Fe Environmental Bureau office and provide a copy to the appropriate NMOCD District Office.

Pit, Below-Grade Tank, or Proposed Alternative Method Permit or Closure Plan Application

Type of action:
- ☐ Below grade tank registration
- ☒ Permit of a pit or proposed alternative method
- ☐ Closure of a pit, below-grade tank, or proposed alternative method
- ☐ Modification to an existing permit/or registration
- ☐ Closure plan only submitted for an existing permitted or non-permitted pit, below-grade tank, or proposed alternative method

Instructions: Please submit one application (Form C-144) per individual pit, below-grade tank or alternative request

Please be advised that approval of this request does not relieve the operator of liability should operations result in pollution of surface water, ground water or the environment. Nor does approval relieve the operator of its responsibility to comply with any other applicable governmental authority's rules, regulations or ordinances.

1.

Operator: Devon Energy Production Company, LP. OGRID #: 6137

Address: 333 W. Sheridan, Oklahoma City, OK 73102-8260

Facility or well name: North Thistle 3-34 State COM 5H (pit will be used for wells 4H, 5H, 6H)

API Number: 30-025-45073 (4H), 30-025-45074 (5H), 30-025-45075 (6H) OCD Permit Number:

U/L or Qtr/Qtr P Section 3 Township 23S Range 33E County: Lea

~~Center of~~ Proposed Design is within 90 feet of: Latitude 32.327401 Longitude -103.554555 NAD: ☐ 1927 ☒ 1983

Surface Owner: ☐ Federal ☒ State ☐ Private ☐ Tribal Trust or Indian Allotment

2.

☒ **Pit:** Subsection F, G or J of 19.15.17.11 NMAC

Temporary: ☒ Drilling ☐ Workover

☐ Permanent ☐ Emergency ☐ Cavitation ☐ P&A ☐ Multi-Well Fluid Management Low Chloride Drilling Fluid ☐ yes ☒ no

☒ Lined ☐ Unlined Liner type: Thickness 20 mil ☒ LLDPE ☐ HDPE ☐ PVC ☐ Other

☒ String-Reinforced

Liner Seams: ☒ Welded ☐ Factory ☐ Other Volume: See Plate 1 Dimensions: See Plate 1

3.

☐ **Below-grade tank:** Subsection I of 19.15.17.11 NMAC

Volume: bbl Type of fluid:

Tank Construction material:

☐ Secondary containment with leak detection ☐ Visible sidewalls, liner, 6-inch lift and automatic overflow shut-off

☐ Visible sidewalls and liner ☐ Visible sidewalls only ☐ Other

Liner type: Thickness mil ☐ HDPE ☐ PVC ☐ Other

4.

☐ **Alternative Method:**

Submittal of an exception request is required. Exceptions must be submitted to the Santa Fe Environmental Bureau office for consideration of approval.

5.

Fencing: Subsection D of 19.15.17.11 NMAC *(Applies to permanent pits, temporary pits, and below-grade tanks)*

☐ Chain link, six feet in height, two strands of barbed wire at top *(Required if located within 1000 feet of a permanent residence, school, hospital, institution or church)*

☒ Four foot height, four strands of barbed wire evenly spaced between one and four feet

☐ Alternate. Please specify

6.

Netting: Subsection E of 19.15.17.11 NMAC *(Applies to permanent pits and permanent open top tanks)*

☐ Screen ☐ Netting ☐ Other_____

☐ Monthly inspections (If netting or screening is not physically feasible)

7.

Signs: Subsection C of 19.15.17.11 NMAC

☐ 12"x 24", 2" lettering, providing Operator's name, site location, and emergency telephone numbers

☒ Signed in compliance with 19.15.16.8 NMAC

8.

Variances and Exceptions:

Justifications and/or demonstrations of equivalency are required. Please refer to 19.15.17 NMAC for guidance.

Please check a box if one or more of the following is requested, if not leave blank:

☒ Variance(s): Requests must be submitted to the appropriate division district for consideration of approval.

☐ Exception(s): Requests must be submitted to the Santa Fe Environmental Bureau office for consideration of approval

All proposed variances have been previously-approved by OCD.

9.

Siting Criteria (regarding permitting): 19.15.17.10 NMAC

Instructions: The applicant must demonstrate compliance for each siting criteria below in the application. Recommendations of acceptable source material are provided below. **Siting criteria does not apply to drying pads or above-grade tanks.**

General siting	
Ground water is less than 25 feet below the bottom of a low chloride temporary pit or below-grade tank. - ☐ NM Office of the State Engineer - iWATERS database search; ☐ USGS; ☐ Data obtained from nearby wells	☐ Yes ☐ No ☒ NA
Ground water is less than 50 feet below the bottom of a Temporary pit, permanent pit, or Multi-Well Fluid Management pit . NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells **See Figures 1 & 2**	☐ Yes ☒ No ☐ NA
Within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance adopted pursuant to NMSA 1978, Section 3-27-3, as amended. **(Does not apply to below grade tanks)** **See Figure 3** - Written confirmation or verification from the municipality; Written approval obtained from the municipality	☐ Yes ☒ No
Within the area overlying a subsurface mine. **(Does not apply to below grade tanks)** **See Figure 4** - Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division	☐ Yes ☒ No
Within an unstable area. **(Does not apply to below grade tanks)** **See Figure 5** - Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; Topographic map	☐ Yes ☒ No
Within a 100-year floodplain. **(Does not apply to below grade tanks)** **See Figure 6** - FEMA map	☐ Yes ☒ No
Below Grade Tanks	
Within 100 feet of a continuously flowing watercourse, significant watercourse, lake bed, sinkhole, wetland or playa lake (measured from the ordinary high-water mark). - Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☐ No
Within 200 horizontal feet of a spring or a fresh water well used for public or livestock consumption;. - NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site	☐ Yes ☐ No
Temporary Pit using Low Chloride Drilling Fluid (maximum chloride content 15,000 mg/liter)	
Within 100 feet of a continuously flowing watercourse, or any other significant watercourse or within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark). (Applies to low chloride temporary pits.) - Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☐ No
Within 300 feet from a occupied permanent residence, school, hospital, institution, or church in existence at the time of initial application. - Visual inspection (certification) of the proposed site; Aerial photo; Satellite image	☐ Yes ☐ No
Within 200 horizontal feet of a spring or a private, domestic fresh water well used by less than five households for domestic or stock watering purposes, or 300feet of any other fresh water well or spring, in existence at the time of the initial application. NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site	☐ Yes ☐ No

Within 100 feet of a wetland. - US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☐ No
Temporary Pit Non-low chloride drilling fluid	
Within 300 feet of a continuously flowing watercourse, or any other significant watercourse, or within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark). **See Figure 7** - Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☒ No
Within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application. - Visual inspection (certification) of the proposed site; Aerial photo; Satellite image. **See Figure 8**	☐ Yes ☒ No
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, or 1000 feet of any other fresh water well or spring, in the existence at the time of the initial application; - NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site **See Figures 1 & 2**	☐ Yes ☒ No
Within 300 feet of a wetland. **See Figure 9** - US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☒ No
Permanent Pit or Multi-Well Fluid Management Pit	
Within 300 feet of a continuously flowing watercourse, or 200 feet of any other significant watercourse, or lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark). - Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☐ No
Within 1000 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application. - Visual inspection (certification) of the proposed site; Aerial photo; Satellite image	☐ Yes ☐ No
Within 500 horizontal feet of a spring or a fresh water well used for domestic or stock watering purposes, in existence at the time of initial application. - NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site	☐ Yes ☐ No
Within 500 feet of a wetland. - US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☐ No

10.

Temporary Pits, Emergency Pits, and Below-grade Tanks Permit Application Attachment Checklist: Subsection B of 19.15.17.9 NMAC

Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.

☐ Hydrogeologic Report (Below-grade Tanks) - based upon the requirements of Paragraph (4) of Subsection B of 19.15.17.9 NMAC
☒ Hydrogeologic Data (Temporary and Emergency Pits) - based upon the requirements of Paragraph (2) of Subsection B of 19.15.17.9 NMAC
☒ Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC
☒ Design Plan - based upon the appropriate requirements of 19.15.17.11 NMAC
☒ Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC
☒ Closure Plan (Please complete Boxes 14 through 18, if applicable) - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC

☐ Previously Approved Design (attach copy of design) API Number: _____ or Permit Number: _____

11.

Multi-Well Fluid Management Pit Checklist: Subsection B of 19.15.17.9 NMAC

Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.

☐ Design Plan - based upon the appropriate requirements of 19.15.17.11 NMAC
☐ Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC
☐ A List of wells with approved application for permit to drill associated with the pit.
☐ Closure Plan (Please complete Boxes 14 through 18, if applicable) - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC
☐ Hydrogeologic Data - based upon the requirements of Paragraph (4) of Subsection B of 19.15.17.9 NMAC
☐ Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC

☐ Previously Approved Design (attach copy of design) API Number: _____ or Permit Number: _____

12.

Permanent Pits Permit Application Checklist: Subsection B of 19.15.17.9 NMAC

Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.

- ☐ Hydrogeologic Report - based upon the requirements of Paragraph (1) of Subsection B of 19.15.17.9 NMAC
- ☐ Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC
- ☐ Climatological Factors Assessment
- ☐ Certified Engineering Design Plans - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Dike Protection and Structural Integrity Design - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Leak Detection Design - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Liner Specifications and Compatibility Assessment - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Quality Control/Quality Assurance Construction and Installation Plan
- ☐ Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC
- ☐ Freeboard and Overtopping Prevention Plan - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Nuisance or Hazardous Odors, including H_2S, Prevention Plan
- ☐ Emergency Response Plan
- ☐ Oil Field Waste Stream Characterization
- ☐ Monitoring and Inspection Plan
- ☐ Erosion Control Plan
- ☐ Closure Plan - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC

13.

Proposed Closure: 19.15.17.13 NMAC

Instructions: Please complete the applicable boxes, Boxes 14 through 18, in regards to the proposed closure plan.

Type: ☒ Drilling ☐ Workover ☐ Emergency ☐ Cavitation ☐ P&A ☐ Permanent Pit ☐ Below-grade Tank ☐ Multi-well Fluid Management Pit ☐ Alternative

Proposed Closure Method:
- ☐ Waste Excavation and Removal
- ☐ Waste Removal (Closed-loop systems only)
- ☒ On-site Closure Method (Only for temporary pits and closed-loop systems)
  - ☒ In-place Burial ☐ On-site Trench Burial
- ☐ Alternative Closure Method

14.

Waste Excavation and Removal Closure Plan Checklist: (19.15.17.13 NMAC) ***Instructions: Each of the following items must be attached to the closure plan. Please indicate, by a check mark in the box, that the documents are attached.***

- ☐ Protocols and Procedures - based upon the appropriate requirements of 19.15.17.13 NMAC
- ☐ Confirmation Sampling Plan (if applicable) - based upon the appropriate requirements of Subsection C of 19.15.17.13 NMAC
- ☐ Disposal Facility Name and Permit Number (for liquids, drilling fluids and drill cuttings)
- ☐ Soil Backfill and Cover Design Specifications - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC
- ☐ Re-vegetation Plan - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC
- ☐ Site Reclamation Plan - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC

15.

Siting Criteria (regarding on-site closure methods only): 19.15.17.10 NMAC

Instructions: Each siting criteria requires a demonstration of compliance in the closure plan. Recommendations of acceptable source material are provided below. Requests regarding changes to certain siting criteria require justifications and/or demonstrations of equivalency. Please refer to 19.15.17.10 NMAC for guidance.

Ground water is less than 25 feet below the bottom of the buried waste. - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	☐ Yes ☒ No ☐ NA
Ground water is between 25-50 feet below the bottom of the buried waste - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	☐ Yes ☒ No ☐ NA
Ground water is more than 100 feet below the bottom of the buried waste. - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	☒ Yes ☐ No ☐ NA
Within 100 feet of a continuously flowing watercourse, or 200 feet of any other significant watercourse, lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark). - Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☒ No
Within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application. - Visual inspection (certification) of the proposed site; Aerial photo; Satellite image	☐ Yes ☒ No
Within 300 horizontal feet of a private, domestic fresh water well or spring used for domestic or stock watering purposes, in existence at the time of initial application. - NM Office of the State Engineer - iWATERS database; Visual inspection (certification) of the proposed site	☐ Yes ☒ No
Written confirmation or verification from the municipality; Written approval obtained from the municipality	☐ Yes ☒ No
Within 300 feet of a wetland. US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☒ No
Within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance	

adopted pursuant to NMSA 1978, Section 3-27-3, as amended. - Written confirmation or verification from the municipality; Written approval obtained from the municipality	☐ Yes ☒ No
Within the area overlying a subsurface mine. - Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division	☐ Yes ☒ No
Within an unstable area. - Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; Topographic map	☐ Yes ☒ No
Within a 100-year floodplain. - FEMA map	☐ Yes ☒ No

16.
On-Site Closure Plan Checklist: (19.15.17.13 NMAC) ***Instructions: Each of the following items must be attached to the closure plan. Please indicate, by a check mark in the box, that the documents are attached.***

- ☒ Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC
- ☒ Proof of Surface Owner Notice - based upon the appropriate requirements of Subsection E of 19.15.17.13 NMAC
- ☐ Construction/Design Plan of Burial Trench (if applicable) based upon the appropriate requirements of Subsection K of 19.15.17.11 NMAC
- ☒ Construction/Design Plan of Temporary Pit (for in-place burial of a drying pad) - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☒ Protocols and Procedures - based upon the appropriate requirements of 19.15.17.13 NMAC
- ☐ Confirmation Sampling Plan (if applicable) - based upon the appropriate requirements of 19.15.17.13 NMAC
- ☒ Waste Material Sampling Plan - based upon the appropriate requirements of 19.15.17.13 NMAC
- ☒ Disposal Facility Name and Permit Number (for liquids, drilling fluids and drill cuttings or in case on-site closure standards cannot be achieved)
- ☒ Soil Cover Design - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC
- ☒ Re-vegetation Plan - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC
- ☒ Site Reclamation Plan - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC

17.
Operator Application Certification:

I hereby certify that the information submitted with this application is true, accurate and complete to the best of my knowledge and belief.

Name (Print): Jamison Hart Title: Drilling Engineer

Signature: Date: 9-18-18

e-mail address: Jamison.Hart@dvn.com Telephone: 405-228-8370

18.
OCD Approval: XX ☐ Permit Application (including closure plan) ☐ Closure Plan (only) ☐ OCD Conditions (see attachment)

OCD Representative Signature: **Approval Date:** 11Oct18

Title: Hydrologist **OCD Permit Number:** variances approved

19.
Closure Report (required within 60 days of closure completion): 19.15.17.13 NMAC

Instructions: Operators are required to obtain an approved closure plan prior to implementing any closure activities and submitting the closure report. The closure report is required to be submitted to the division within 60 days of the completion of the closure activities. Please do not complete this section of the form until an approved closure plan has been obtained and the closure activities have been completed.

☐ **Closure Completion Date:**

20.
Closure Method:

☐ Waste Excavation and Removal ☐ On-Site Closure Method ☐ Alternative Closure Method ☐ Waste Removal (Closed-loop systems only)

☐ If different from approved plan, please explain.

21.
Closure Report Attachment Checklist: ***Instructions: Each of the following items must be attached to the closure report. Please indicate, by a check mark in the box, that the documents are attached.***

- ☐ Proof of Closure Notice (surface owner and division)
- ☐ Proof of Deed Notice (required for on-site closure for private land only)
- ☐ Plot Plan (for on-site closures and temporary pits)
- ☐ Confirmation Sampling Analytical Results (if applicable)
- ☐ Waste Material Sampling Analytical Results (required for on-site closure)
- ☐ Disposal Facility Name and Permit Number
- ☐ Soil Backfilling and Cover Installation
- ☐ Re-vegetation Application Rates and Seeding Technique
- ☐ Site Reclamation (Photo Documentation)

On-site Closure Location: Latitude Longitude NAD: ☐1927 ☐ 1983

22.

Operator Closure Certification:

I hereby certify that the information and attachments submitted with this closure report is true, accurate and complete to the best of my knowledge and belief. I also certify that the closure complies with all applicable closure requirements and conditions specified in the approved closure plan.

Name (Print): _____ Title: _____

Signature:_____ Date: _____

e-mail address:_____ Telephone: _____

FORM C-102

1.
Operator: Devon Energy Production Company, LP. OGRID #: 6137
Address: 333 W. Sheridan, Oklahoma City, OK 73102-8260
Facility or well name: North Thistle 3-34 State COM 5H (pit will be used for wells 4H, 5H, 6H)
API Number: 30-025-45073 (4H), 30-025-45074 (5H), 30-025-45075 (6H) OCD Permit Number:
U/L or Qtr/Qtr P Section 3 Township 23S Range 33E County: Lea
~~Center of~~ Proposed Design is within 90 feet of: Latitude 32.327401 Longitude -103.554555 NAD: ☐1927 ☒ 1983
Surface Owner: ☐ Federal ☒ State ☐ Private ☐ Tribal Trust or Indian Allotment

Page 1 shows latitude/longitude of surface location of well
Page 2 shows detail of well pad and adjacent wells
Page 3 shows location of reserve pit on well pad

DISTRICT I
1625 N. FRENCH DR., HOBBS, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720

DISTRICT II
811 S. FIRST ST., ARTESIA, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720

DISTRICT III
1000 RIO BRAZOS RD., AZTEC, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170

DISTRICT IV
1220 S. ST. FRANCIS DR., SANTA FE, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 SOUTH ST. FRANCIS DR.
Santa Fe, New Mexico 87505

Form C-102
Revised August 1, 2011
Submit one copy to appropriate
District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
	7320	BRINNINSTOOL;BONE SPRING

Property Code	Property Name	Well Number
	NORTH THISTLE 3-34 STATE COM	5H

OGRID No.	Operator Name	Elevation
6137	DEVON ENERGY PRODUCTION CO., L.P.	3571.1'

Surface Location

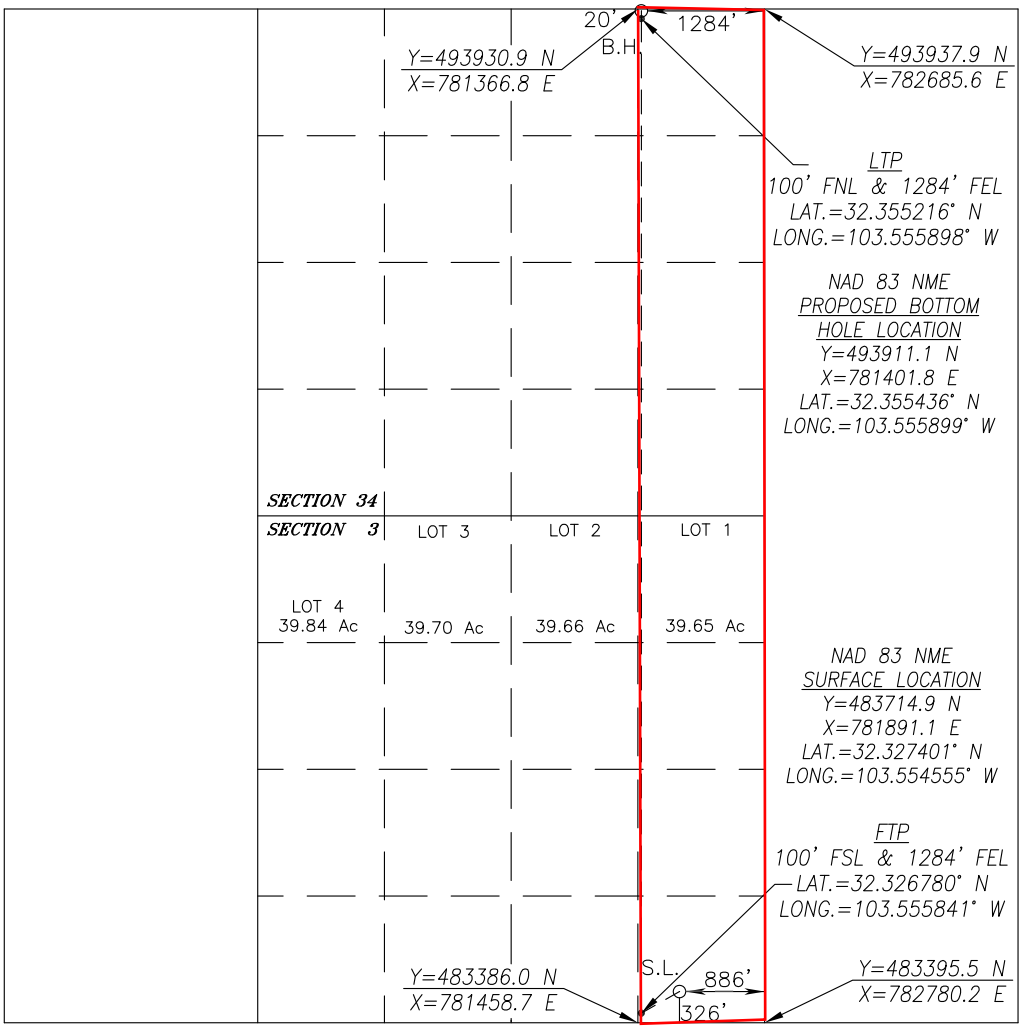
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	3	23-S	33-E		326	SOUTH	886	EAST	LEA

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	34	22-S	33-E		20	NORTH	1284	EAST	LEA

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
320			

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION



OPERATOR CERTIFICATION

I hereby certify that the information herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Rebecca Deal 8/9/2018
Signature Date

Rebecca Deal, Regulatory Analyst
Printed Name

rebecca.deal@dvn.com
E-mail Address

SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

JUNE 4, 2018
Date of Survey

Signature & Seal of Professional Surveyor

CHAD L. HARCROW
NEW MEXICO
17777
LICENSED PROFESSIONAL SURVEYOR

Chad Harcrow 7/31/18
Certificate No. CHAD HARCROW 17777

W.O. # 18-889 DRAWN BY: CD

Intent [X] As Drilled [ ]

API #

Operator Name:	Property Name:	Well Number
DEVON ENERGY PRODUCTION CO., L.P.	NORTH THISTLE 3-34 STATE COM	5H

Kick Off Point (KOP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
	3	23S	33E		50	FSL	1284	FEL	LEA

Latitude	Longitude	NAD
32.326631	-103.555850	83

First Take Point (FTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
P	3	23	33		100	S	1284	E	LEA

Latitude	Longitude	NAD
32.326780	-103.555841	83

Last Take Point (LTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
A	34	22	33		100	N	1284	E	LEA

Latitude	Longitude	NAD
32.355216	-103.555898	83

Is this well the defining well for the Horizontal Spacing Unit? [Y]

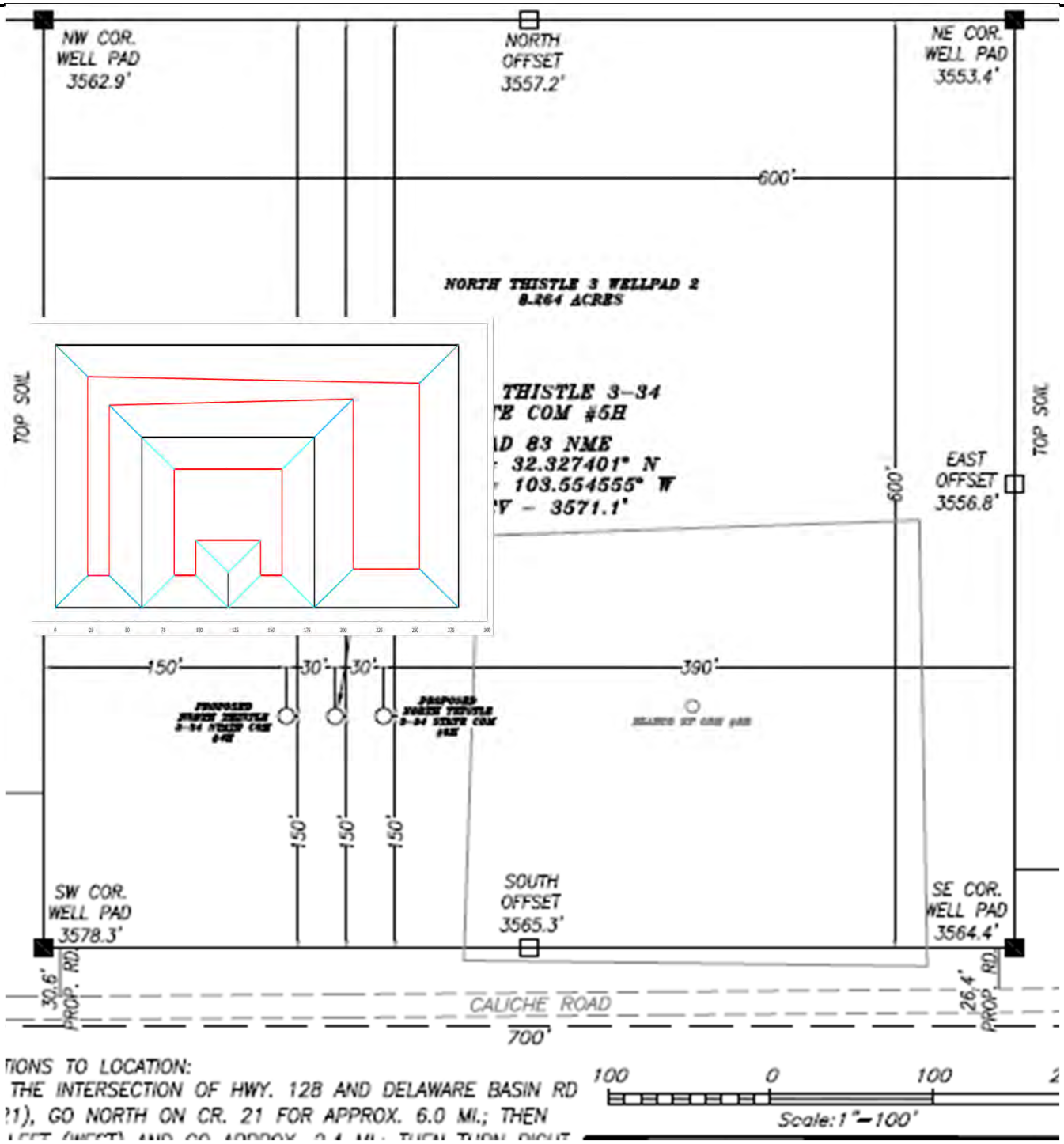
Is this well an infill well? [ ]

If infill is yes please provide API if available, Operator Name and well number for Defining well for Horizontal Spacing Unit.

API #

Operator Name:	Property Name:	Well Number

KZ 06/29/2018



- Black Lines are on the ground surface.
- Red Lines are on the Pit Floors.
- The Blue Contour Lines are at a depth of 4 feet in both pits.

R.T. Hicks Consultants 901 Rio Grande Blvd. NW Suite F-142 Albuquerque, N. M. 87104	**Drawing of Temporary Pit and Well in Relation to Pad Boundary**	**Plate 2**
	Devon North Thistle 3-34 St. 5H (+6H, 7H)	**August 2018**

WELLPAD	PAD ELEVATIONS							
	NW	N	NE	E	SE	S	SW	W
NORTH THISTLE 3 WELLPAD 2	3562.9'	3557.2'	3553.4'	3556.8'	3564.4'	3565.3'	3578.3'	3572.7'
WELL	SHL FOOTAGES				ELEV.			
NORTH THISTLE 3-34 STATE COM #4H	326' FSL & 916' FEL				3572.0'			
NORTH THISTLE 3-34 STATE COM #5H	326' FSL & 886' FEL				3571.1'			
NORTH THISTLE 3-34 STATE COM #6H	326' FSL & 856' FEL				3569.8'			

R 33 E

T 22 S

T 23 S

33 34 35

04 03 02

09 10 11

16 15 14

NORTH THISTLE 3 CTB 1

NORTH THISTLE 3-34 STATE COM 1H 2H 3H

NORTH THISTLE 3-34 STATE COM 4H 5H 6H

NORTH THISTLE 3 WELLPAD 2

EXISTING BLANCO ST COM #1H

EXISTING BLANCO ST COM #2H

NORTH THISTLE 3 WELLPAD 1

30.6'

26.4'

DEVON #: AA000149492

LEGEND

- WELL
- CENTER POINT
- WELLPAD
- TOP SOIL
- TANK BATTERY
- EXISTING ROAD
- PROPOSED ROAD
- ADDITIONAL PROPOSED ROAD

NORTH THISTLE 3 WELLPAD 2

SECTION: 3 | TOWNSHIP: 23 S. | RANGE: 33 E.

STATE: NEW MEXICO | COUNTY: LEA | SURVEY: N.M.P.M.

W.O. # 18-599-601 | LEASE: NORTH THISTLE

0 875 1,750 3,500 Feet

0 0.125 0.25 0.5 Miles

1 IN = 1,000 FT

AERIAL PHOTO | IMAGERY | A.M.

N

devon

ENERGY PRODUCTION CO. L.P.

HARCROW SURVEYING, LLC.
2314 W. MAIN ST, ARTESIA, NM 88210
PH: (575) 746-2158 FAX: (575) 746-2158
TEXAS FIRM NO. 10194089
c.harcrow@harcrowsurveying.com

ORIG: 3/2/2018
REV: 6/5/2018
REV_2: 7/31/2018

RESERVE PIT DESIGN

2.

☒ **Pit**: Subsection F, G or J of 19.15.17.11 NMAC

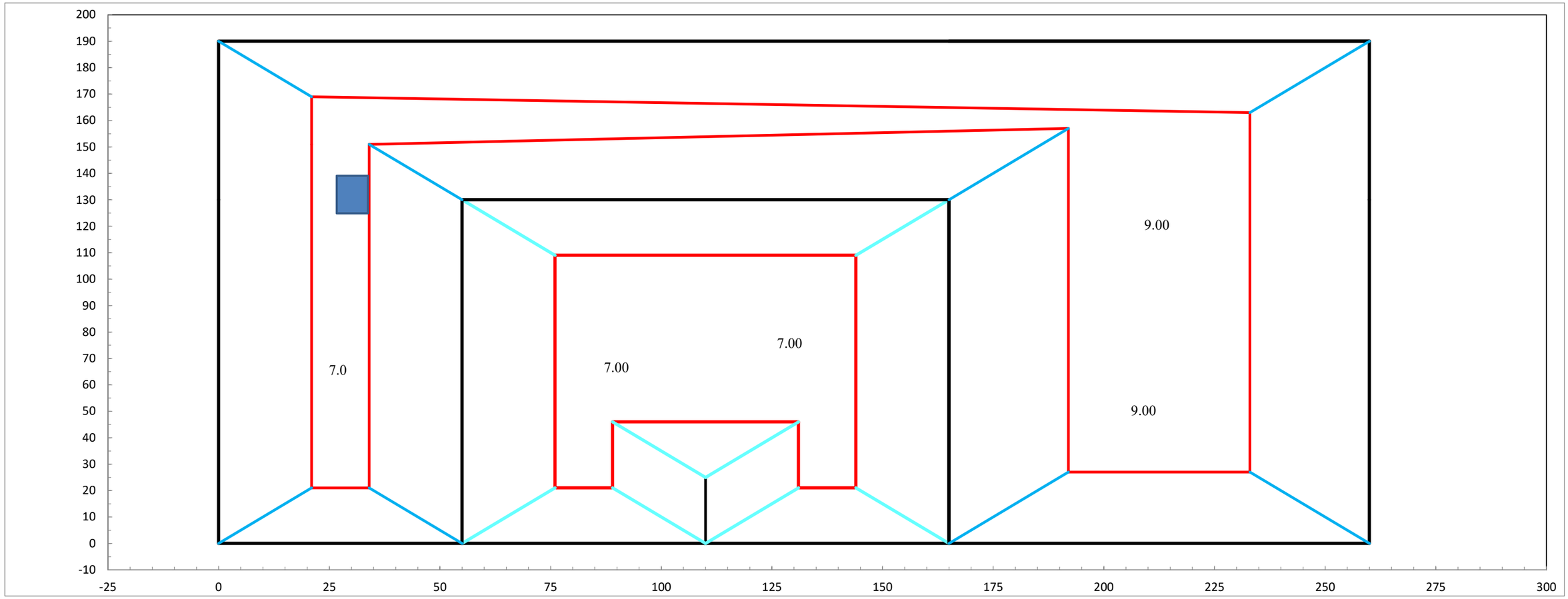
Temporary: ☒ Drilling ☐ Workover

☐ Permanent ☐ Emergency ☐ Cavitation ☐ P&A ☐ Multi-Well Fluid Management Low Chloride Drilling Fluid ☐ yes ☒ no

☒ Lined ☐ Unlined Liner type: Thickness 20 mil ☒ LLDPE ☐ HDPE ☐ PVC ☐ Other _____

☒ String-Reinforced

Liner Seams: ☒ Welded ☐ Factory ☐ Other _____ Volume: See Plate 1_Dimensions: See Plate 1



Speed Bump

Inner Horseshoe	
total width (left right)	110.00
total length (up down)	130.00
width discharge side	55.00
Depth Discharge	7.00
Depth Far Side(Discharge)	7.00
Depth Far Side(Suction)	7.00
Depth Suction	7.00
Length of Divider	25.00
Divider Width	0.00
Capacity 2' Freeboard - bbls	7159
Capacity 4' Freeboard - cu. Ft.	19713

Outer Horseshoe	
width discharge side	95.00
width suction side	55.00
length far side (up down)	60.00
Depth on Discharge Side	9.00
Depth on Far Side (Discharge)	9.00
Depth on Far Side (Suction)	7.00
Depth on Suction Side	7.00
Capacity 2' Freeboard - bbls	19300
Capacity 4' Freeboard - cu. Ft.	55536

Drilling Cell total width	**260.00**
Drilling Cell total length	**190.00**
Common Dimensions	
Slopes of Pit Horizontal Distance	3.00
Slopes of Pit Vertical Distance	1.00
Inner Outer horseshoe divider width at su	0.00
Inner Pit Suction Side	
Slopes of Pit Horizontal Distance	3.00
Slopes of Pit Vertical Distance	1.00
Outer Pit Suction Side	
Slopes of Pit Horizontal Distance	3.00
Slopes of Pit Vertical Distance	1.00

Total Capacity	**43991**	**bbls**
Fluid Capacity (2' Freeboard)	**26459**	**bbls**
Solids Capacity (4' Freeboard)	**75249**	**cubic ft**
Solids Generated	**71224**	**cubic ft**

RT Hicks Consultants Albuquerque, NM	**Pit Diagram**	**Plate 1**
	Devon North Thistle 3-34 St. 5H (+6H, 7H)	**August 2018**

GEO♦SKRIM® J24BDX1

1-SIDE TEXTURED SCRIM REINFORCED POLYETHYLENE

GeoCHEM INCORPORATED

PRODUCT DESCRIPTION

GEO♦SKRIM® J24BDX1 is a unique, single-side textured reinforced gray/black geomembrane manufactured using high strength polyethylene resins. GEO♦SKRIM® J24BDX1 is designed with a textured gray surface to minimize thermal expansion while providing a cooler working surface. The black layer includes carbon black and thermal stabilizers to assure exposed longevity. Contrasting colors also provide a vital function for ease of damage detection during the installation.

GEO♦SKRIM® J24BDX1 is manufactured utilizing a cast extrusion process to achieve a consistent friction surface with uniform asperity heights and is reinforced with a tri-directional scrim reinforcement to maximize tear and puncture resistance. The SurGrip™ textured surface consists of a diagonal cross-hatch pattern with equally raised self-draining treads. GEO♦SKRIM® J-Series membranes are formulated with thermal and UV stabilizers to assure exceptional longevity. Custom colors are available based on minimum volume requirements.

PRODUCT USE

GEO♦SKRIM® J24BDX1 is used in applications that demand exceptional tear and puncture strength, and resistance to thermal expansion. GEO♦SKRIM® J24BDX1 is manufactured from a chemically-resistant, linear-low-density polyethylene with excellent environmental stress crack resistance.

An aggressive cross-hatch raised texture on the gray side provides a non-skid surface for enhanced jobsite safety.

SIZE & PACKAGING

GEO♦SKRIM® J24BDX1 is available in a variety of widths and lengths to meet the project requirements. Large diameter mill rolls are available to assure an efficient seaming process. Factory welded panels are produced in a quality controlled environment and are accordion folded and tightly rolled on a heavy-duty core for ease of handling and time saving installation.

Rig-site Pad Liner

PRODUCT	PART #
GEO♦SKRIM	J24BDX1

APPLICATIONS

- Waste Lagoon Liners
- Floating Covers
- Modular Tank Liners
- Tunnel Liners
- Remediation Liners
- Earthen Liners
- Secondary Containment
- Interim Landfill Covers
- Remediation Covers
- Landfill Caps
- Erosion Control Covers
- Canal Liners
- Disposal Pit Liner
- Water Containment Ponds

GEO♦SKRIM J24BDX1

1-SIDE TEXTURED SCRIM REINFORCED POLYETHYLENE

PRO-FORMA DATA SHEET

		GEO♦SKRIM® J24BDX1	
		TYPICAL	
PROPERTIES	TEST METHOD	IMPERIAL	METRIC
Appearance		Gray/Black 1-Side Texture	
Thickness, Nominal		24 Mil	0.61 mm
Asperity Height		12 Mil	0.30 mm
Weight	ASTM D751	105 lbs/MSF	513 g/m^2
Construction		Extrusion laminated with scrim reinforcement	
[2] Grab Tensile Strength	ASTM D7004	130 lbs	578 N
[2] Grab Tensile Elongation	ASTM D7004	17 %	17 %
[3] Tongue Tear	ASTM D5884	55 lbs	244 N
CBR Puncture Resistance	ASTM D6241	338 lbs	1500 N
WVTR	ASTM E96	0.011 grains/ft^2•hr	0.184 g/m^2•day
Perm Rating	ASTM E96	0.027 Perms	0.018 g/m^2•day•mm Hg
Hydraulic Conductivity	ASTM E96	2.2x10^{-10} cm/sec	
Maximum Static Use Temperature		180° F	82° C
Minimum Static Use Temperature		-70° F	-57° C

[2] Tests are an average of primary reinforcement directions.
[3] Tests are an average of machine and transverse directions.

PRO-FORMA SHEET CONTENTS: The data listed in the Pro-Forma data sheet is representative of initial production runs. These values may be revised at anytime without notice as additional test data becomes available.

GeoCHEM, INC. / Engineered Films Division
Sales & Procurement Center - Phone No. (907) 562-5755 ~ Fax No. 206.219.3740
WA State Sales - Phone No. (206) 774.8777 ~ Toll Free: 1 (800) 490.5320
GeoCHEM Website: http://www.geocheminc.com
Contact Us: http://www.geocheminc.com/contactus.php

GeoCHEM INCORPORATED

PREVIOUSLY APPROVED VARIANCES

8.
Variances and Exceptions:
Justifications and/or demonstrations of equivalency are required. Please refer to 19.15.17 NMAC for guidance.

Please check a box if one or more of the following is requested, if not leave blank:

- ☒ Variance(s): Requests must be submitted to the appropriate division district for consideration of approval.
- ☐ Exception(s): Requests must be submitted to the Santa Fe Environmental Bureau office for consideration of approval

All proposed variances have been previously-approved by OCD.

Request for Alternative to Re-Vegetation and Re-Contouring

The Pit Rule states:

> 19.15.17.13 H.1.(b**)** The operator may propose an alternative to the re-vegetation or re-contouring requirement if the operator demonstrates to the appropriate district office that the proposed alternative provides equal or better prevention of erosion, and protection of fresh water, public health and the environment. The proposed alternative shall be agreed upon by the surface owner. The operator shall submit the proposed alternative, with written documentation that the surface owner agrees to the alternative, to the division for approval.
>
> and
>
> 19.15.17.13 H (5) Reclamation and re -vegetation.
> (a) Reclamation of areas no longer in use. All areas disturbed by the closure of pits and below-grade tanks, except areas reasonably needed for production operations or for subsequent drilling operations, shall be reclaimed as early and as nearly as practicable to their original condition or their final land use and shall be maintained to control dust and minimize erosion to the extent practicable.

We do not believe a request for this proposed alternative constitutes a formal variance principally because the alternative is temporary in nature.

Devon proposes construction of a 1-foot thick production pad over the stabilized cuttings, capping liner and 3-feet of clean material. Upon plugging and abandonment of the wells on the pad, the entire location, including the pit sites, will be restored to meet the mandates of the Pit Rule.

The 1-foot thick surface of the production pad over the buried waste will be sloped to shed surface water and prevent ponding over the stabilized cuttings, liner and 3-feet of soil cover. Hicks Consultants maintains that a compacted caliche pad that is sloped to shed precipitation and minimize infiltration provides equal protection of the environment as re-vegetation and re-establishment of the sand dunes that characterize the area. The sloped caliche pad will cause less infiltration of precipitation than the sand dunes. Restoration of the location at plugging and abandonment of the wells will occur. Thus, Devon is requesting this alternative only for the time between present and P&A of the wells.

Statement Explaining Why the Applicant Seeks a Variance

The prescriptive mandates of the Rule that are the subject of this variance request are the following subsections of 19.15.17.16 [emphasis added]:

> 19.15.17.13 CLOSURE AND SITE RECLAMATION REQUIREMENTS:
> D.(5) The operator shall collect, at a minimum, a five point composite of the contents of the temporary pit or drying pad/tank associated with a closed-loop system to demonstrate that, after the waste is solidified or stabilized with soil or other non-waste material at a ratio of no more than 3:1 soil or other non-waste material to waste, the concentration of any contaminant in the stabilized waste is not higher than the parameters listed in Table II of 19.15.17.13 NMAC.

The referenced Table II, which is reproduced in part below, notes the Method with asterisk signifying: "*Or other test methods approved by the division".

Table II
Closure Criteria for Burial Trenches and Waste Left in Place in Temporary Pits

Depth below bottom of pit to groundwater less than 10,000 mg/l TDS	Constituent	Method*	Limit**
25-50 feet	Chloride	EPA Method 300.0	20,000 mg/kg
	TPH	EPA SW-846 Method 418.1	100 mg/kg

After sampling solids of more than 50 drilling pits in the Permian Basin, we have observed and reported to OCD on numerous occasions significant problems with non-petroleum drilling additives (e.g. starch) interfering with the laboratory method 418.1. It is not surprising that in many instances we found no correlation between the laboratory results using 418.1 and the results using Method 8015.

We request a variance to substitute Method 8015 (GRO + DRO + MRO) for Method 418.1.

Demonstration That the Variance Will Provide Equal or Better Protection of Fresh Water, Public Health and the Environment

The purpose of TPH analyses in the Pit Rule is to measure total petroleum hydrocarbons not all non-polar compounds, such as starch or cellulose that can interfere with Method 418.1. While Method 418.1 may provide some useful data for transportation of crude oil or condensate spills to disposal, the addition of non-polar organic materials in drilling fluids, especially for horizontal wells, renders Method 418.1 highly problematic to determine compliance with the Rule. Using Method 8015 for TPH (GRO+DRO+MRO) provides a better measurement of what we believe the Commission intended operators to measure.

From: Oberding, Tomas, EMNRD
To: Kristin Pope
Cc: ccottrell@jdmii.com; Chace Walls; gboans@jdmii.com; Randy Hicks; Griswold, Jim, EMNRD
Subject: RE: VARIANCE REQUEST: Murchison - Jackson Unit #17H
Date: Thursday, December 18, 2014 8:16:05 AM

Aloha Ms. Pope et al,

Thank you for sending in this variance request.
After discussions, OCD approves the substitution of 8015 B, C, or D for 418.1. Hydrocarbons between C6 and C36 must be included in the results.
As 8015M appears to cover GRO+DRO+MRO- this too is an appropriate alternate methodology.

Thank you for continuing to work with the OCD.
Please let me know if you have any questions.
-Doc

Tomáš 'Doc' Oberding, PhD
Senior Environmental Specialist
New Mexico Oil Conservation Division, District 1
Energy, Minerals and Natural Resources Department
(575) 393-6161 ext 111
E-Mail: tomas.oberding@state.nm.us

OCD approval does not relieve the operator of liability should their operations fail to adequately investigate and remediate contamination that may pose a threat to ground water, surface water, human health or the environment. In addition, OCD approval does not relieve the operator of responsibility for compliance with any other federal, state, local laws and/or regulations.

If you have any questions or concerns, and for notification, please contact me.

From: Kristin Pope [mailto:kristin@rthicksconsult.com]
Sent: Tuesday, December 16, 2014 7:51 AM
To: Oberding, Tomas, EMNRD
Cc: ccottrell@jdmii.com; Chace Walls; gboans@jdmii.com; Randy Hicks; Griswold, Jim, EMNRD
Subject: VARIANCE REQUEST: Murchison - Jackson Unit #17H

Dr. Oberding:

Please find the attached variance request we discussed over the phone last week. During our phone call, I was mistaken on the closure deadline for this site; the closure deadline for this is January 14, 2015. Per our discussion, note that I've copied Jim Griswold on this submission.
Please let me know if we can assist NMOCD's review in any way. Thank you.

Kristin Pope
R.T. Hicks Consultants

Statement Explaining Why the Applicant Seeks a Variance

The prescriptive mandates of the Rule that are the subject of this variance request are the following subsections of 19.15.17.13.E:

> **E. Closure notice.**
>
> **(1) The operator shall notify the surface owner by certified mail, return receipt requested that the operator plans closure operations at least 72 hours, but not more than one week, prior to any closure operation. Notice shall include well name, API number and location. Evidence of mailing of the notice to the address of the surface owner shown in the county tax records is sufficient to demonstrate compliance with this requirement.**

Hicks Consultants includes the SLO or BLM by carbon copy of the closure notice emails sent to NMOCD. This eliminates a delay in receipt of the notice by SLO or BLM and facilitates real-time dialogue between the surface owner, NMOCD, Hicks Consultants, and the operator should any questions arise about the closure. On November 24, 2014, Ed Martin of SLO confirmed that email is an acceptable method of copy for the notices of closure. BLM routinely accepts such email notifications.

Demonstration that the Variance Will Provide Equal or Better Protection of Fresh Water, Public Health and the Environment

Approval of an email copy of the closure notice for a temporary pit to substitute for one sent via U.S. Mail would offer a reduction of paper received and stored at the State Land Office and well as energy expended (carbon-emitted) to produce and ship the document. Lowering the carbon footprint provides better protection of the environment than compliance with the prescriptive mandate of the Rule.

From:	Oberding, Tomas, EMNRD
To:	Kristin Pope
Cc:	ccottrell@jdmii.com; Randy Hicks; gboans@jdmii.com; Chace Walls; Martin, Ed
Subject:	RE: VARIANCE REQUEST: Email substitution for pit closure notices
Date:	Wednesday, January 07, 2015 10:13:08 AM

Ms. Pope,

This email is fine for OCD documentation, for the current site closure.
Mahalo
-Doc

Tomáš 'Doc' Oberding, PhD
Senior Environmental Specialist
New Mexico Oil Conservation Division, District 1
Energy, Minerals and Natural Resources Department
(575) 393-6161 ext 111
E-Mail: tomas.oberding@state.nm.us

If you have any questions or concerns, and for notification, please contact me.

From: Kristin Pope [mailto:kristin@rthicksconsult.com]
Sent: Wednesday, December 31, 2014 1:35 PM
To: Oberding, Tomas, EMNRD
Cc: ccottrell@jdmii.com; Randy Hicks; gboans@jdmii.com; Chace Walls; Martin, Ed
Subject: VARIANCE REQUEST: Email substitution for pit closure notices

Dr. Oberding:

Please find the attached variance request for a substitution of email to SLO in lieu of temporary pit closure notices submitted via US Mail, return receipt requested. It is referenced for the Murchison – Jackson Unit #14H but I also submitted a closure report for the Jackson Unit #16H.

Please contact me with any questions about this upon your return to work. Thank you.

Kristin Pope
R.T. Hicks Consultants
Carlsbad Field Office
575.302.6755

GENERAL SITING CRITERIA

General siting

Ground water is less than 25 feet below the bottom of a low chloride temporary pit or below-grade tank. - ☐ NM Office of the State Engineer - iWATERS database search; ☐ USGS; ☐ Data obtained from nearby wells	☐ Yes ☐ No ☒ NA
Ground water is less than 50 feet below the bottom of a Temporary pit, permanent pit, or Multi-Well Fluid Management pit . NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells See Figures 1 & 2	☐ Yes ☒ No ☐ NA
Within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance adopted pursuant to NMSA 1978, Section 3-27-3, as amended. **(Does not apply to below grade tanks)** See Figure 3 - Written confirmation or verification from the municipality; Written approval obtained from the municipality	☐ Yes ☒ No
Within the area overlying a subsurface mine. **(Does not apply to below grade tanks)** See Figure 4 - Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division	☐ Yes ☒ No
Within an unstable area. **(Does not apply to below grade tanks)** See Figure 5 - Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; Topographic map	☐ Yes ☒ No
Within a 100-year floodplain. **(Does not apply to below grade tanks)** See Figure 6 - FEMA map	☐ Yes ☒ No

Distance to Groundwater

Figure 1, Figure 2, and the discussion presented below demonstrates that groundwater (fresh water as defined by NMOCD Rules) at the location is greater than 100 feet beneath the temporary pit that will contain fluids that cannot be classified as "low-chloride." Groundwater will be more than 50 feet below the bottom of the buried waste, meeting criteria for in-place closure.

Figure 1 is a geologic/ topographic map that shows:

1. The location of the staked well locations as a hexagon with the surface elevation. The temporary pit lies within 200 feet of the staked well as shown on the attached C-103 package.
2. Water wells from the OSE database as a blue triangle inside colored circles that indicate well depth. OSE wells are often miss-located in the WATERS database as older wells are plotted in the center of the quarter, quarter, quarter, of the Section Township and Range. Well numbers correspond to the identifiers in the OSE database.
3. Water wells from the USGS database as triangles. Well numbers correspond to an identifier in the USGS database.
4. Water wells, which are not documented in the public databases but were identified by field inspection or other published reports as colored squares. These well numbers correspond to the Hicks Consultants internal database.
5. The depth-to-water from the most recent available measurement for each well is provided adjacent to the well symbol.

Figure 2 is an area topographic map that shows:

1. The location of the proposed temporary pits as hexagons.
2. Water wells measured by the USGS, the year of the measurement and the calculated elevation of the groundwater surface.
3. Three of the four MISC wells in Figure 2 have data as measured by Hicks Consultants
4. Isocontour lines displaying the elevation of the groundwater surface are based upon these measurements made by professionals.

We relied upon the most recent data measured by the USGS to create the water table elevation map shown in Figure 2 and data from the Hicks Consultants database. Water level data from the OSE database rely upon observed water levels by drillers during the completion of the water well. The OSE dataset provides some useful data in certain areas. The area shown in Figure 2 contains sufficient high-quality data that we did not rely on OSE values.

For the potentiometric surface map (Figure 2), we honored all data that we know are accurate to the best of our knowledge.

From these data, we conclude:

- Based upon the groundwater map of the regional aquifer (permeable units in the upper Chinle/Dockum), the elevation of the groundwater surface beneath the
    - North Thistle 3-34 State 1H pit is about 3380 feet above sea level (asl) and
    - North Thistle 3-34 State 5H pit is about 3320.

- No perched, shallow groundwater zones are present within the area near the proposed pit.
- The *minimum* distance between the bottom of a 12-foot deep temporary pit and the potentiometric surface of the regional aquifer is approximately
  - (3596-12-3380 =) 204 feet for the North Thistle 3-34 State 1H pit and
  - (3572-12-3320=) 240 feet for the North Thistle 3-34 State 5H pit
- The steep potentiometric surface trending northeast and southwest in the northeast quadrant of Figure 2 mimics the topographic and structural surface associated with the San Simon Swale.

Distance to Municipal Boundaries and Fresh Water Fields

Figure 3 demonstrates that the location is not within incorporated municipal boundaries or within defined municipal fresh water well fields covered under a municipal ordinance adopted pursuant to NMSA 1978, Section 3-27-3, as amended. This also qualifies the location for burial trench or in-place closure.

- The closest municipalities are
  - Jal, approximately 26 miles to the southeast and
  - Eunice, approximately 26 miles to the east-northeast
- The closest public wells listed in the OSE database are in Jal, but Eunice obviously has public wells that are not specifically listed in the OSE database.

Distance to Subsurface Mines

Figure 4 and our general reconnaissance of the area demonstrate that the nearest mines are caliche pits. This location is not within an area overlying a subsurface mine.

- The nearest mapped caliche pit is located approximately 1.5 miles to the northwest.

Distance to High or Critical Karst Areas

Figure 5 shows the location of the temporary pits with respect to BLM Karst areas.

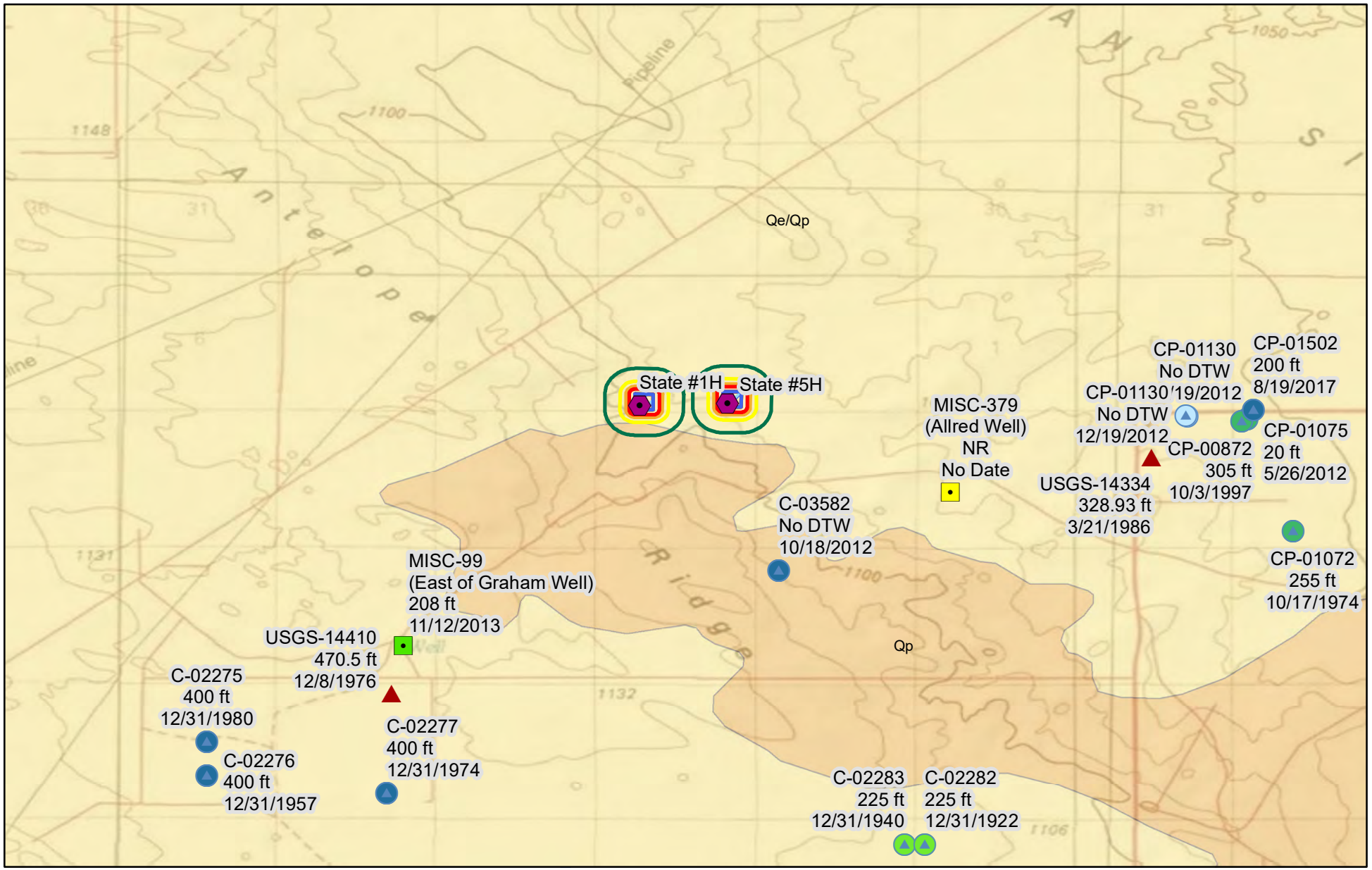
- The proposed temporary pit is located within a "low" potential karst area.
- The nearest "high" or "critical" potential karst area is located approximately 18 miles west of the site.
- No evidence of solution voids were observed near the site during the field inspection.
- No evidence of unstable ground was observed.
- The San Simon Sink may be an active sinkhole and this structure is about 8 miles east of the proposed pits.

Distance to 100-Year Floodplain

Figure 6 demonstrates that the location is within Zone D as designated by the Federal Emergency Management Agency with respect to the Flood Insurance Rate 100-Year Floodplain.

- Zone D is described as areas with possible but undetermined flood hazards. No flood hazard analysis has been conducted.
- Our field inspection and examination of the topography permits a conclusion that the location is not within any floodplain and has low risk for flooding.

M:\Devon Energy\North Thistle 3-34\ap_nmGIS\Figures\figure1_GeoIDTW.mxd



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0 0.5 1 Miles

R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Depth To Water and Geology	Figure 1
	Devon Energy Production CO., L.P. North Thistle 3-34	August 2018

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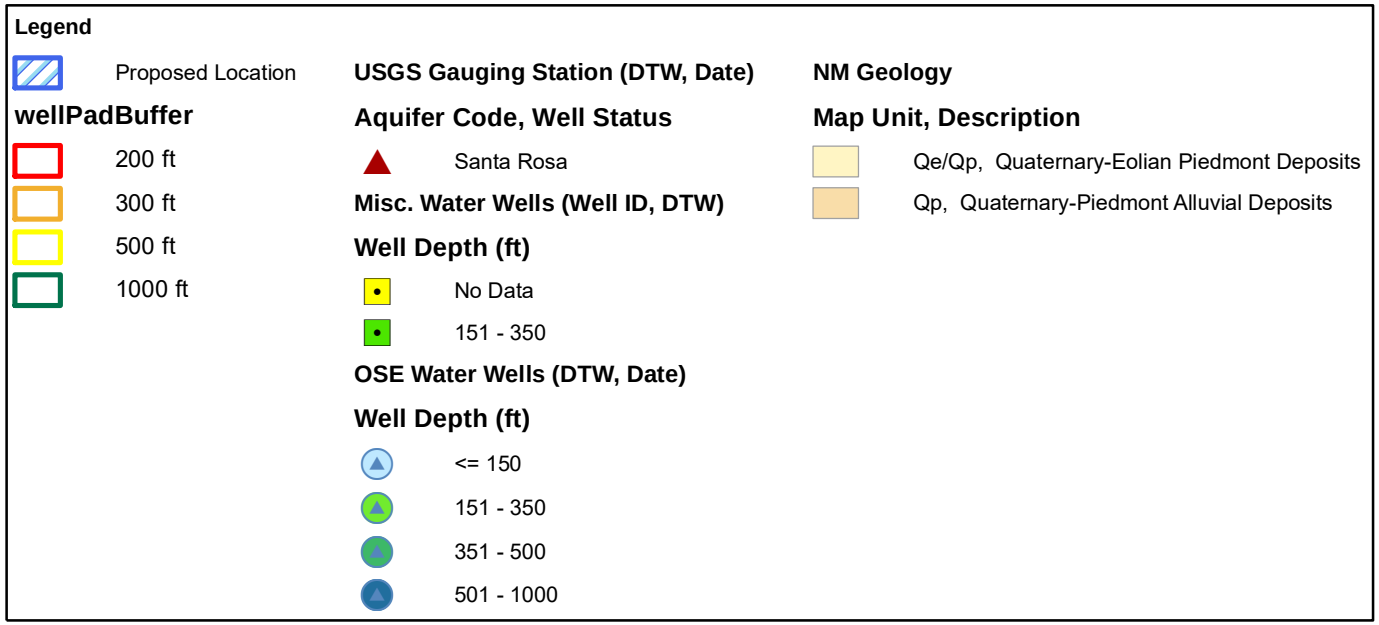

R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Depth To Water and Geology	Figure 1 LGEND
	Devon Energy Production CO., L.P. North Thistle 3-34	August 2018

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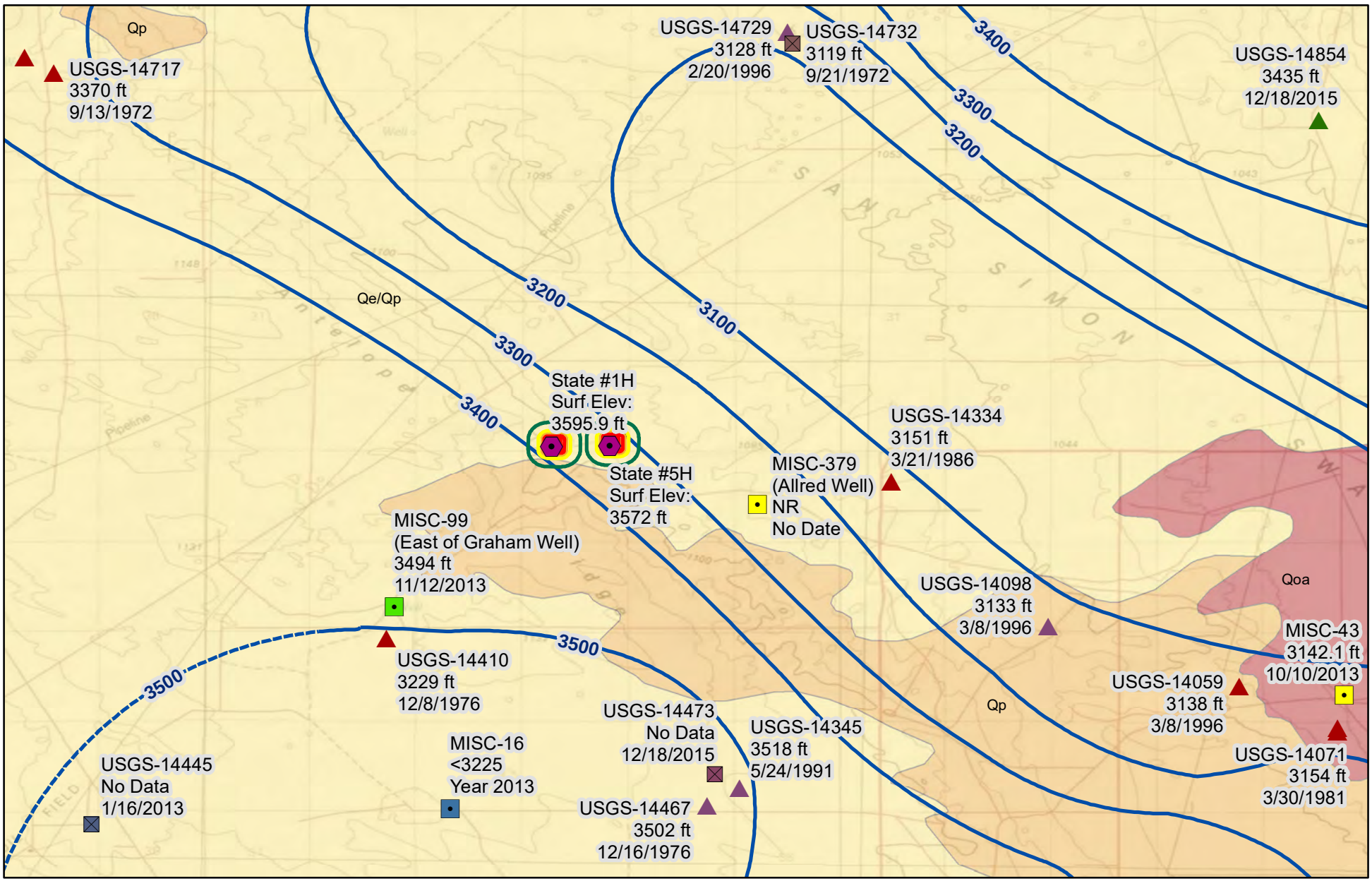

R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Potentiometric Surface and Groundwater Elevation Devon Energy Production CO., L.P. North Thistle 3-34	Figure 2 August 2018

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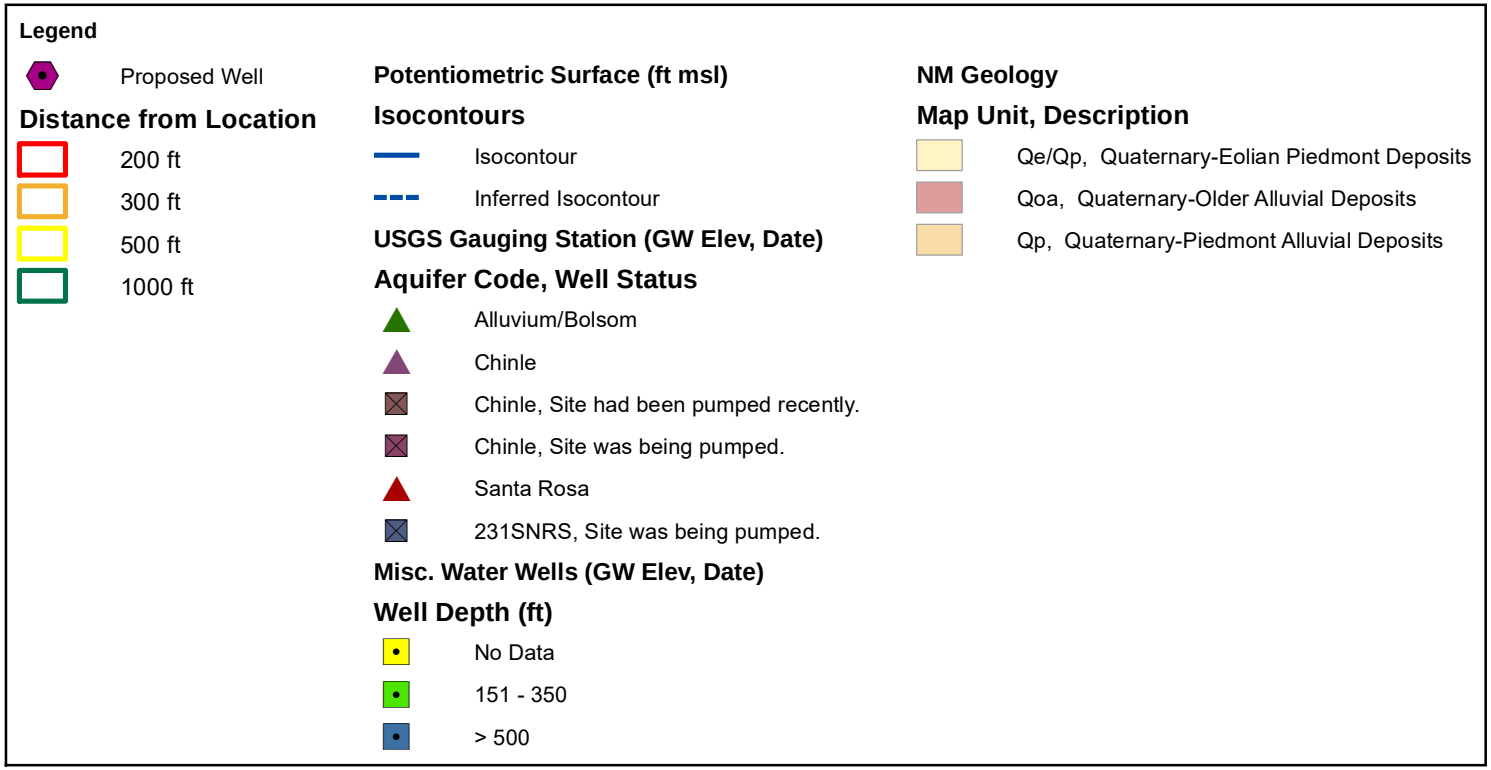

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Albuquerque, NM 87104
Ph: 505.266.5004

Potentiometric Surface and Groundwater Elevation

Devon Energy Production CO., L.P.
North Thistle 3-34

Figure 2
LEGEND

August 2018

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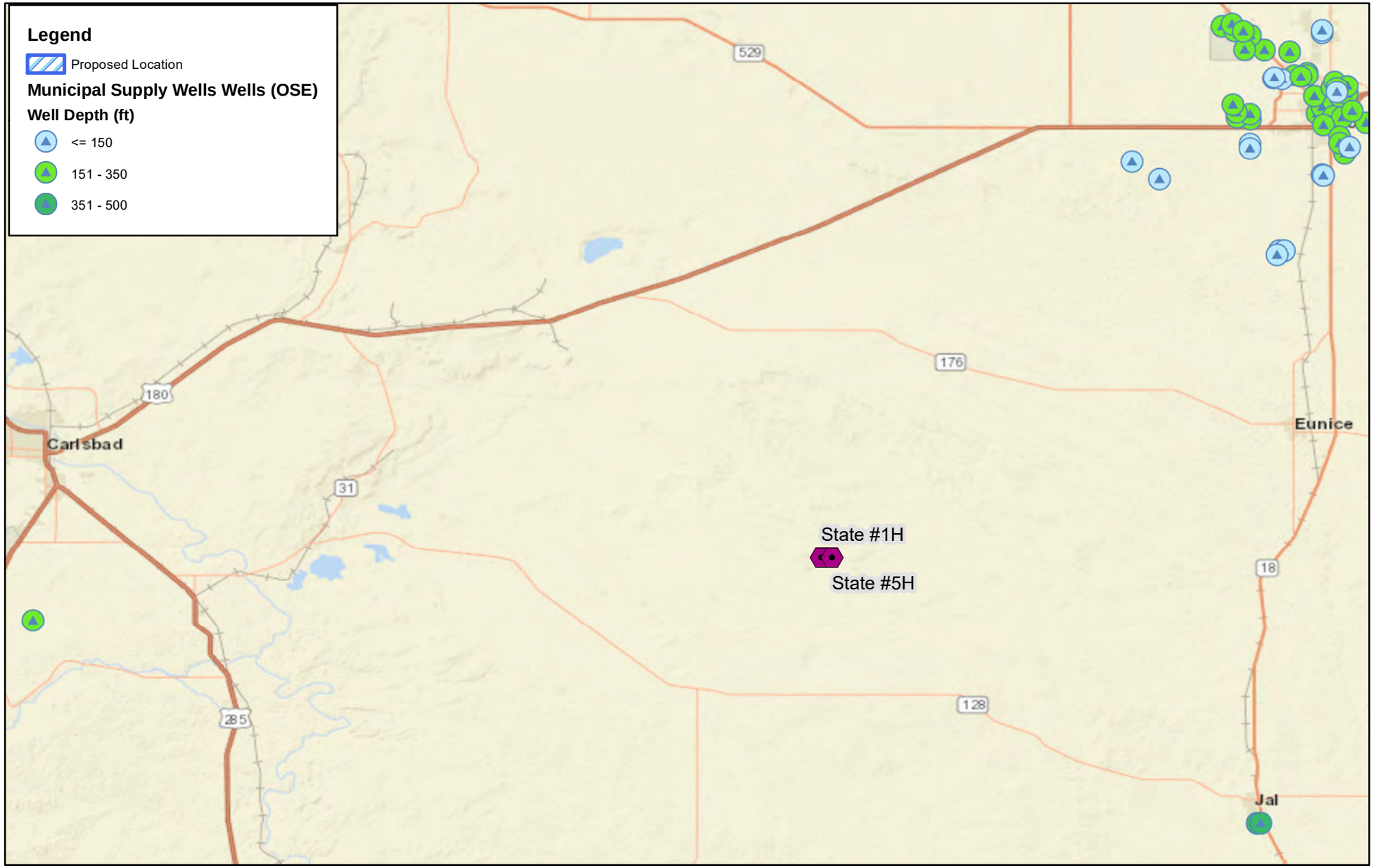

R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Nearby Municipalities and Well Fields	Figure 3
	Devon Energy Production CO., L.P. North Thistle 3-34	August 2018

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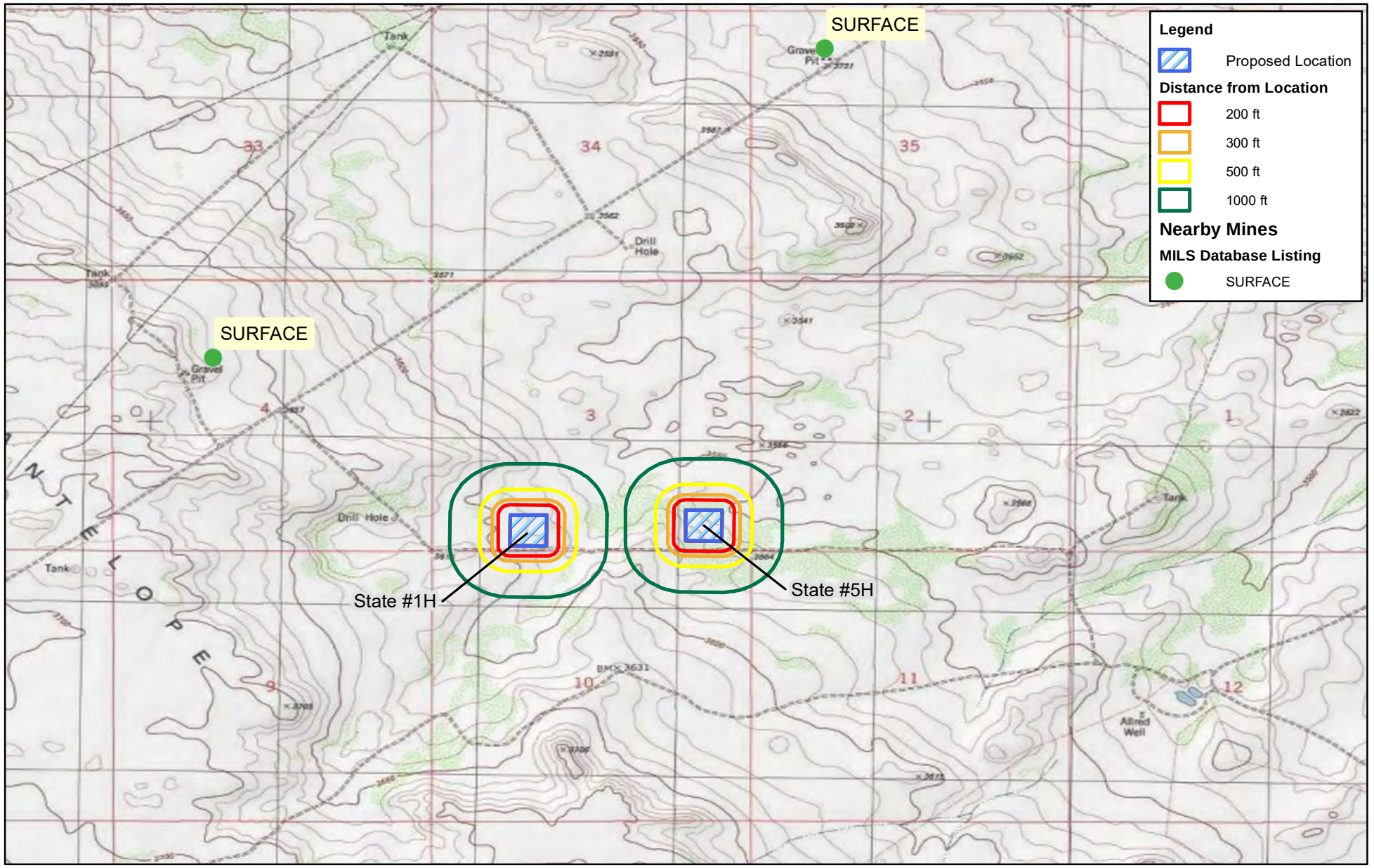

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R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Nearby Mines and Minerals	Figure 4
	Devon Energy Production CO., L.P. North Thistle 3-34	August 2018

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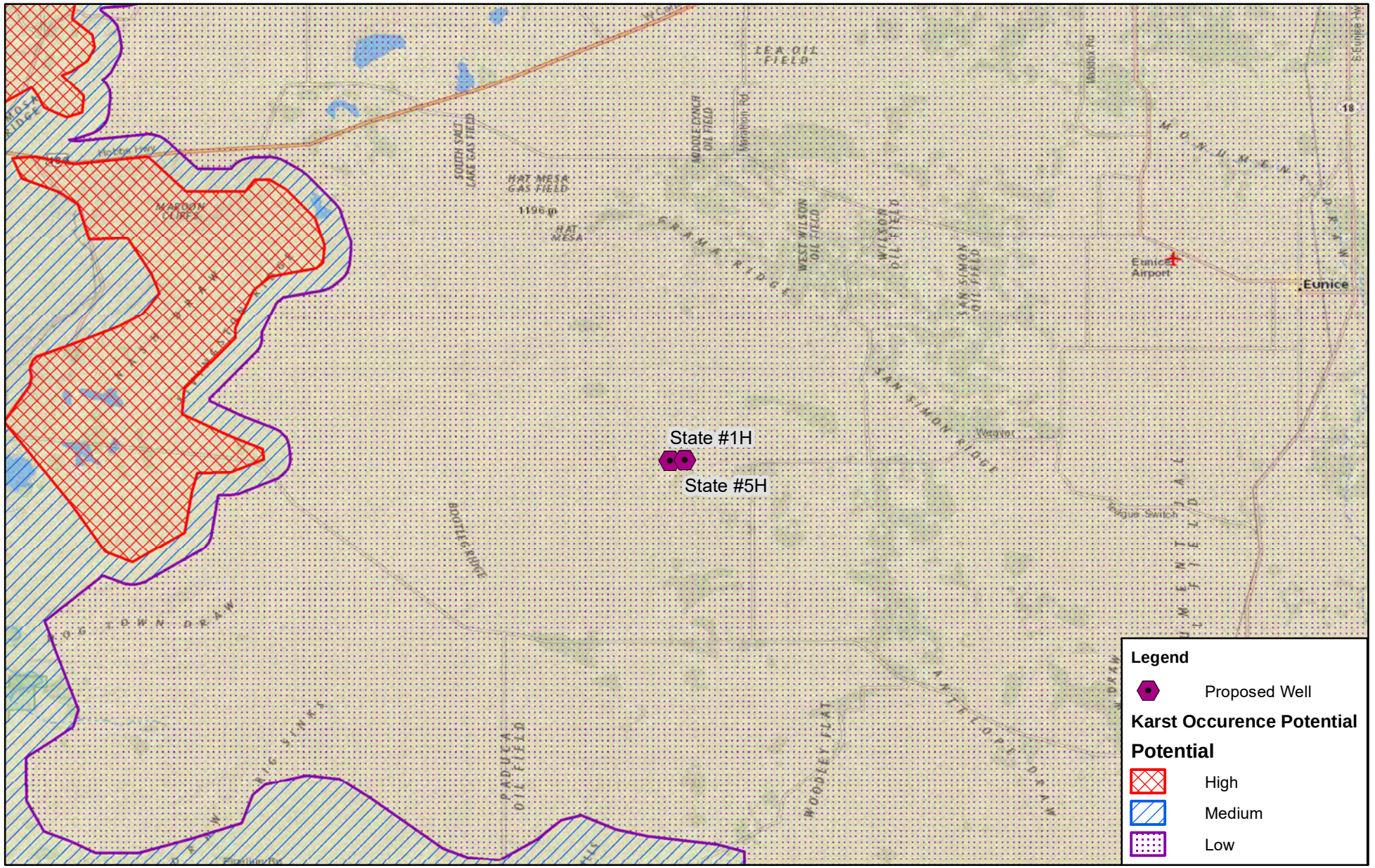

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Karst Potential

Figure 5

Devon Energy Production CO., L.P.
North Thistle 3-34

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Feet

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FEMA Flood Map

Figure 6

Devon Energy Production CO., L.P.
North Thistle 3-34

August 2018

ADDITIONAL SITING CRITERIA FOR PERMIAN BASIN RESERVE PITS

Temporary Pit Non-low chloride drilling fluid

Within 300 feet of a continuously flowing watercourse, or any other significant watercourse, or within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark). See Figure 7
- Topographic map; Visual inspection (certification) of the proposed site

☐ Yes ☒ No

Within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application.
- Visual inspection (certification) of the proposed site; Aerial photo; Satellite image. See Figure 8

☐ Yes ☒ No

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, or 1000 feet of any other fresh water well or spring, in the existence at the time of the initial application;
- NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site

See Figures 1 & 2

☐ Yes ☒ No

Within 300 feet of a wetland. See Figure 9
- US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site

☐ Yes ☒ No

Distance to Surface Water

Figure 7 and the site visit demonstrates that the location is not within 300 feet of a continuously flowing watercourse or any other significant watercourse or 200 feet from lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark). This temporary pit will also qualify for in-place closure as the location is not within 100 feet of a continuously flowing watercourse, or 200 feet of any other significant watercourse or lakebed, sinkhole or playa lake (measured from the ordinary high-water mark).

- No continuously flowing watercourses or other water bodies, as defined by NMOCD Rules, exist within the prescribed setback criteria for the pit or in-place closure of a temporary pit at this location.
- The nearest mapped watercourse lies about
  - 1 mile to the southeast of the North Thistle 3-34 5H pit and
  - 1.5 miles to the southeast of the North Thistle 3-34 1H pit.
- As the area around the pits are characterized by 2- to 5-foot high stabilized sand dunes, no drainages were observed or expected in the area of the pits. The mapped watercourse essentially "dead ends" at the dune field.
- There are no mapped water bodies in the area of the pits and none were observed.
- Figure 3 shows a shallow valley between the State 1H and State 5H pit locations and Figure 4 shows a change in vegetation in this area. We walked this area and found no
  - suggestion of watercourses with a defined bed and bank and
  - no evidence of unstable ground or karst features

Distance to Permanent Residence or Structures

Figure 8 and the site visit demonstrates that the location is not within 300 feet from an occupied permanent residence, school, hospital, institution, church, or other structure in existence at the time of initial application. This also qualifies the location for in-place closure.

- The nearest structures are oil and gas wells, "frac" ponds and tank batteries.

Distance to Non-Public Water Supply

Figures 1 and Figure 2 demonstrates that the location is not within 500 horizontal feet of a private, domestic fresh water well or spring that less than five households use for domestic or stock watering purposes, or within 1,000 horizontal feet of any other fresh water well or spring, in existence at the time of initial application. Additionally, this location is also not within 300 feet of a spring or private, domestic fresh water well used for domestic or stock watering purposes, thus qualifying for in-place closure.

- Figure 1 shows the locations of all area water wells, active or plugged.
- The nearest active water well is about 1 mile south-southeast of the proposed pit and appears to be a well drilled in 2012 to provide fresh water for hydraulic stimulations (C-03582.

- There are no known domestic water wells located within 1,000 feet of the proposed pit.
- No springs were identified within the mapping area (see Figure 3).

Distance to Wetlands

Figure 9 demonstrates the location is not within 300 feet of wetlands. This also qualifies the location for in-place closure.

- The nearest designated wetlands are "freshwater pond" located approximately
  - 1.5 miles to the southwest of North Thistle 3-34 5H and
  - about 2 miles from the North Thistle 3-35 1H
- No evidence of wetlands were observed during the site inspection.

Temporary Pit Design

Please refer to the Site Specific Information Plate 1 for the design of the temporary pits, which is attached to the C-144 for each pit and to this document. The Design and Construction Plan are at the end of this document.

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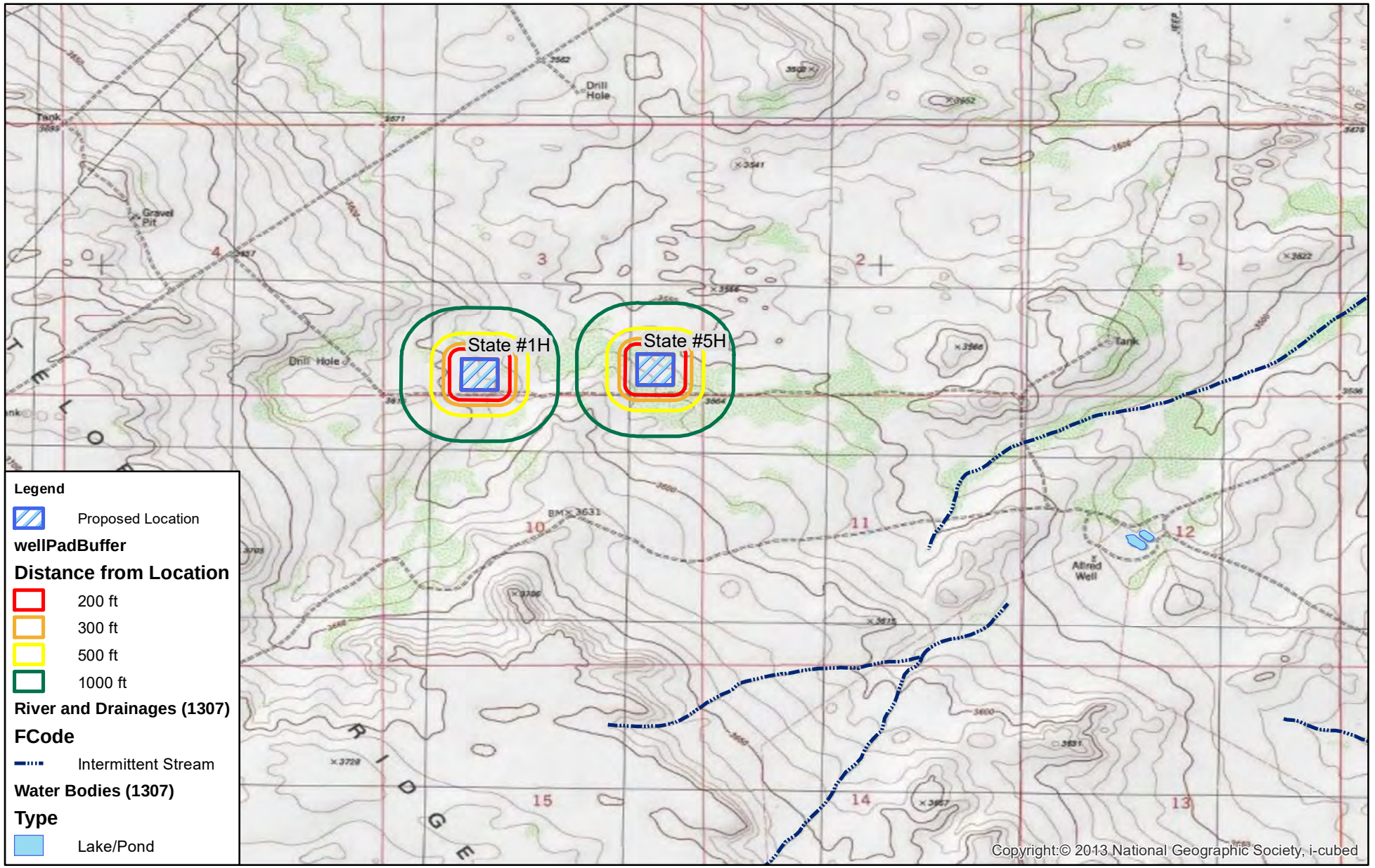

N W E S

0 0.25 0.5 Miles

R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Surface Water and Topography	Figure 7
	Devon Energy Production CO., L.P. North Thistle 3-34	August 2018

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R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Nearby Structures	Figure 8
	Devon Energy Production CO., L.P. North Thistle 3-34	August 2018

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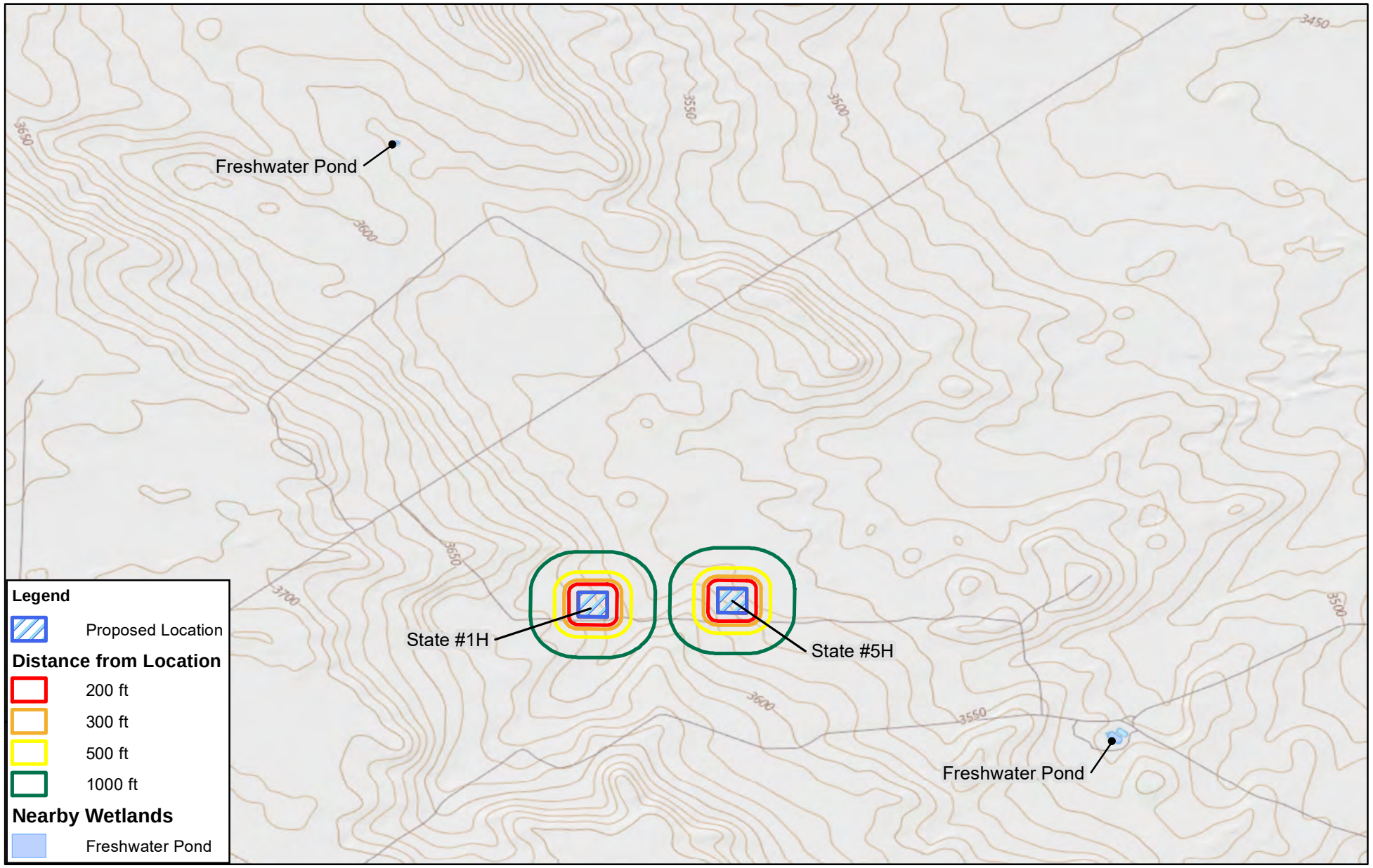

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Nearby Wetlands

Figure 9

Devon Energy Production CO., L.P.
North Thistle 3-34

August 2018

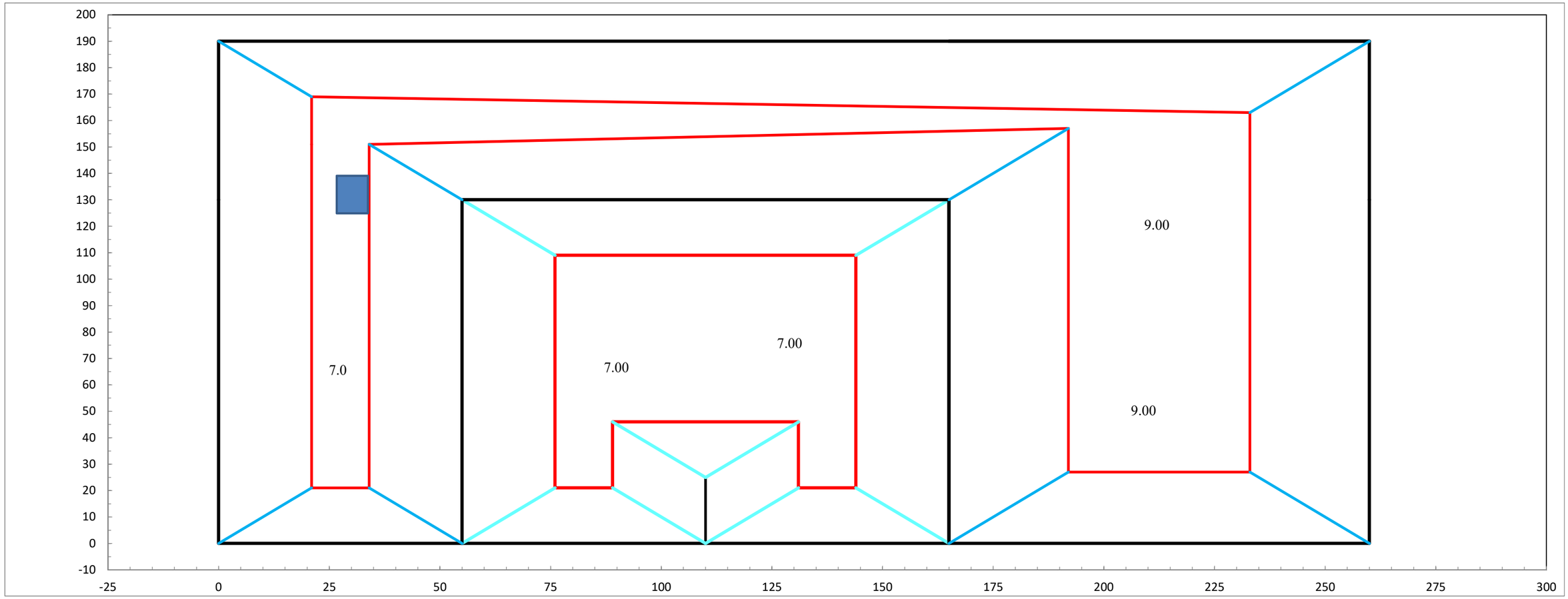
DESIGN PLAN

OPERATION AND MAINTENANCE PLAN

10.
Temporary Pits, Emergency Pits, and Below-grade Tanks Permit Application Attachment Checklist: Subsection B of 19.15.17.9 NMAC
Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.

- ☐ Hydrogeologic Report (Below-grade Tanks) - based upon the requirements of Paragraph (4) of Subsection B of 19.15.17.9 NMAC
- ☒ Hydrogeologic Data (Temporary and Emergency Pits) - based upon the requirements of Paragraph (2) of Subsection B of 19.15.17.9 NMAC
- ☒ Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC
- ☒ Design Plan - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☒ Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC
- ☒ Closure Plan (Please complete Boxes 14 through 18, if applicable) - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC

☐ Previously Approved Design (attach copy of design) API Number: _____ or Permit Number: _____



Speed Bump

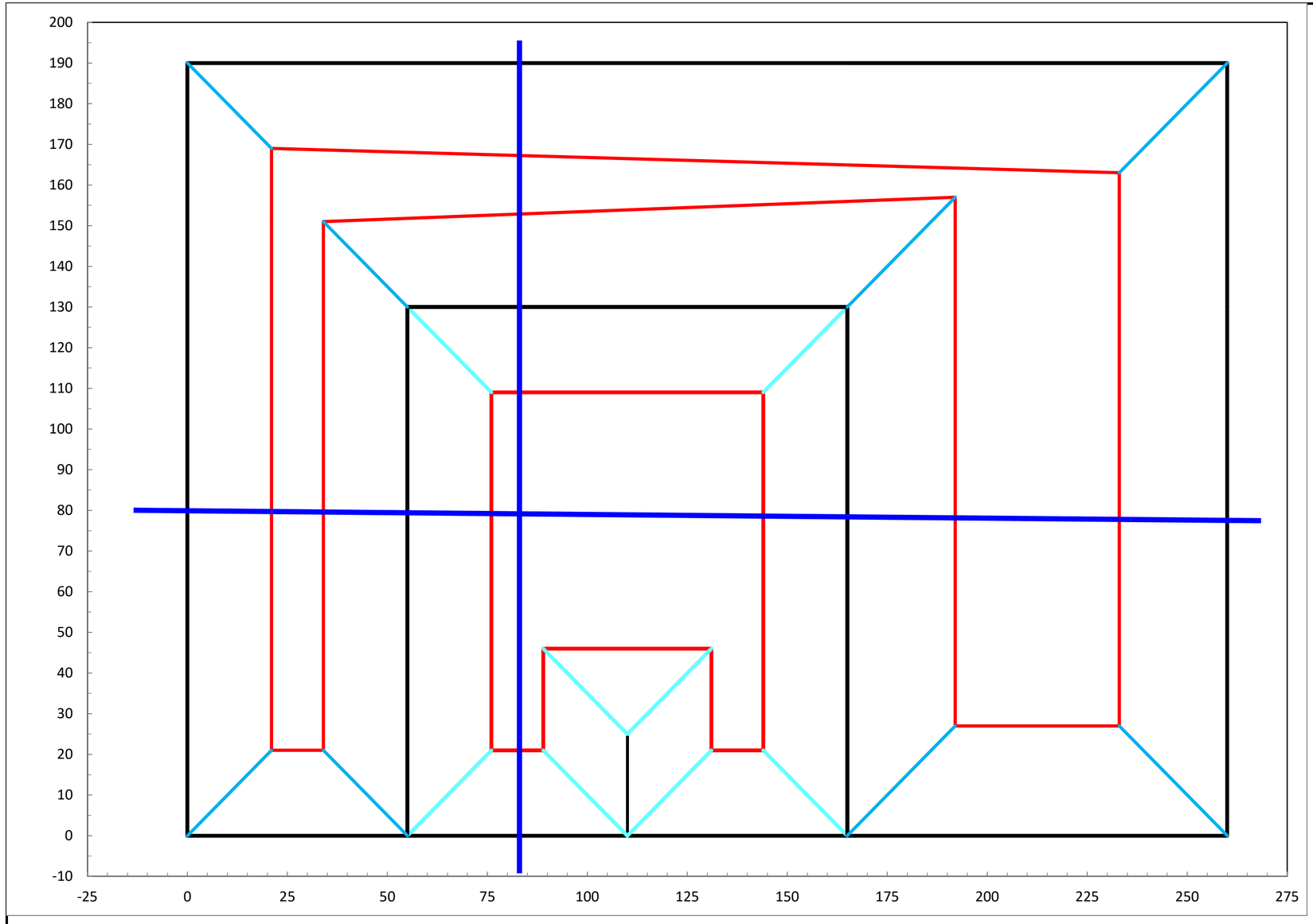
Inner Horseshoe	
total width (left right)	110.00
total length (up down)	130.00
width discharge side	55.00
Depth Discharge	7.00
Depth Far Side(Discharge)	7.00
Depth Far Side(Suction)	7.00
Depth Suction	7.00
Length of Divider	25.00
Divider Width	0.00
Capacity 2' Freeboard - bbls	7159
Capacity 4' Freeboard - cu. Ft.	19713

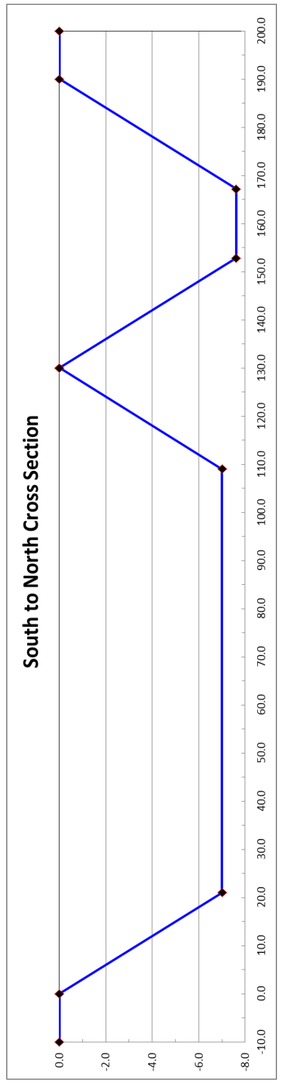
Outer Horseshoe	
width discharge side	95.00
width suction side	55.00
length far side (up down)	60.00
Depth on Discharge Side	9.00
Depth on Far Side (Discharge)	9.00
Depth on Far Side (Suction)	7.00
Depth on Suction Side	7.00
Capacity 2' Freeboard - bbls	19300
Capacity 4' Freeboard - cu. Ft.	55536

Drilling Cell total width	**260.00**
Drilling Cell total length	**190.00**
Common Dimensions	
Slopes of Pit Horizontal Distance	3.00
Slopes of Pit Vertical Distance	1.00
Inner Outer horseshoe divider width at su	0.00
Inner Pit Suction Side	
Slopes of Pit Horizontal Distance	3.00
Slopes of Pit Vertical Distance	1.00
Outer Pit Suction Side	
Slopes of Pit Horizontal Distance	3.00
Slopes of Pit Vertical Distance	1.00

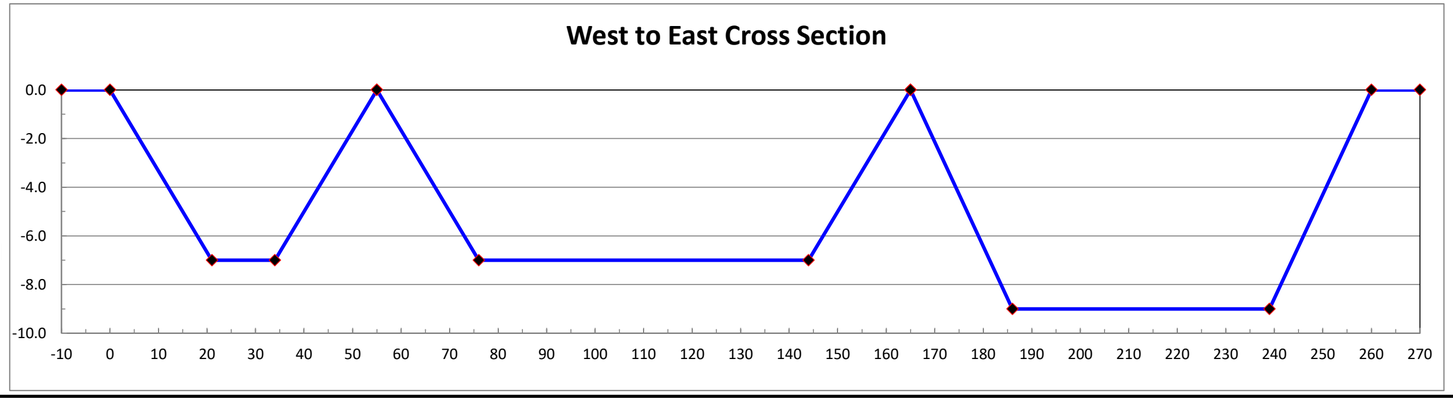
Total Capacity	**43991**	**bbls**
Fluid Capacity (2' Freeboard)	**26459**	**bbls**
Solids Capacity (4' Freeboard)	**75249**	**cubic ft**
Solids Generated	**71224**	**cubic ft**

RT Hicks Consultants Albuquerque, NM	**Pit Diagram**	**Plate 1**
	Devon North Thistle 3-34 St. 5H (+6H, 7H)	**August 2018**





Bottom of Pit is 21 North and 7 deep



Bottom of Pit is 21 East and 7 deep

R.T. Hicks Consultants
Albuquerque, NM

Cross Sections

Temporary Pit Design/Construction Plan

Plate 1 shows the design of the temporary pit proposed for this project. Field conditions and the drilling rig layout will determine the final configuration of the pit. If identified in the transmittal letter, Plate 2 shows fluids cells to store used drilling fluids for re-use (for drilling at nearby wells or for other uses approved by the OCD).

The temporary storage of fluids, fluid reuse or fluid disposal will be conducted in a manner approved by division rules that prevents the contamination of fresh water and protects public health and the environment.

Construction/Design Plan of Temporary Pit

Stockpile Topsoil by Earthwork Contractor

Prior to constructing the pit the qualified contractor will strip and stockpile any topsoil for use as the final cover or fill at the time of closure.

Signage Provided by Operator

The operator will post an upright sign in a conspicuous place in compliance with 19.15.16.8 NMAC as the pit and the well are operated by the same operator. The sign will also provide emergency telephone numbers.

Fencing

During drilling or workover operations, the operator will not fence the edge of the pit adjacent to the drilling or workover rig.

As pit is not located within 1000 feet of an occupied residence, school, hospital, institution or church, the operator will fence the pit or the perimeter of the location to exclude livestock with four-wire strands evenly spaced in the interval between one foot and four feet above ground level.

Earthwork

The temporary pit will have a properly constructed foundation and interior slopes consisting of a firm, unyielding base that is smooth and free of rocks, debris, sharp edges or irregularities to prevent the liner's rupture or tear. Rolling the surface to prepare the foundation for placement of the liner is recommended.

The slopes of the pit will be no steeper than two horizontal feet to one vertical foot (2H:1V) unless a variance is requested in the C-144 application and approved by NMOCD. demonstration that the pit can be operated in a safe manner to prevent contamination of fresh water and protect public health and the environment.

19.15.17.11 DESIGN AND CONSTRUCTION SPECIFICATIONS:
A. General specifications. An operator shall design and construct a pit, closed-loop system, below-grade tank or sump to contain liquids and solids; prevent contamination of fresh water; and protect public health and the environment.
B. Stockpiling of topsoil. Prior to constructing a pit, except a pit constructed in an emergency, the operator shall strip and stockpile the topsoil for use as the final cover or fill at the time of closure.

B. Stockpiling of topsoil. Prior to constructing a pit, except a pit constructed in an emergency, the operator shall strip and stockpile the topsoil for use as the final cover or fill at the time of closure.

C. Signs. The operator shall post an upright sign …, unless the pit or below-grade tank is located on a site where there is an existing well, signed in compliance with 19.15.16.8 NMAC, that is operated by the same operator. … The sign shall provide the following information: the operator's name; the location of the site by quarter-quarter or unit letter, section, township and range; and emergency telephone numbers

D. Fencing.
(1) The operator shall fence or enclose a pit … in a manner that deters unauthorized access and shall maintain the fences in good repair. Fences are not required if there is an adequate surrounding perimeter fence that prevents unauthorized access to the well site or facility, including the pit ... During drilling or workover operations, the operator is not required to fence the edge of the pit adjacent to the drilling or workover rig.
(2) The operator shall fence or enclose a pit located within 1000 feet of an occupied …

F. Temporary pits. ….
(1) The operator shall design and construct a temporary pit to ensure the confinement of liquids to prevent releases.
(2) A temporary pit shall have a properly constructed foundation and interior slopes consisting of a firm, unyielding base, smooth and free of rocks, debris, sharp edges or irregularities to prevent the liner's rupture or tear. The operator shall construct a temporary pit so that the slopes are no steeper than two horizontal feet to one vertical foot (2H:1V). The appropriate division district office may approve an alternative to the slope requirement …

Liner Installation

The geomembrane liner will consist of 20-mil string reinforced LLDPE (see attached specification).

The operator will direct the liner installation contractor to:

1. minimize liner seams and orient them up and down, not across a slope
2. use factory welded seams where possible
3. overlap liners four to six inches and orient seams parallel to the line of maximum slope, i.e., oriented along, not across, the slope, prior to any field seaming
4. minimize the number of welded field seams in comers and irregularly shaped areas
5. utilize only qualified personnel to weld field seams
6. avoid excessive stress-strain on the liner
7. place geotextile under the liner where needed to reduce localized stress-strain or protuberances that may otherwise compromise the liner's integrity
8. anchor the edges of all liners in the bottom of a compacted earth-filled trench that is at least 18 inches deep
9. place additional material (liner, felt, etc.) to ensure that the liner is protected from any fluid force or mechanical damage at any point of discharge into or suction from the lined temporary pit.

A berm or ditch will surround the temporary pit to prevent run-on of surface water. During drilling operations, the operator may elect to remove run-on protection on the pit edge adjacent to the drilling or workover rig provided that the pit is being used to collect liquids escaping from the drilling or workover rig and this additional fluid will not cause a breach of the temporary pit.

The temporary pit will not be used to vent or flare gas and the volume of the temporary drilling pit, including freeboard, will not exceed 10 acre-feet.

(3) The operator shall design and construct a temporary pit with a geomembrane liner. The geomembrane liner shall consist of 20- mil string reinforced .... The geomembrane liner shall be composed of an impervious, synthetic material that is resistant to petroleum hydrocarbons, salts and acidic and alkaline solutions. The liner material shall be resistant to ultraviolet light. Liner compatibility shall comply with EPA SW-846 Method 9090A

(4) The operator shall minimize liner seams and orient them up and down, not across, a slope. … shall use factory welded seams where possible. Prior to field seaming, … shall overlap liners four to six inches. … minimize the number of field seams in corners and irregularly shaped areas. Qualified personnel shall field weld and test liner seams.
(5) Construction shall avoid excessive stress-strain on the liner.
(6) Geotextile is required under the liner where needed to reduce localized stress-strain or protuberances that may otherwise compromise the liner's integrity.
(7) … anchor the edges of all liners in the bottom of a compacted earth-filled trench. The anchor trench shall be at least 18 inches deep, unless anchoring to encountered bedrock provides equivalent anchoring.
(8) … ensure that the liner is protected from any fluid force or mechanical damage at any point of discharge into or suction from the lined temporary pit.

(9) The operator shall design and construct a temporary pit to prevent run-on of surface water. A berm, ditch, proper sloping or other diversion shall surround a temporary pit to prevent run-on of surface water. During drilling operations, the edge of the temporary pit adjacent to the drilling or workover rig is not required to have run-on protection if the operator is using the temporary pit to collect liquids escaping from the drilling or workover rig and run-on will not result in a breach of the temporary pit

(10) The volume of a temporary pit shall not exceed 10 acre feet, including freeboard.

Temporary Pit O&M Protocols and Procedures

The operator will maintain and operate the pit in accordance with the following plan to contain liquids and solids and maintain the integrity of the liner to prevent contamination of fresh water and protect public health and the environment.

19.15.17.12 OPERATIONAL REQUIREMENTS:
A. General specifications. ….
(1) The operator shall operate and maintain a pit … to contain liquids and solids and maintain the integrity of the liner, …, prevent contamination of fresh water and protect public health and the environment..

If feasible, the operator will recycle, reuse or reclaim all drilling fluids in the temporary pit in a manner approved by division rules that prevents the contamination of fresh water and protects public health and the environment. Re-use of drilling fluids and workover fluids (stimulation flow-back) for drilling and stimulation of subsequent wells is anticipated. If re-use is not possible, fluids will be sent to disposal at a division-approved facility.

(2) The operator shall recycle, reuse, reclaim or dispose of all drilling fluids in a manner consistent with division rules.
(3) The operator shall not discharge into or store any hazardous waste in a pit, closed-loop system, below-grade tank or sump.

The operator will not discharge into or store any hazardous waste in the pit.

If the pit develops a leak or if any penetration of the pit liner occurs above the liquid's surface, then the operator will repair the damage or initiate replacement of the liner within 48 hours of discovery or will seek a variance from the division district office within this time period.

(4) If a pit liner's integrity is compromised above the liquid's surface … repair the damage or initiate replacement of the liner within 48 hours of discovery or seek a variance ….
(5) If a pit … develops a leak, or if any penetration of the pit liner occurs below the liquid's surface, … remove all liquid above the damage or leak within 48 hours of discovery, notify the appropriate division office pursuant to 19.15.29NMAC and repair the damage or replace the pit liner...

If the pit develops a leak or if any penetration of the pit liner occurs below the liquid's surface, then the operator will remove all liquid above the damage or leak line within 48 hours of discovery. The operator will also notify the district division office (19.15.29 NMAC) within this same 48 hours of the discovery and repair the damage or replace the pit liner.

The operator will ensure that the drilling contractor installs and uses a header, diverter or other hardware that prevents damage to the liner by erosion, fluid jets or impact from installation and removal of hoses or pipes during injection or withdrawal of liquids.

(6) The injection or withdrawal of liquids from a pit shall be accomplished through a header, diverter or other hardware that prevents damage to the liner by erosion, fluid jets or impact from installation and removal of hoses or pipes.

During construction, the operator or qualified contractor will install diversion ditches and berms around the pit as necessary to prevent the collection of surface water run-on. As outlined in the Construction and Design Plan, during drilling operations, the edge of the temporary pit adjacent to the drilling or workover rig may not have run-on protection if the operator is using the temporary pit to collect liquids escaping from the drilling or workover rig and run-on will not result in a breach of the temporary pit.

(7) The operator shall operate and install a pit to prevent the collection of surface water run-on.
(8) The operator shall install, or maintain on site, an oil absorbent boom or other device to contain an unanticipated release.

The operator will maintain on site an oil absorbent boom to contain

and remove oil from the pit's surface.

The operator will only discharge fluids or mineral solids (including cement) generated or used during the drilling, completion, or workover processes into the pit.

(1) Only fluids or mineral solids generated or used during the drilling, completion or workover process may be discharged into a temporary pit. … maintain a temporary pit free of miscellaneous solid waste or debris. Immediately after cessation of a drilling or workover operation, the operator shall remove any visible layer of oil from the surface of a drilling or workover pit.

The operator will maintain the temporary pit free of miscellaneous solid waste or debris. Immediately after cessation of drilling or a workover operation, the operator will remove any visible or measurable layer of oil from the surface of the pit.

The operator will maintain at least two feet of freeboard for the temporary pit, except under extenuating circumstances, which will be noted on the pit inspection log as described below.

(2) The operator shall maintain at least two feet of freeboard for a temporary pit. For temporary extenuating circumstances … may maintain a freeboard of less than two feet. In such circumstances the operator shall maintain a log describing such circumstances and make the log available to the division upon request.

The operator will inspect the temporary pit containing drilling fluids daily while the drilling rig or workover rig is on site. After the rigs have left the site, the operator will inspect the pit weekly as long as liquids are present in the pit. The operator will maintain a log of the inspections. The operator will make the log available to the division district office upon request.

(3) … shall inspect a temporary pit containing drilling fluids at least daily while the drilling or workover rig is on location. Thereafter, the operator shall inspect the temporary pit weekly so long as liquids remain …. The operator shall maintain a log of such inspections and make the log available for the appropriate division district office's review upon request

The operator will remove all free drilling fluids from the surface of the temporary pit within 60 days from the date that the last drilling or workover rig associated with the pit permit is released. The operator will note the date of this release upon Form C-105 or C-103 upon well or workover completion. The operator may request an extension up to two months from the division district office as long as this additional time does not exceed the temporary pit life span (Subsection R of 19.15.17.7 NMAC).

(4) … remove all free liquids from the surface of a temporary pit within 60 days from the date that the operator releases the last drilling or workover rig associated with the relevant pit permit. The operator shall note the date of the drilling or workover rig's release on form C-105 or C-103 upon well or workover completion. The appropriate division district office may grant an extension of up to two months, not to exceed temporary pit life span …

CLOSURE PLAN

13.
Proposed Closure: 19.15.17.13 NMAC
Instructions: Please complete the applicable boxes, Boxes 14 through 18, in regards to the proposed closure plan.

Type: ☒ Drilling ☐ Workover ☐ Emergency ☐ Cavitation ☐ P&A ☐ Permanent Pit ☐ Below-grade Tank ☐ Multi-well Fluid Management Pit ☐ Alternative

Proposed Closure Method: ☐ Waste Excavation and Removal
☐ Waste Removal (Closed-loop systems only)
☒ On-site Closure Method (Only for temporary pits and closed-loop systems)
☒ In-place Burial ☐ On-site Trench Burial
☐ Alternative Closure Method

16.
On-Site Closure Plan Checklist: (19.15.17.13 NMAC) ***Instructions: Each of the following items must be attached to the closure plan. Please indicate, by a check mark in the box, that the documents are attached.***

☒ Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC
☒ Proof of Surface Owner Notice - based upon the appropriate requirements of Subsection E of 19.15.17.13 NMAC
☐ Construction/Design Plan of Burial Trench (if applicable) based upon the appropriate requirements of Subsection K of 19.15.17.11 NMAC
☒ Construction/Design Plan of Temporary Pit (for in-place burial of a drying pad) - based upon the appropriate requirements of 19.15.17.11 NMAC
☒ Protocols and Procedures - based upon the appropriate requirements of 19.15.17.13 NMAC
☐ Confirmation Sampling Plan (if applicable) - based upon the appropriate requirements of 19.15.17.13 NMAC
☒ Waste Material Sampling Plan - based upon the appropriate requirements of 19.15.17.13 NMAC
☒ Disposal Facility Name and Permit Number (for liquids, drilling fluids and drill cuttings or in case on-site closure standards cannot be achieved)
☒ Soil Cover Design - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC
☒ Re-vegetation Plan - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC
☒ Site Reclamation Plan - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC

In-Place Closure Plan

The wastes in the temporary pit are destined for in place burial at the permitted location. This plan calls for additional drilling waste from a nearby site on the same lease to be placed in the temporary pit (e.g. placed in the drilling or fluids cells of the temporary pit). The C-144 Form include the name of the nearby well(s). A notice to OCD as well as the closure report will identify the date that the drilling or workover rig moved from the temporary pit, an affirmation that the temporary pit will be closed in conformance with the mandates of the Rule, including the mandated lifetime of the pit.

The operator will not begin closure operations without approval of the closure plan submitted with the permit application.

19.15.17.13 CLOSURE AND SITE RECLAMATION REQUIREMENTS:
A. Closure plans. A closure plan … shall describe the proposed closure method and the proposed procedures and protocols to implement and complete the closure.

19.15.17.13.D. Closure where wastes are destined for burial in place or into nearby division approved pits ... This subsection applies to waste from temporary pits and closed-loop systems, when such waste may be disposed of in place in the existing temporary pit or disposed of at a nearby temporary pit …. A nearby temporary pit or burial trench that receives waste from another temporary pit must be onsite within the same lease.
(1) The operator shall not commence closure without first obtaining approval of the closure plan submitted with the permit application.

Siting Criteria Compliance Demonstration
Compliance with siting criteria is described in the site-specific information appended to the C-144.

(2) The operator shall demonstrate and comply with the siting criteria set forth in Subsection C of 19.15.17.10 NMAC.

Construction/Design Plan of Temporary Pit
The design and construction protocols for the temporary pit are provided in the design and construction plan and in Plate 1.

Pre-Closure Fluid Removal

- All free liquids from the pit will be recycled or disposed in a manner consistent with OCD Rules.
- Residual free drilling or workover liquids will be removed from the pit within 60 days of release of the last drilling or workover rig associated with the relevant pit permit.

(3) Prior to closure the operator shall remove all free liquids reasonably achievable from the pit or drying pad and tank associated with a closed-loop system and dispose of such liquids at a division approved facility.

Waste Material Sampling Plan
Stabilization of solids in the temporary pit may be required. Specifically

- The residual drilling mud and cuttings will be stabilized to a capacity sufficient to support the 4-foot thick soil cover.
- The residual pit solids will not be mixed at a ratio greater than 1 part pit solids to 3 parts dry earth material (e.g. subsoil).
- The pit will not be closed until the stabilized pit contents pass the paint filter liquids test.

(4) … the operator shall stabilize or solidify the remaining temporary pit contents to a capacity sufficient to support the final cover of the temporary pit. … The operator shall not mix the contents with soil or other material at a mixing ratio of greater than 3:1, soil or other material to contents. The waste mixture must pass the paint filter liquids test (EPA SW-846, Method 9095 or other test methods approved by the division).

Stabilization prior to sampling is imprudent as mixing clean material with drilling solids that cannot meet the criteria of Table II increases the material be sent to an off-site facility. Therefore, prior to stabilization, the residual solids in the temporary pit will be sampled in the manner described below:

(5) The operator shall collect, at a minimum, a five point composite of the contents of the temporary pit … to demonstrate that, after the waste is solidified or stabilized with soil or other non-waste material at a ratio of no more than 3:1 soil or other non-waste material to waste, the concentration of any contaminant in the stabilized waste is not higher than the parameters listed in Table II of 19.15.17.13 …

1. We obtain four (4) discrete samples from outer horseshoe of the pit and two (2) from the inner horseshoe (see image below).
2. The samples are taken with a core sampler or with excavation equipment with protection to prevent puncture of the pit liner.
3. We record the thickness of the sampled interval of each sample
4. A 5-point composite sample of the earth material beneath the exposed liner of the pit is also obtained by hand shovel.
5. Each of the seven samples (six samples of cuttings and one of the "mixing dirt") is evaluated by a laboratory for the parameters listed in Table II.
6. We use the thickness of each discrete sample to calculate a weighted average of the Table II constituents for the cuttings in the outer horseshoe and the cuttings of the inner horseshoe.
7. Using the bit diameter and length of the boring that generated the cuttings deposited in each cell (horseshoe) of the drilling pit, we calculate a weighted average of the Table II constituents for the cuttings in the pit.
8. We then calculate a weighted average of 3 parts non-waste material (the clean material sampled from below the pit liner) and the weighted average of the cuttings in the pit to determine compliance with Table II.

(6) If, after appropriate stabilization, the concentrations of all contaminants in the contents from a temporary pit … are less than or equal to the parameters of listed in Table II of 19.15.17.13 NMAC, … may either proceed to dispose of wastes in an existing temporary …. **(7)** If the concentration of any contaminant in the contents, after mixing with soil or non-waste material to a maximum ratio of 3:1, from a temporary pit … is higher than constituent concentrations shown in Table II of 19.15.17.13 NMAC, then closure must proceed in accordance with Subsection C of 19.15.17.13.

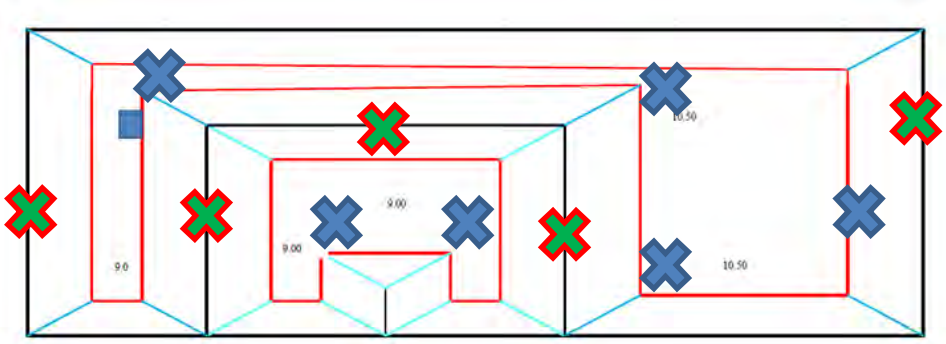


Image shows typical discrete pit sample locations (blue X) and the sub-sample locations for the "mixing dirt" (green X) composite sample to determine compliance with Table II.

In-place burial is the selected on-site disposal alternative.

If a concentration of a contaminant within the material mixed at a ratio not exceeding 3:1 is higher than the concentration given in Table II, closure will proceed in accordance with Subsection D of 19.15.17.13 NMAC.

In the event that on-site closure standards cannot be achieved, the operator will remove the solid pit contents and transfer to the following **division-approved disposal facility**, specifically:

R360 or Sundance Services

Closure Notice

The operator will notify the surface owner by certified mail, return receipt requested, that the operator plans closure operations at least 72 hours, but not more than one week, prior to any closure operation. The notice will include the well name, API number, and location. Notification of the State Land Office or BLM as surface owner's representatives will be accomplished via email if a variance is granted by OCD.

After approval for in-place burial, the operator shall notify the district office verbally and in writing at least 72 hours but not more than one week before any closure operation. Notice will include the operator's name and the location of the temporary pit. The location will include unit letter, section number, township and range. If the location is associated with a well, then the well's name, number and API number will be included.

Should onsite burial be on private land, the operator will file a deed notice including exact location of the burial with the county clerk of the county where the onsite burial is located.

19.15.17.1 E.Closure notice.
(1) The operator shall notify the surface owner by certified mail, return receipt requested that the operator plans closure operations at least 72 hours, but not more than one week, prior to any closure operation. Notice shall include well name, API number and location. …
(2) The operator of a temporary pit… who is approved for onsite closure shall notify the appropriate division district office verbally and in writing at least 72 hours, but not more than one week, prior to any closure operation. The notice shall include the operator's name and the location to be closed by unit letter, section, township and range. If the closure is associated with a particular well, then the notice shall also include the well's name, number and API number.

(4) When onsite burial occurs on private land, the operator shall file a deed notice identifying the exact location of the onsite burial with the county clerk in the county where the onsite burial occurs.

Protocols and Procedures for Earthwork

Stabilization of the residual cuttings and mud is accomplished by mixing dry earth material obtained from within the temporary pit footprint. The dry material beneath the liner is the primary "mixing dirt" employed for stabilization. After stabilization the operator or qualified contractor will:

- Use a geomembrane cover made of 20-mil string reinforced LLDPE liner
- Place the geomembrane cover over the sloping surface of the stabilized waste material. It will be placed in a manner so as to prevent infiltration of water and so that infiltrated water does not collect and form a water-saturated layer on the geomembrane cover after the upper soil cover has been placed.

19.15.17.13.D (8) Upon achieving all applicable waste stabilization in the temporary pit … the operator shall:
(b) install a geomembrane cover over the waste material in the … temporary pit; the operator shall install the geomembrane cover in a manner that prevents the collection of infiltration water in the … temporary pit and on the geomembrane cover after the soil cover is in place; the geomembrane cover shall consist of a 20-mil string reinforced LLDPE liner or equivalent cover that the appropriate division district office approves; the geomembrane cover shall be composed of an impervious, synthetic material that is resistant to petroleum hydrocarbons, salts and acidic and alkaline solutions; cover compatibility shall comply with EPA SW-846 Method 9090A;
(c) cover the pit/trench with non-waste containing, uncontaminated, earthen materials and construct a soil cover prescribed by the division in Paragraph (3) of Subsection H of 19.15.17.13 NMAC

Soil Cover Design

Over the sloping, stabilized material and liner, place the **Soil Cover** of:

- at least 3-feet of compacted, uncontaminated, non-waste containing earthen fill with chloride concentrations less than 600 mg/kg as analyzed by EPA Method 300.0 (or an alternative method subject to a variance request).
- either the background thickness of topsoil or one foot of suitable material to establish vegetation at the site, whichever is greater,

19.15.17.13.H(3) Soil cover designs for reclamation of pit locations and onsite burial locations. The soil cover for burial in -place burial shall consist of a minimum of four feet of non-waste containing, uncontaminated, earthen material with chloride concentrations less than 600 mg/kg as analyzed by EPA Method 300.0. The soil cover shall include either the background thickness of topsoil or one foot of suitable material to establish vegetation at the site, whichever is greater.
(4) The operator shall construct the soil cover to the site's existing grade and prevent ponding of water and erosion of the cover material

over the 3-foot earth material.

- Contour the cover to blend with the surrounding topography to prevent erosion of the cover and prevent ponding over the cover.

Closure Report

Within 60 days of closure completion, the operator will submit a

i. closure report on form C-144, with necessary attachments
ii. a certification that all information in the report and attachments is correct, that the operator has complied with all applicable closure requirements and conditions specified in the approved closure plan
iii. a plat of the pit location on form C-l05. If burial includes solids derived from a nearby well on the same lease, the report will list the name, API # and location of the well(s) from which the solids originated

Unless the permit transmittal letter requests an alternative marker to comply with surface landowner specifications, the operator will place at the center of an onsite burial a steel marker that

- is not less than four inches in diameter
- is placed at the bottom of a three-foot deep hole (minimum) that is filled with cement to secure the marker
- is at least four feet above mean ground level
- permanently displays the operator name, lease name, well number, unit letter, section, township and range in welded or stamped legible letters/numbers

Timing of Closure

The operator will close the temporary pit within 6 months from the date the drilling rig was released from the first well using the pit. This date will be noted on form C-105 or C-103 filed with the division upon the well's completion (or re-completion in the case of a workover).

Reclamation and Re-vegetation Plan

In addition to the area of the in-place burial, the operator will reclaim the surface impacted by the temporary pit, including access roads associated with the pit, to a safe and stable condition that blends with the surrounding undisturbed area including areas not reclaimed as described herein due to their use in production or drilling operations will be stabilized and maintained to minimize dust and erosion. This includes the area of the temporary pit if a transmittal letter to OCD proposes an alternative to the re-vegetation or recontouring requirement with

- a demonstration that the proposed alternative provides equal or better prevention of erosion, and protection of fresh water, public health and the environment
- written documentation that the alternative is agreed upon by

19.15.17.13 F. Closure report and burial identification.
(1) Within 60 days of closure completion, the operator shall submit a closure report on form C-144, with necessary attachments to document all closure activities including sampling results; information required by 19.15.17 NMAC; and details on back-filling, capping and covering, where applicable. … If the operator used a temporary pit, the operator shall provide a plat of the pit location on form C-l 05 within 60 days of closing the temporary pit.
(2) If the operator elects to conduct onsite burial under Subsection D of 19.15.17.13 NMAC, … shall report the exact location of the onsite burial on form C-105 filed with the division.
(3) The operator shall place a steel marker at the center of an onsite burial. The steel marker shall be not less than four inches in diameter and shall be cemented in a three-foot deep hole at a minimum. The steel marker shall extend at least four feet above mean ground level and at least three feet below ground level. The operator name, lease name and well number and location, including unit letter, section, township and range, and that the marker designates an onsite burial location shall be welded, stamped or otherwise permanently engraved into the metal of the steel marker. …

19.15.17.13.G (2) An operator shall close a permitted temporary pit within six months from the date that the operator releases the drilling or workover rig. The operator shall note the date of the drilling or workover rig's release on form C-105 or C-103, filed with the division, upon the well's or work-over's completion.

19.15.17.13. **H.** Reclamation of pit locations, onsite burial locations….
(1) Site contouring.
(a) Once the operator has closed a pit … the operator shall reclaim the pit location…and all areas associated with the … pit… to a safe and stable condition that blends with the surrounding undisturbed area… substantially restore the impacted surface area to the condition that existed prior to oil and gas operations by placement of the soil cover …, recontour the location and associated areas to a contour that approximates the original contour and blends with the surrounding topography and re - vegetate according to Paragraph (5) in Subsection H of 19.15.17.13 NMAC.
(b) The operator may propose an alternative to the re -vegetation or recontouring … demonstrates to the appropriate district office that the proposed alternative provides equal or better prevention of erosion, and protection of fresh water, public health and the environment. The proposed alternative shall be agreed upon by the surface owner. The operator shall submit the proposed alternative, with written documentation that the surface owner agrees to the alternative, ...
(c) Areas reasonably needed for production operations or for subsequent drilling operations shall be compacted, covered, paved, or otherwise stabilized and maintained in such a way as to minimize dust and erosion to the extent practicable.

the surface owner.

As stated above, the soil cover for burial in-place

A. consists of a minimum of three feet of non-waste containing, uncontaminated, earthen material with chloride concentrations less than 600 mg/kg (or background concentration) as analyzed by EPA Method 300.0 placed over the liner and stabilized solids
B. is capped by the background thickness of topsoil or 1-foot of suitable material to establish vegetation, whichever is greater
C. blends into surrounding topography
D. is graded to prevent ponding and to minimize erosion

19.15.17.13. **H. (3)** Soil cover designs for reclamation of pit locations and onsite burial locations. The soil cover for burial in -place or trench burial shall consist of a minimum of four feet of non-waste containing, uncontaminated, earthen material with chloride concentrations less than 600 mg/kg as analyzed by EPA Method 300.0. The soil cover shall include either the background thickness of topsoil or one foot of suitable material to establish vegetation at the site, whichever is greater.
(4) The operator shall construct the soil cover to the site's existing grade and prevent ponding of water and erosion of the cover material.

For all areas disturbed by the closure process that will not be used for production operations or future drilling, the operator will:

i. Replace topsoil and subsoil to their original relative positions
ii. Grade so as to achieve erosion control, long-term stability and preservation of surface water flow patterns
iii. Reseed in the first favorable growing season following closure

19.15.17.13. **H.** 5 **(a)** Reclamation of areas no longer in use. All areas disturbed by the closure of pits and below-grade tanks, except areas reasonably needed for production operations or for subsequent drilling operations, shall be reclaimed as early and as nearly as practicable to their original condition or their final land use and shall be maintained to control dust and minimize erosion to the extent practicable.
(b) Topsoils and subsoils shall be replaced to their original relative positions and contoured so as to achieve erosion control, long -term stability and preservation of surface water flow patterns. The disturbed area then shall be reseeded in the first favorable growing season following closure of a pit, ….

The operator will notify the division when the site meets the surface owner's requirements or exhibits a uniform vegetative cover that reflects a life-form ratio of plus or minus fifty percent (50%) of pre-disturbance levels and a total percent plant cover of at least seventy percent (70%) of pre-disturbance levels, excluding noxious weeds.

19.15.17.13. **H.** 5.**(c)** Reclamation of all disturbed areas no longer in use shall be considered complete when all ground surface disturbing activities at the site have been completed, and a uniform vegetative cover has been established that reflects a life-form ratio of plus or minus fifty percent (50%) of pre-disturbance levels and a total percent plant cover of at least seventy percent (70%) of pre-disturbance levels, excluding noxious weeds

Re-vegetation and reclamation plans imposed by the surface owner will be outlined in communications with the OCD.

The operator will notify the division when the surface grading work element of reclamation is complete

19.15.17.13. **H.** 5**(d)** Other regulatory requirements. The re -vegetation and reclamation obligations imposed by other applicable federal or tribal agencies on lands managed by those agencies shall supersede these provisions and govern the obligations of any operator subject to those provisions, provided that the other requirements provide equal or better protection of fresh water, human health and the environment.
(e) The operator shall notify the division when reclamation and re -vegetation are complete

SITING CRITERIA FOR ON-SITE CLOSURE

SAME CRITERIA FOR RESERVE PIT LOCATION SEE PREVIOUS -

Ground water is less than 25 feet below the bottom of the buried waste.
- NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells

Ground water is between 25-50 feet below the bottom of the buried waste
- NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells

Ground water is more than 100 feet below the bottom of the buried waste.
- NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells

Within 100 feet of a continuously flowing watercourse, or 200 feet of any other significant watercourse, lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark).
- Topographic map; Visual inspection (certification) of the proposed site

Within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application.
- Visual inspection (certification) of the proposed site; Aerial photo; Satellite image

Within 300 horizontal feet of a private, domestic fresh water well or spring used for domestic or stock watering purposes, in existence at the time of initial application.
- NM Office of the State Engineer - iWATERS database; Visual inspection (certification) of the proposed site

Written confirmation or verification from the municipality; Written approval obtained from the municipality

Within 300 feet of a wetland.
US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site

Within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance adopted pursuant to NMSA 1978, Section 3-27-3, as amended.
- Written confirmation or verification from the municipality; Written approval obtained from the municipality

Within the area overlying a subsurface mine.
- Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division

Within an unstable area.
- Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; Topographic map

Within a 100-year floodplain.
- FEMA map