

November 2018

**C-144 Permit Application Package for  
TOMB RAIDER 12 FED 213H  
Temporary Pit (Reserve Pit)  
SEC 12/T23S/R31E/, Eddy County**



View to the west from the staked location of Tomb Raider 12 Fed 516H showing the nature of the low sand dunes and vegetation. The staked location of the 213H well is in the background.

**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 ▲ Fax: 505.266-0745

November 13, 2018

Mike Bratcher  
Randolph Bayless, PE  
NMOCD District 2  
811 S. First Street  
Artesia, New Mexico 88210  
*VIA EMAIL*

Judith Yeager  
Cody Layton  
BLM Carlsbad  
620 E Greene St  
Carlsbad, NM 88220  
*VIA EMAIL*

RE: Devon Energy Production Co., LP, C-144 Temporary Pit Application  
TOMB RAIDER 12 FED 213H and 516H

Dear Mr. Bayless, Ms. Yeager and Mr. Layton:

On behalf of Devon Energy Production Company, LP, Hicks Consultants is pleased to submit the attached C-144 application for temporary pit. A Sundry Notice to change plans for the above-referenced well location will be transmitted to the BLM under separate cover.

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 one additional well located on the same pad.
2. Photographs of the location are attached to this letter to provide reviewers with an idea of the surface characteristics.
3. Appendix WELL LOGS is attached to this transmittal letter after the site photographs.
4. The signed C-144 is the next section of this submission.
5. Required supporting information that follow Form C-144 are:
  - a. A C-102 and survey of the location with driving directions
  - b. The design drawing of the reserve pit with the specifications of the proposed liner.
  - c. Previously approved variance to the Pit Rule that will be used for this permit application. These are:
    - i. allow use of EPA Method 8015M in lieu of 418.1 for analysis of TPH (December 18, 2014) and 8015 will be used for this closure.
    - ii. allow EPA 300.0 or SM4500 for the analysis of chloride (see Rule 29).
    - iii. A request for temporary restoration of a portion of the pit footprint to a production pad/battery s.
    - iv. Permit notification of the surface owner via email in lieu of US Mail
  - d. Maps and text demonstrating that the siting criteria of the Pit Rule are met.
  - e. Design/Construction, Operation, and Closure Plans including design drawings showing the proposed layout, dimensions and volumes. The reserve pit uses the same design, construction, operation and closure plans as approved for the North Thistle wells in Lea County (see 30 025 45070) The OCD approval follows the section divider.

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The exact geometry of the pit may change slightly based upon site conditions and any stipulations from the surface owner (BLM). However, the footprint of the pit will remain within the BLM approved area of disturbance.

The United States is the surface owner and this application is provided to the BLM via email.

Please contact me if you have any questions or concerns regarding this application.

Sincerely,  
R.T. Hicks Consultants

A handwritten signature in black ink, appearing to read "Randall Hicks". The signature is written in a cursive, flowing style.

Randall Hicks  
Principal

Copy: Devon Energy Production Company, LP



View northwest toward well stakes from southeastern corner stake of pad;  
370 ft southeast of well stakes



Northeast corner of proposed location, viewing southwest to well stakes; Vegetation consists of native grasses, short mesquite, shinnery oak, rabbitbrush, and an abundance of sandbur



View north from northern edge of the staked location, 150 feet north of well stakes; Isolated, sandy knolls ~6 ft high are visible in background



View of #213H and #516H well stakes facing west; surface soils consists of compacted sand



View east from the eastern corner of location,  
small dunes north of proposed pad are visible in left background



View to center of proposed pad from western edge of location, 300 ft west of center of pad



Close-up of sandstone exposed in abundance in access road located on west side of proposed location. Caliche at surface is limited.



## APPENDIX WELL LOGS

STATE ENGINEER OFFICE  
WELL RECORD

469289

Section 1. GENERAL INFORMATION

(A) Owner of well BLM- STACY MILLS Owner's Well No. C-3351  
Street or Post Office Address P.O. BOX 1358  
City and State LOVING, NEW MEXICO 88256

Well was drilled under Permit No. C-3351 and is located in the:

- a. SE ¼ NW ¼ SE ¼ of Section 4 Township 23-S Range 31-E N.M.P.M.
- b. Tract No. \_\_\_\_\_ of Map No. \_\_\_\_\_ of the \_\_\_\_\_
- c. Lot No. \_\_\_\_\_ of Block No. \_\_\_\_\_ of the \_\_\_\_\_  
Subdivision, recorded in \_\_\_\_\_ County.
- d. X=614968.79 feet, Y=3577879.68 feet, N.M. Coordinate System \_\_\_\_\_ Zone in the \_\_\_\_\_ Grant.

(B) Drilling Contractor GLENN'S WATER WELL SERVICE INC. License No. WD-421  
Address P.O. BOX 692 TATUM, NEW MEXICO 88267

Drilling Began 11/20/07 Completed 11/20/07 Type tools ROTARY Size of hole 7 7/8 in.

Elevation of land surface or \_\_\_\_\_ at well is \_\_\_\_\_ ft. Total depth of well 320 ft.

Completed well is  shallow  artesian. Depth to water upon completion of well 168 ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet		Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)
From	To			
240	265	25	SAND ROCK	25

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet		Length (feet)	Type of Shoe	Perforations	
			Top	Bottom			From	To
8 5/8	.188	PE	1	20	20	NONE	CEMENTED	
6 5/8	.188	PE	1	304	304	NONE	152	304

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet		Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement
From	To				

Section 5. PLUGGING RECORD

Plugging Contractor \_\_\_\_\_  
Address \_\_\_\_\_  
Plugging Method \_\_\_\_\_  
Date Well Plugged \_\_\_\_\_  
Plugging approved by: \_\_\_\_\_

State Engineer Representative

No.	Depth in Feet		Cubic Feet of Cement
	Top	Bottom	
1			
2			
3			
4			

STATE ENGINEER OFFICE  
 BOSWELL, NEW MEXICO  
 2007 DEC -14 A 11:38

FOR USE OF STATE ENGINEER ONLY

Date Received 12.4.07

Quad \_\_\_\_\_ FWL \_\_\_\_\_ FSL \_\_\_\_\_

File No. C-3351 Use SK Location No. 23S.31E.4.414



STATE ENGINEER OFFICE  
WELL RECORD

Section 1. GENERAL INFORMATION

46924Z  
TMT 193957  
'92 OCT 30 PM 1 52  
STATE ENGINEER OFFICE  
SANTA FE NEW MEXICO

(A) Owner of well Devon Energy Corporation  
Street or Post Office Address 20 North Broadway Suite 1500  
City and State Oklahoma City, Oklahoma 73102

Well was drilled under Permit No. C-2258 and is located in the:

- a. 1/4 1/4 SW 1/4 NE of Section 26 Township 23-S Range 31-E N.M.P.M.
- b. Tract No. \_\_\_\_\_ of Map No. \_\_\_\_\_ of the \_\_\_\_\_
- c. Lot No. \_\_\_\_\_ of Block No. \_\_\_\_\_ of the \_\_\_\_\_  
Subdivision, recorded in \_\_\_\_\_ County.
- d. X=912.50 feet, Y=912.50 feet, N.M. Coordinate System \_\_\_\_\_ Zone in Grant.

(B) Drilling Contractor Glenn's Water Well Service License No. WD 421

Address P.O. Box 692 Tatum, New Mexico 88267

Drilling Began 9/18/92 Completed 9/18/92 Type tools Rotary Size of hole 7 7/8 in.

Elevation of land surface or \_\_\_\_\_ at well is \_\_\_\_\_ ft. Total depth of well 662 ft.

Completed well is  shallow  artesian. Depth to water upon completion of well \_\_\_\_\_ ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet		Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)
From	To			
			No Water	

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet		Length (feet)	Type of Shoe	Perforations	
			Top	Bottom			From	To

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet		Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement
From	To				

Section 5. PLUGGING RECORD

Plugging Contractor \_\_\_\_\_

Address \_\_\_\_\_

Plugging Method back filled with mud & jel

Date Well Plugged \_\_\_\_\_

Plugging approved by: \_\_\_\_\_

State Engineer Representative

No.	Depth in Feet		Cubic Feet of Cement
	Top	Bottom	
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY

Received 09-25-92

Quad \_\_\_\_\_ FWL \_\_\_\_\_ FSL \_\_\_\_\_

No. C-2258 Use OWD Location No. 23S.31E.26.23344





# WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

STATE ENGINEER OFFICE  
ROSWELL

1. GENERAL AND WELL LOCATION	OSE POD NUMBER (WELL NUMBER) <b>C-2348-</b>			OSE FILE NUMBER(S) <b>2013 NOV - 71A 11-11</b> <b>C-2348</b>		
	WELL OWNER NAME(S) <b>MARK McCloy - McCloy Ranches</b>			PHONE (OPTIONAL) <b>432-940-4459</b>		
	WELL OWNER MAILING ADDRESS <b>P.O. Box 1076 254 Diamond Rd</b>			CITY <b>Tal</b>		STATE <b>NM</b>
				ZIP <b>88252</b>		
	WELL LOCATION (FROM GPS)	DEGREES LATITUDE <b>32</b>	MINUTES <b>16</b>	SECONDS <b>12.91</b>	N	
	LONGITUDE <b>103</b>	<b>45</b>	<b>03.61</b>	W		
* ACCURACY REQUIRED: ONE TENTH OF A SECOND						
* DATUM REQUIRED: WGS 84						
DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS - PLS (SECTION, TOWNSHIP, RANGE) WHERE AVAILABLE <b>Hwy 128 to 18 mm 1 mile N 1/2 mile west on Red Road</b>						

2. DRILLING & CASING INFORMATION	LICENSE NUMBER <b>1654</b>	NAME OF LICENSED DRILLER <b>John Sireman</b>			NAME OF WELL DRILLING COMPANY <b>Sireman Drilling + Const. LLC</b>			
	DRILLING STARTED <b>10/31/13</b>	DRILLING ENDED <b>11/1/13</b>	DEPTH OF COMPLETED WELL (FT) <b>700'-0</b>	BORE HOLE DEPTH (FT) <b>700'-0</b>	DEPTH WATER FIRST ENCOUNTERED (FT) <b>575-600</b>			
	COMPLETED WELL IS: <input type="checkbox"/> ARTESIAN <input type="checkbox"/> DRY HOLE <input checked="" type="checkbox"/> SHALLOW (UNCONFINED)				STATIC WATER LEVEL IN COMPLETED WELL (FT) <b>430'-0</b>			
	DRILLING FLUID: <input checked="" type="checkbox"/> AIR <input type="checkbox"/> MUD <input type="checkbox"/> ADDITIVES - SPECIFY:							
	DRILLING METHOD: <input checked="" type="checkbox"/> ROTARY <input checked="" type="checkbox"/> HAMMER <input type="checkbox"/> CABLE TOOL <input type="checkbox"/> OTHER - SPECIFY:							
	DEPTH (feet bgl)		BORE HOLE DIAM (inches)	CASING MATERIAL AND/OR GRADE (include each casing string, and note sections of screen)	CASING CONNECTION TYPE	CASING INSIDE DIAM. (inches)	CASING WALL THICKNESS (inches)	SLOT SIZE (inches)
	FROM	TO						
	<b>0</b>	<b>560</b>	<b>10</b>	<b>PVC</b>	<b>Certa-lok</b>	<b>6</b>	<b>DR-17</b>	<b>Blank</b>
	<b>560</b>	<b>620</b>	<b>10</b>	<b>PVC</b>	<b>Certa Lok</b>	<b>6</b>	<b>DR-17</b>	<b>1032 screen</b>
	<b>620</b>	<b>680</b>	<b>10</b>	<b>PVC</b>	<b>Certelok</b>	<b>6</b>	<b>DR-17</b>	<b>Blank</b>
<b>680</b>	<b>700</b>	<b>10</b>	<b>PVC</b>	<b>Certa lok</b>	<b>6</b>	<b>DR-17</b>	<b>1032 screen</b>	

3. ANNULAR MATERIAL	DEPTH (feet bgl)		BORE HOLE DIAM. (inches)	LIST ANNULAR SEAL MATERIAL AND GRAVEL PACK SIZE-RANGE BY INTERVAL	AMOUNT (cubic feet)	METHOD OF PLACEMENT
	FROM	TO				
	<b>0</b>	<b>20</b>	<b>10</b>	<b>3/8 bentonite hole plug</b>	<b>6 bags</b>	<b>gravity</b>
	<b>67</b>	<b>700</b>	<b>10</b>	<b>3/8 pea gravel</b>	<b>5yds</b>	<b>gravity</b>

FOR OSE INTERNAL USE

WR-20 WELL RECORD & LOG (Version 06/08/2012)

FILE NUMBER <b>C-2348</b>	POD NUMBER <b>1</b>	TRN NUMBER <b>491413</b>
LOCATION <b>C</b>	<b>235.31E.26.3-4-1</b>	<b>Livestock</b>





# WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

[www.ose.state.nm.us](http://www.ose.state.nm.us)

1. GENERAL AND WELL LOCATION	OSE POD NUMBER (WELL NUMBER) <b>C-3749 POD 1 (H12R)</b>			OSE FILE NUMBER(S) <b>C-3749 POD 1</b>				
	WELL OWNER NAME(S) <b>US Dept of Energy</b>			PHONE (OPTIONAL) <b>575-234-7488</b>				
	WELL OWNER MAILING ADDRESS <b>POB 3090</b>			CITY <b>Carlsbad</b>		STATE ZIP <b>NM 88221-3090</b>		
	WELL LOCATION (FROM GPS)	DEGREES		MINUTES	SECONDS	N	* ACCURACY REQUIRED: ONE TENTH OF A SECOND * DATUM REQUIRED: WGS 84	
		LATITUDE	<b>32</b>	<b>18</b>	<b>42.0588</b>			
	LONGITUDE		<b>-103</b>	<b>45</b>	<b>26.7078</b>	W		
DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS - PLSS (SECTION, TOWNSHIP, RANGE) WHERE AVAILABLE <b>From Jal Hwy take Redd Rd 3 miles north, head west 1 mile on dirt road to H12 Well site</b>								
2. DRILLING & CASING INFORMATION	LICENSE NUMBER <b>NM 331</b>		NAME OF LICENSED DRILLER <b>Randy Stewart</b>			NAME OF WELL DRILLING COMPANY <b>Stewart Brothers</b>		
	DRILLING STARTED <b>7/10/14</b>	DRILLING ENDED <b>8/6/14</b>	DEPTH OF COMPLETED WELL (FT) <b>865</b>	BORE HOLE DEPTH (FT) <b>865</b>	DEPTH WATER FIRST ENCOUNTERED (FT)			
	COMPLETED WELL IS: <input type="radio"/> ARTESIAN <input type="radio"/> DRY HOLE <input checked="" type="radio"/> SHALLOW (UNCONFINED)					STATIC WATER LEVEL IN COMPLETED WELL (FT) <b>639</b>		
	DRILLING FLUID: <input type="radio"/> AIR <input type="radio"/> MUD ADDITIVES - SPECIFY:							
	DRILLING METHOD: <input checked="" type="radio"/> ROTARY <input type="radio"/> HAMMER <input type="radio"/> CABLE TOOL <input type="radio"/> OTHER - SPECIFY:							
	DEPTH (feet bgl)		BORE HOLE DIAM (inches)	CASING MATERIAL AND/OR GRADE (include each casing string, and note sections of screen)	CASING CONNECTION TYPE	CASING INSIDE DIAM. (inches)	CASING WALL THICKNESS (inches)	SLOT SIZE (inches)
	FROM	TO						
	0	40	17 1/2	13 3/8	Weld	12 1/4	.375	
	40	820	12 1/4	5" Fiberglass Blank	Threaded	4.5		
	820	846	12 1/4	5" Fiberglass Slotted	Threaded	4.5		.070
846	858	12 1/4	5" Fiberglass Blank	Threaded	4.5			
3. ANNULAR MATERIAL	DEPTH (feet bgl)		BORE HOLE DIAM. (inches)	LIST ANNULAR SEAL MATERIAL AND GRAVEL PACK SIZE-RANGE BY INTERVAL	AMOUNT (cubic feet)	METHOD OF PLACEMENT		
	FROM	TO						
	857	865	12 1/4	8/12 Sand	2	Tremie		
	851	857	12 1/4	Gelacryl Superflex Seal	1	Tremie		
	816	851	12 1/4	8/16 Sand Pack	6	Tremie		
	811	816	12 1/4	Fine Sand	1	Tremie		
	806	811	12 1/4	Gelacryl Super Flex	1	Tremie		

FOR OSE INTERNAL USE

WR-20 WELL RECORD & LOG (Version 06/08/2012)

FILE NUMBER	<b>C-3749</b>	POD NUMBER	<b>1</b>	TRN NUMBER	<b>548076</b>
LOCATION	<b>4-4-3</b>	<b>235.32E.07</b>	PAGE 1 OF 2		

4. HYDROGEOLOGIC LOG OF WELL	DEPTH (feet bgl)		THICKNESS (feet)	COLOR AND TYPE OF MATERIAL ENCOUNTERED - INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES (attach supplemental sheets to fully describe all units)	WATER BEARING? (YES / NO)	ESTIMATED YIELD FOR WATER-BEARING ZONES (gpm)
	FROM	TO				
	1	12	11	Dune sand and pad material	<input type="radio"/> Y <input checked="" type="radio"/> N	
	12	16	4	Mescalero Caliche	<input type="radio"/> Y <input checked="" type="radio"/> N	
	16	20	4	Gatuna (Sandstone)	<input type="radio"/> Y <input checked="" type="radio"/> N	
	20	70	50	Santa Rosa (Sandstone)	<input type="radio"/> Y <input checked="" type="radio"/> N	
	70	620	550	Dewy Lake Sandstone	<input type="radio"/> Y <input checked="" type="radio"/> N	
	620	648	28	Anhydrite	<input type="radio"/> Y <input checked="" type="radio"/> N	
	648	663	15	Mudstone	<input type="radio"/> Y <input checked="" type="radio"/> N	
	663	678	15	Anhydrite	<input type="radio"/> Y <input checked="" type="radio"/> N	
	678	702	4	Magenta Dolomite	<input type="radio"/> Y <input type="radio"/> N	
	702	756	54	Anhydrite	<input type="radio"/> Y <input type="radio"/> N	
	756	772	16	Halite	<input type="radio"/> Y <input type="radio"/> N	
	772	820	48	Anhydrite	<input type="radio"/> Y <input type="radio"/> N	
	820	846	26	Culebra Dolomite	<input checked="" type="radio"/> Y <input type="radio"/> N	
	846	856	10	Mudstone	<input type="radio"/> Y <input checked="" type="radio"/> N	
	856	865	9	Anhydrite	<input type="radio"/> Y <input checked="" type="radio"/> N	
					<input type="radio"/> Y <input type="radio"/> N	
					<input type="radio"/> Y <input type="radio"/> N	
					<input type="radio"/> Y <input type="radio"/> N	
					<input type="radio"/> Y <input type="radio"/> N	
					<input type="radio"/> Y <input type="radio"/> N	
					<input type="radio"/> Y <input type="radio"/> N	
METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA: <input type="radio"/> PUMP					TOTAL ESTIMATED WELL YIELD (gpm): 5	
<input checked="" type="radio"/> AIR LIFT <input type="radio"/> BAILER <input type="radio"/> OTHER - SPECIFY:						
5. TEST; RIG SUPERVISION	WELL TEST	TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD, START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.				
	MISCELLANEOUS INFORMATION:  Monitor Well					
PRINT NAME(S) OF DRILL RIG SUPERVISOR(S) THAT PROVIDED ONSITE SUPERVISION OF WELL CONSTRUCTION OTHER THAN LICENSEE: Don Ward						
6. SIGNATURE	THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:					
					Randy Stewart	8/30/14
SIGNATURE OF DRILLER / PRINT SIGNEE NAME				DATE		

STATE ENGINEER'S OFFICE  
 PERMITTING DIVISION  
 2014 SEP 11 10:4

FOR OSE INTERNAL USE		WR-20 WELL RECORD & LOG (Version 06/08/2012)	
FILE NUMBER	C-3749	POD NUMBER	1
LOCATION	4-4-3	TRN NUMBER	548076
			PAGE 2 OF 2

235.32E.07

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: TOMB RAIDER 12 FED 213H  
API Number: 30-015-44854 (213H), 30 015 NOT ASSIGNED (516H) OCD Permit Number: \_\_\_\_\_  
U/L or Qtr/Qtr P Section 11 Township 23S Range 31E County: Eddy  
~~Center of~~ Proposed Design **is about 100 feet south of:** Latitude 32.3118337 Longitude -103.7276518 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 Plates 1 & 2 Dimensions: See Plates 1 & 2

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.

**Variations 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

<p>Within 100 feet of a wetland.</p> <ul style="list-style-type: none"> <li>- US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site</li> </ul>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<p><b><u>Temporary Pit Non-low chloride drilling fluid</u></b></p>	
<p>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). <b>See Figure 7</b></p> <ul style="list-style-type: none"> <li>- Topographic map; Visual inspection (certification) of the proposed site</li> </ul>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<p>Within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application.</p> <ul style="list-style-type: none"> <li>- Visual inspection (certification) of the proposed site; Aerial photo; Satellite image. <b>See Figure 8</b></li> </ul>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<p>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;</p> <ul style="list-style-type: none"> <li>- NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site <b>See Figures 1 &amp; 2 and 7 (springs)</b></li> </ul>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<p>Within 300 feet of a wetland. <b>See Figure 9</b></p> <ul style="list-style-type: none"> <li>- US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site</li> </ul>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<p><b><u>Permanent Pit or Multi-Well Fluid Management Pit</u></b></p>	
<p>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).</p> <ul style="list-style-type: none"> <li>- Topographic map; Visual inspection (certification) of the proposed site</li> </ul>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<p>Within 1000 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application.</p> <ul style="list-style-type: none"> <li>- Visual inspection (certification) of the proposed site; Aerial photo; Satellite image</li> </ul>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<p>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.</p> <ul style="list-style-type: none"> <li>- NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site</li> </ul>	<input type="checkbox"/> Yes <input type="checkbox"/> No
<p>Within 500 feet of a wetland.</p> <ul style="list-style-type: none"> <li>- US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site</li> </ul>	<input type="checkbox"/> Yes <input type="checkbox"/> 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: 30 025 45070 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<sub>2</sub>S, 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.<br>- NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells   | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No<br><input type="checkbox"/> NA |
| Ground water is between 25-50 feet below the bottom of the buried waste<br>- NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells   | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No<br><input type="checkbox"/> NA |
| Ground water is more than 100 feet below the bottom of the buried waste.<br>- NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells  | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No<br><input type="checkbox"/> 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).<br>- Topographic map; Visual inspection (certification) of the proposed site                        | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No                                |
| Within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application.<br>- Visual inspection (certification) of the proposed site; Aerial photo; Satellite image  | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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.<br>- NM Office of the State Engineer - iWATERS database; Visual inspection (certification) of the proposed site | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No                                |
| Written confirmation or verification from the municipality; Written approval obtained from the municipality   | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No                                |
| Within 300 feet of a wetland.<br>US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site   | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No                                |
| Within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance   | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No                                |

adopted pursuant to NMSA 1978, Section 3-27-3, as amended. - Written confirmation or verification from the municipality; Written approval obtained from the municipality	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within the area overlying a subsurface mine. - Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within an unstable area. - Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; Topographic map	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within a 100-year floodplain. - FEMA map	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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
- Reclamation Plan - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC

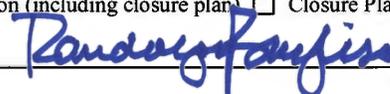
17. **Operator Application Certification:**  
 I hereby certify that the information submitted with this application is true, accurate and complete to the best of my knowledge and belief.

Name (Print): Jamison Hart Title: Drilling Engineer

Signature:  Date: 11/13/18

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

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

OCD Representative Signature:  Approval Date: 19Nov18

Title: Hydrologist OCD Permit Number: na

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

**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: <u>Devon Energy Production Company, LP.</u>	OGRID #: <u>6137</u>
	Address: <u>333 W. Sheridan, Oklahoma City, OK 73102-8260</u>	
	Facility or well name: <u>TOMB RAIDER 12 FED 213H</u>	
	API Number: <u>30-015-44854 (213H), 30 015 NOT ASSIGNED (516H)</u> OCD Permit Number: _____	
	U/L or Qtr/Qtr <u>P</u> Section <u>11</u> Township <u>23S</u> Range <u>31E</u> County: <u>Eddy</u>	
	<b>Center of Proposed Design is about 100 feet south of:</b> Latitude <u>32.3118337</u> Longitude <u>-103.7276518</u> NAD: <input type="checkbox"/> 1927 <input checked="" type="checkbox"/> 1983	
	Surface Owner: <input checked="" type="checkbox"/> Federal <input type="checkbox"/> State <input type="checkbox"/> Private <input type="checkbox"/> Tribal Trust or Indian Allotment	

Page 1 shows latitude/longitude of surface location of well

Page 2 shows detail of well pad and adjacent well

Page 3 shows areas of interim pad reclamation and adjacent proposed pads

Page 4 shows directions to the location

Page 5 provides directions on an air photo

Page 6 shows the location of the proposed reserve pit relative to the 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 Road, 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, NM 87505

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

AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

<sup>1</sup> API Number		<sup>2</sup> Pool Code	<sup>3</sup> Pool Name
<sup>4</sup> Property Code	<sup>5</sup> Property Name <b>TOMB RAIDER 12-1 FED</b>		<sup>6</sup> Well Number <b>516H</b>
<sup>7</sup> OGRID No. <b>6137</b>	<sup>8</sup> Operator Name <b>DEVON ENERGY PRODUCTION COMPANY, L.P.</b>		<sup>9</sup> Elevation <b>3502.3</b>

<sup>10</sup> Surface Location

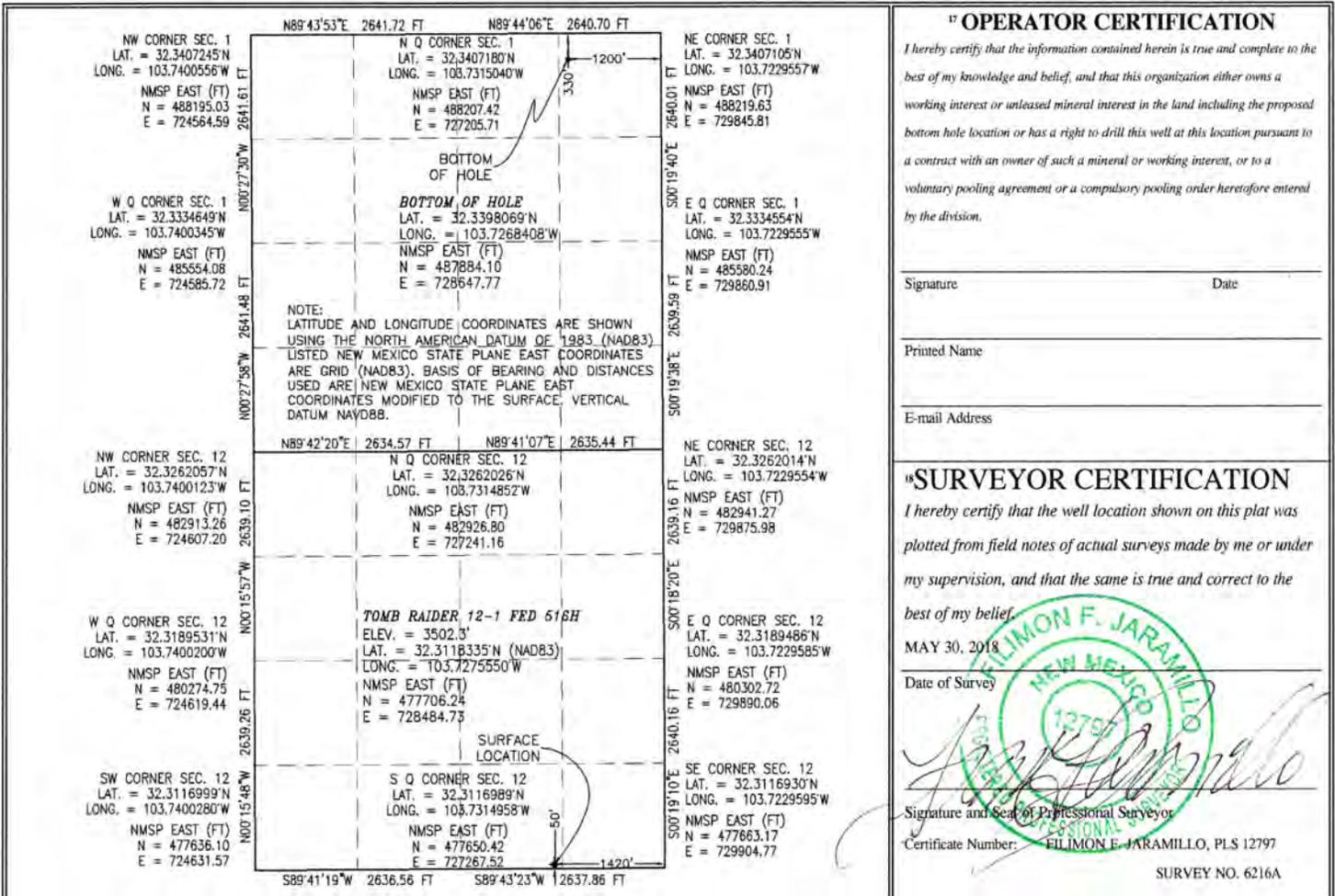
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
<b>O</b>	<b>12</b>	<b>23 S</b>	<b>31 E</b>		<b>50</b>	<b>SOUTH</b>	<b>1420</b>	<b>EAST</b>	<b>EDDY</b>

<sup>11</sup> 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
<b>A</b>	<b>1</b>	<b>23 S</b>	<b>31 E</b>		<b>330</b>	<b>NORTH</b>	<b>1200</b>	<b>EAST</b>	<b>EDDY</b>

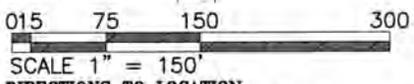
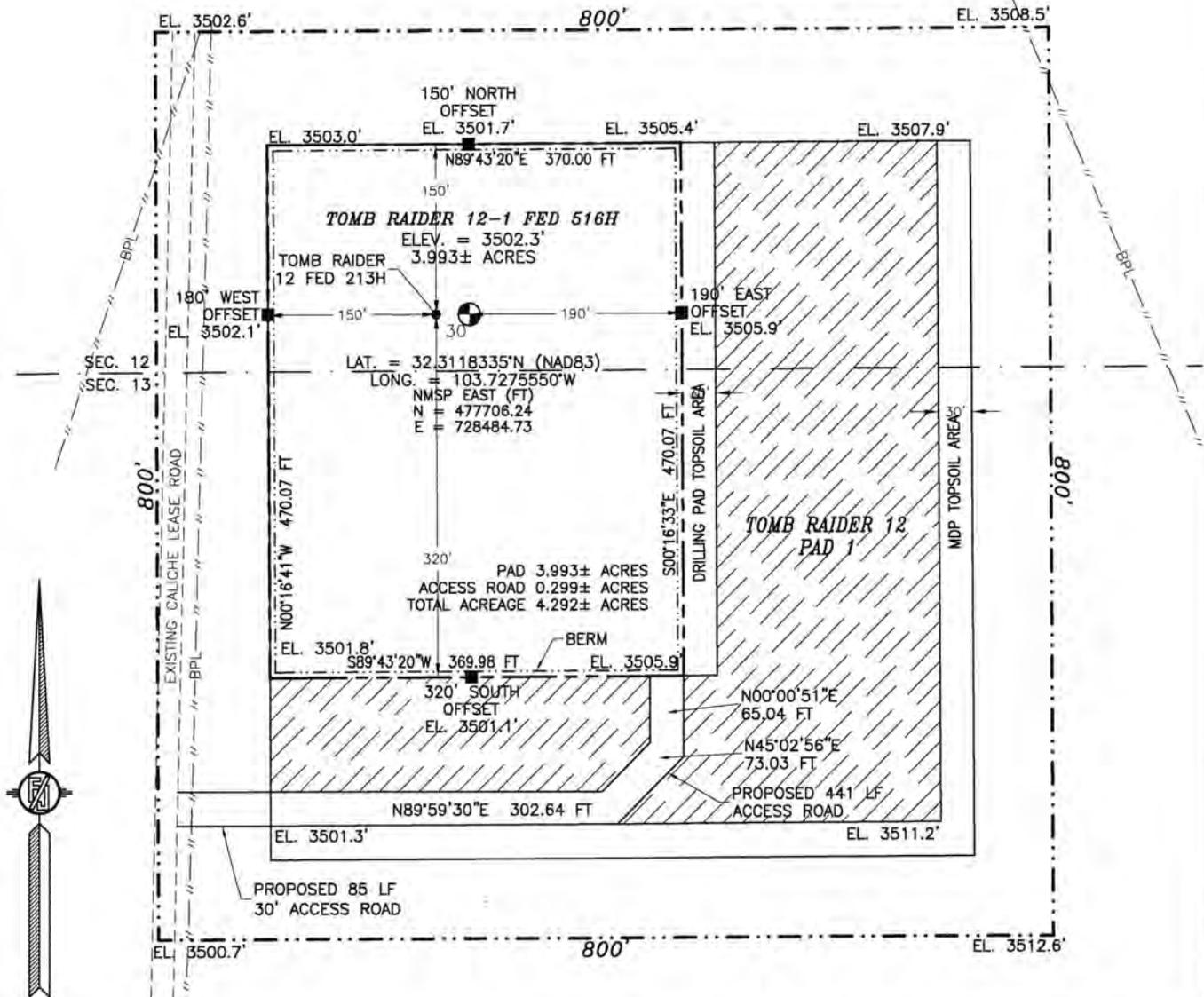
<sup>12</sup> Dedicated Acres	<sup>13</sup> Joint or Infill	<sup>14</sup> Consolidation Code	<sup>15</sup> Order No.
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No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.



SECTION 12, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.  
 EDDY COUNTY, STATE OF NEW MEXICO  
**SITE MAP**

NOTE: LATITUDE AND LONGITUDE COORDINATES ARE SHOWN USING THE NORTH AMERICAN DATUM OF 1983 (NAD83) LISTED NEW MEXICO STATE PLANE EAST COORDINATES ARE GRID (NAD83). BASIS OF BEARING AND DISTANCES USED ARE NEW MEXICO STATE PLANE EAST COORDINATES MODIFIED TO THE SURFACE. VERTICAL DATUM NAVD88.

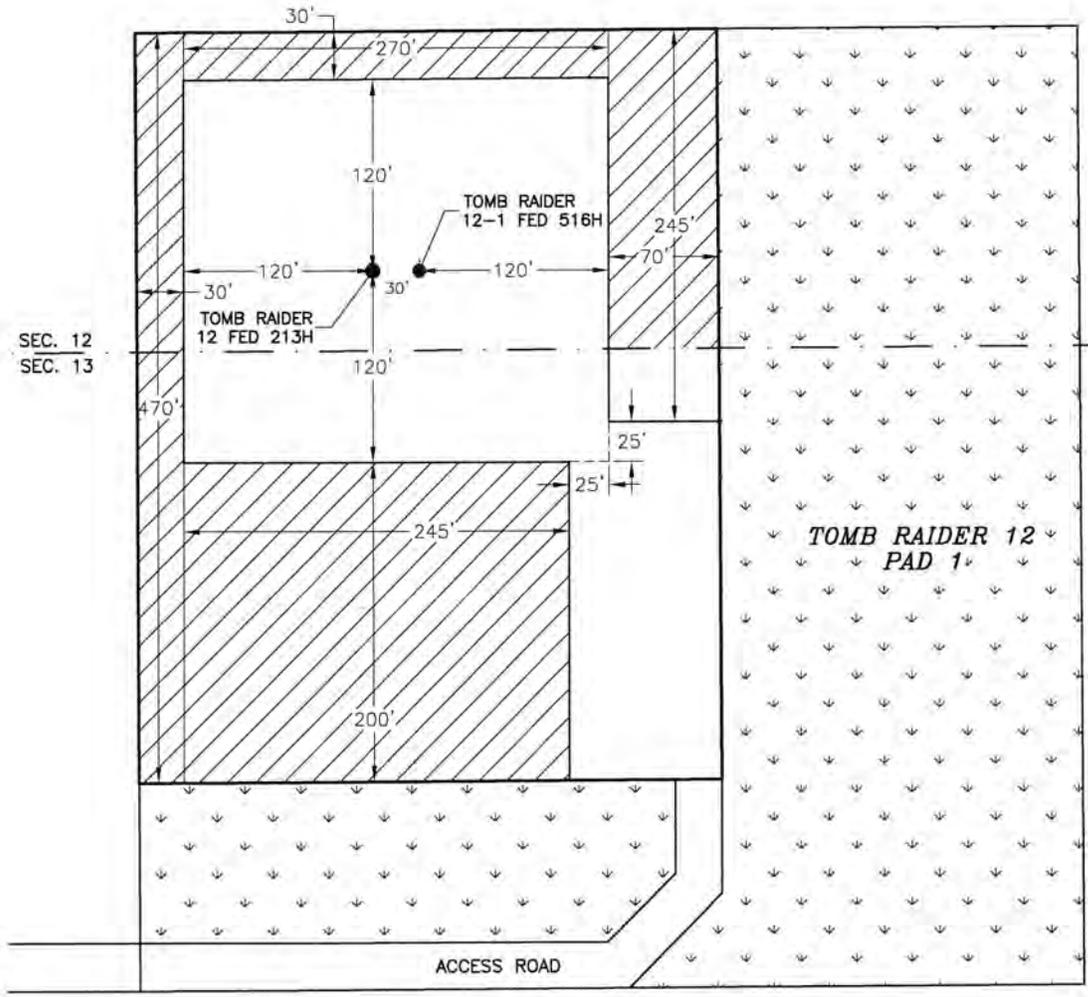


**DIRECTIONS TO LOCATION**  
 FROM STATE HIGHWAY 128 AND CR 798 (RED ROAD) GO NORTH ON CR 798 APPROX. 5.0 MILES, TURN RIGHT (EAST) GO EAST 0.3 OF A MILE, TURN RIGHT (SOUTH) GO SOUTH 0.3 OF A MILE, TURN LEFT (EAST) GO EAST APPROX. 0.5 OF A MILE, TURN RIGHT (SOUTH) GO SOUTH APPROX. 0.5 OF A MILE, TURN RIGHT (WEST) GO WEST 0.2 OF A MILE, TURN LEFT (SOUTH) GO SOUTH 0.2 OF A MILE, TURN LEFT (EAST) GO 387', THEN NORTHEAST 441', THEN NORTH 85' TO THE SOUTHEAST PAD CORNER FOR THIS LOCATION.

**DEVON ENERGY PRODUCTION COMPANY, L.P.**  
**TOMB RAIDER 12-1 FED 516H**  
 LOCATED 50 FT. FROM THE SOUTH LINE  
 AND 1420 FT. FROM THE EAST LINE OF  
 SECTION 12, TOWNSHIP 23 SOUTH,  
 RANGE 31 EAST, N.M.P.M.  
 EDDY COUNTY, STATE OF NEW MEXICO  
 LAND STATUS: BLM

MAY 30, 2018  
 SURVEY NO. 6216A

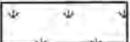
SECTION 12, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.  
 EDDY COUNTY, STATE OF NEW MEXICO  
 INTERIM SITE BUILD PLAN

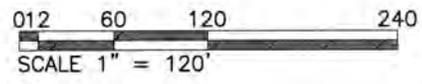


SEC. 12  
 SEC. 13



 DENOTES INTERIM PAD RECLAMATION AREA

 DENOTES GRADING SITE RECLAMATION AREA



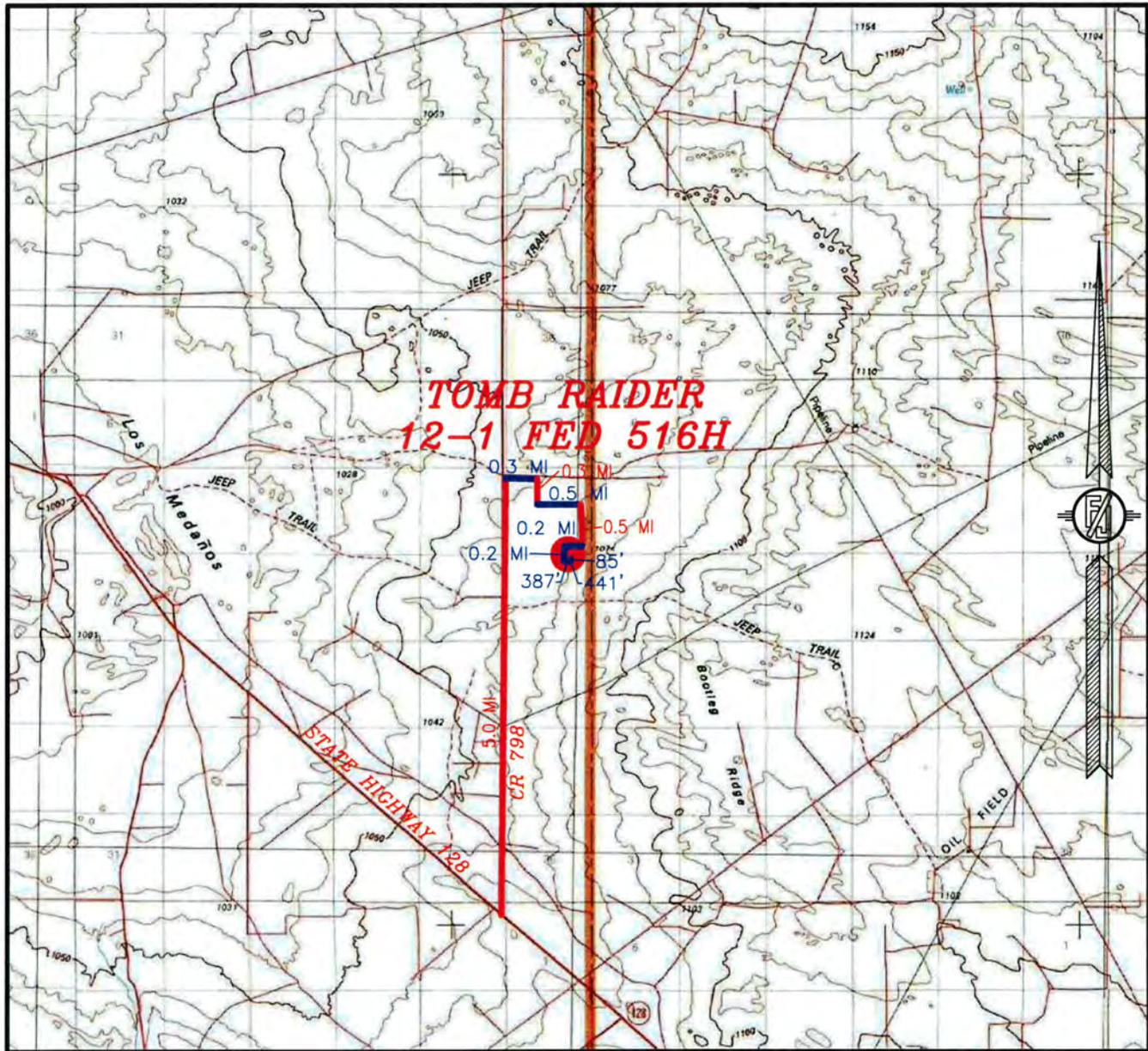
- 2.025± ACRES INTERIM PAD RECLAMATION AREA
- 3.977± ACRES GRADING SITE RECLAMATION AREA
- 2.264± ACRES NON-RECLAIMED AREA
- 8.266± ACRES TOMB RAIDER 12 PAD 1

DEVON ENERGY PRODUCTION COMPANY, L.P.  
**TOMB RAIDER 12-1 FED 516H**  
 LOCATED 50 FT. FROM THE SOUTH LINE  
 AND 1420 FT. FROM THE EAST LINE OF  
 SECTION 12, TOWNSHIP 23 SOUTH,  
 RANGE 31 EAST, N.M.P.M.  
 EDDY COUNTY, STATE OF NEW MEXICO  
 LAND STATUS: BLM

MAY 30, 2018

SURVEY NO. 6216A

SECTION 12, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.  
 EDDY COUNTY, STATE OF NEW MEXICO  
 VICINITY MAP



DISTANCES IN MILES

NOT TO SCALE

DEVON ENERGY PRODUCTION COMPANY, L.P.

**TOMB RAIDER 12-1 FED 516H**

LOCATED 50 FT. FROM THE SOUTH LINE  
 AND 1420 FT. FROM THE EAST LINE OF  
 SECTION 12, TOWNSHIP 23 SOUTH,  
 RANGE 31 EAST, N.M.P.M.

EDDY COUNTY, STATE OF NEW MEXICO

LAND STATUS: BLM

**DIRECTIONS TO LOCATION**

FROM STATE HIGHWAY 128 AND CR 798 (RED ROAD) GO NORTH ON CR 798 APPROX. 5.0 MILES, TURN RIGHT (EAST) GO EAST 0.3 OF A MILE, TURN RIGHT (SOUTH) GO SOUTH 0.3 OF A MILE, TURN LEFT (EAST) GO EAST APPROX. 0.5 OF A MILE, TURN RIGHT (SOUTH) GO SOUTH APPROX. 0.5 OF A MILE, TURN RIGHT (WEST) GO WEST 0.2 OF A MILE, TURN LEFT (SOUTH) GO SOUTH 0.2 OF A MILE, TURN LEFT (EAST) GO 387', THEN NORTHEAST 441', THEN NORTH 85' TO THE SOUTHEAST PAD CORNER FOR THIS LOCATION.

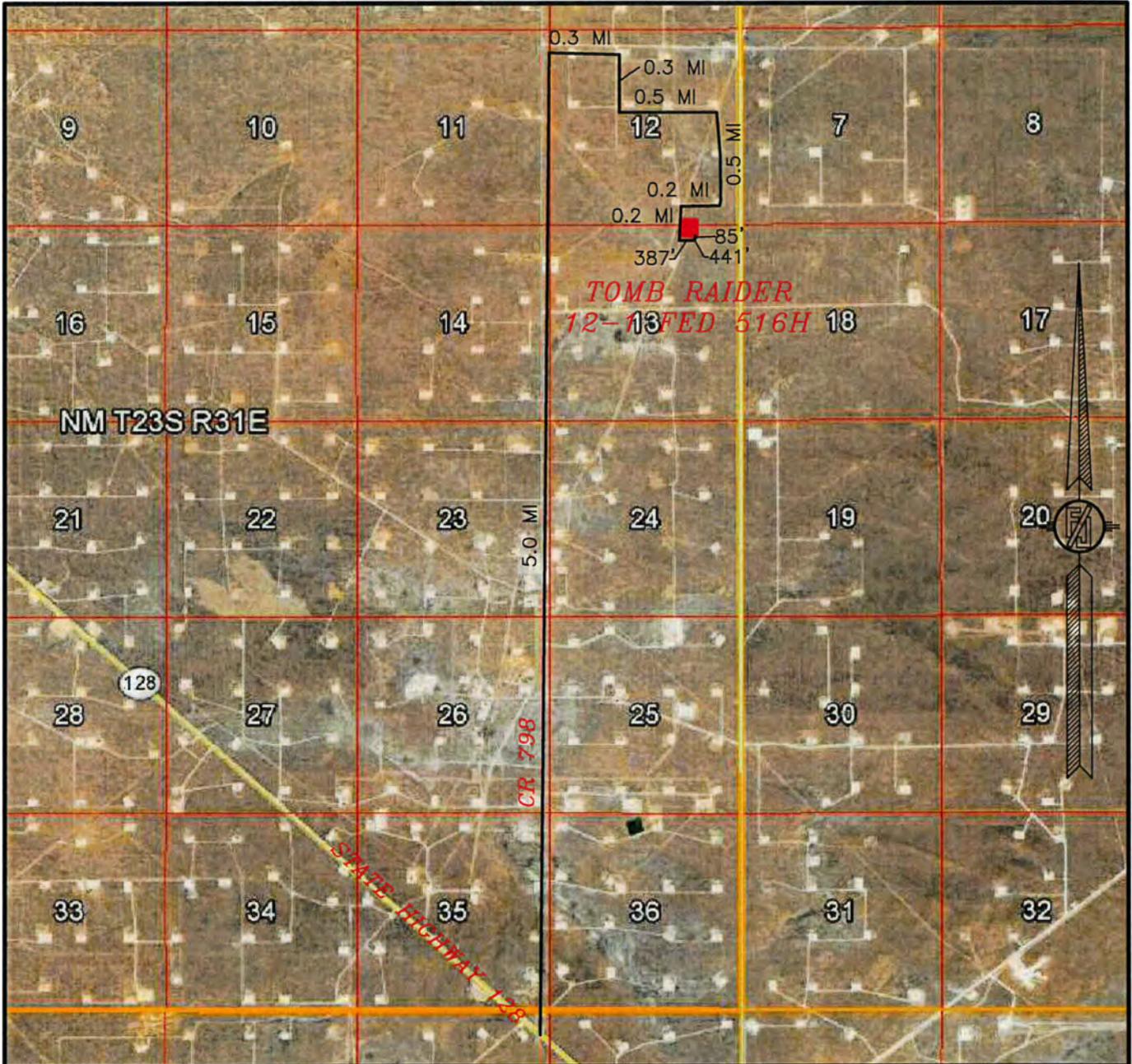
MAY 30, 2018

SURVEY NO. 6216A

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341

CARLSBAD, NEW MEXICO

SECTION 12, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.  
 EDDY COUNTY, STATE OF NEW MEXICO  
 ACCESS AERIAL ROUTE MAP



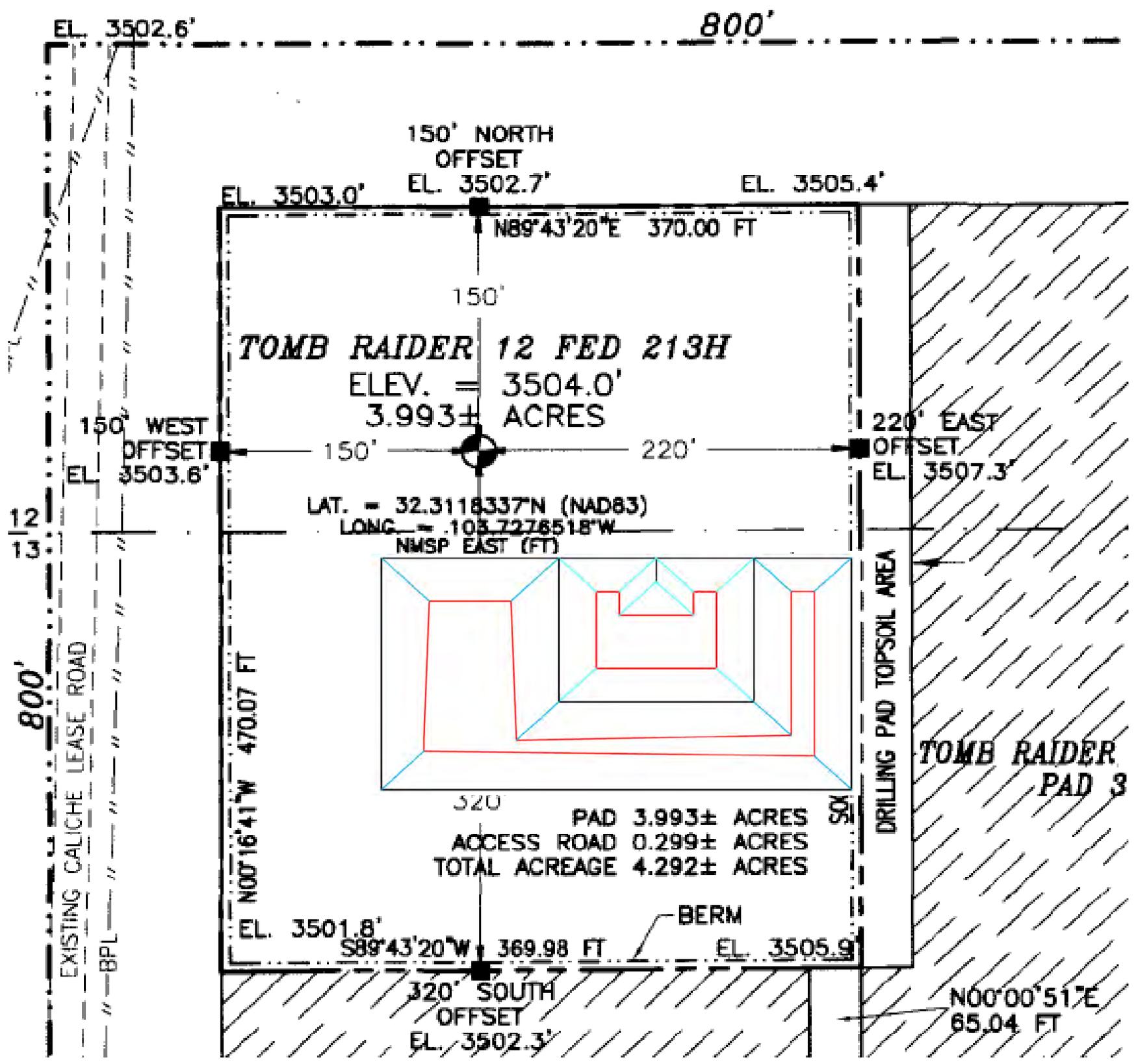
NOT TO SCALE  
 AERIAL PHOTO:  
 GOOGLE EARTH  
 FEBRUARY 2017

DEVON ENERGY PRODUCTION COMPANY, L.P.  
**TOMB RAIDER 12-1 FED 516H**  
 LOCATED 50 FT. FROM THE SOUTH LINE  
 AND 1420 FT. FROM THE EAST LINE OF  
 SECTION 12, TOWNSHIP 23 SOUTH,  
 RANGE 31 EAST, N.M.P.M.  
 EDDY COUNTY, STATE OF NEW MEXICO  
 LAND STATUS: BLM

MAY 30, 2018

SURVEY NO. 6216A

MADRON SURVEYING, INC. 301 SOUTH CANAL CARLSBAD, NEW MEXICO  
 (575) 234-3341



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 1

Tomb Raider 12 Fed 213H & 51\*H

November 2018

# RESERVE PIT DESIGN

2.

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

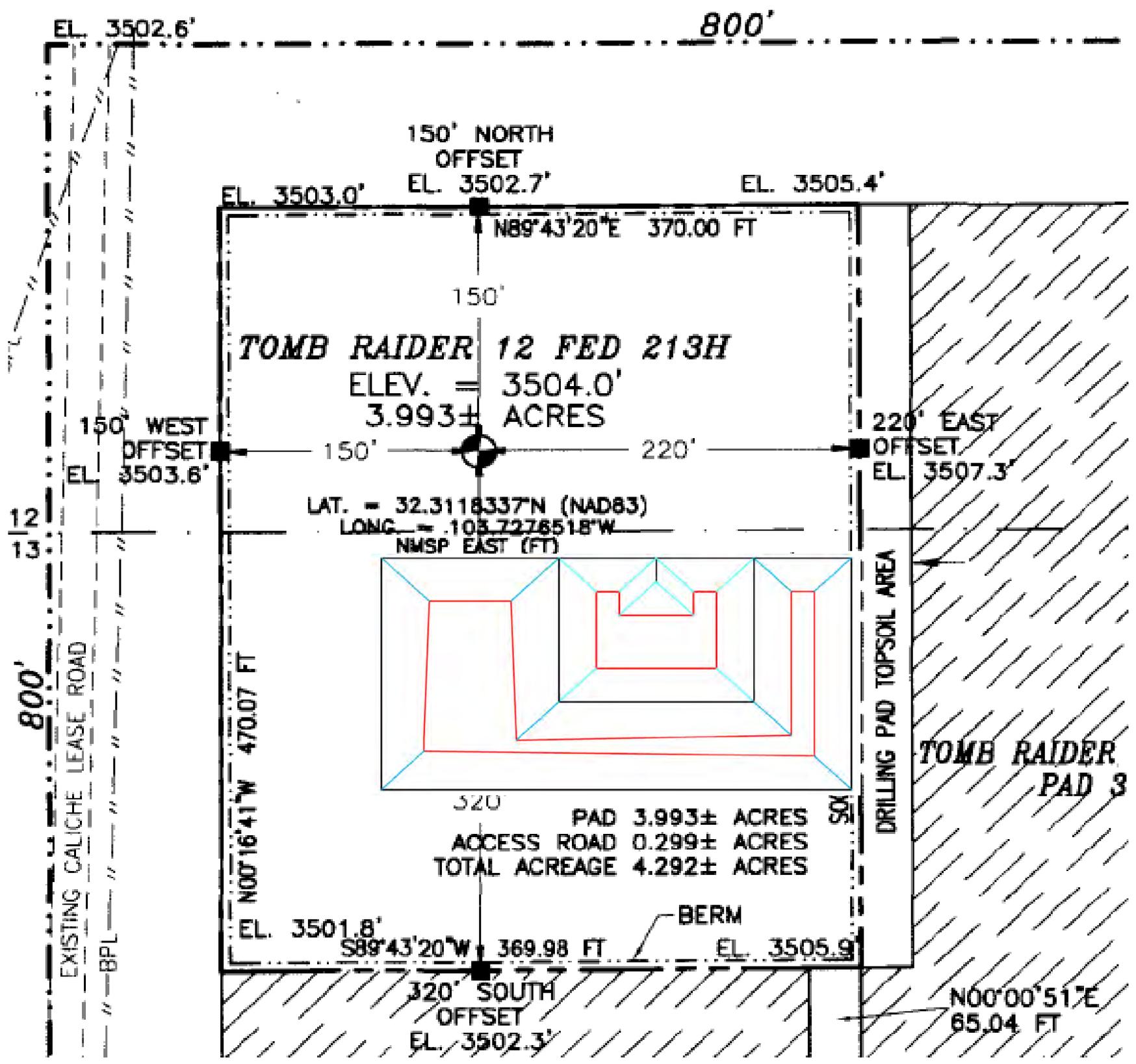
Temporary:  Drilling  Workover

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 Plates 1 & 2 Dimensions: See Plates 1 & 2



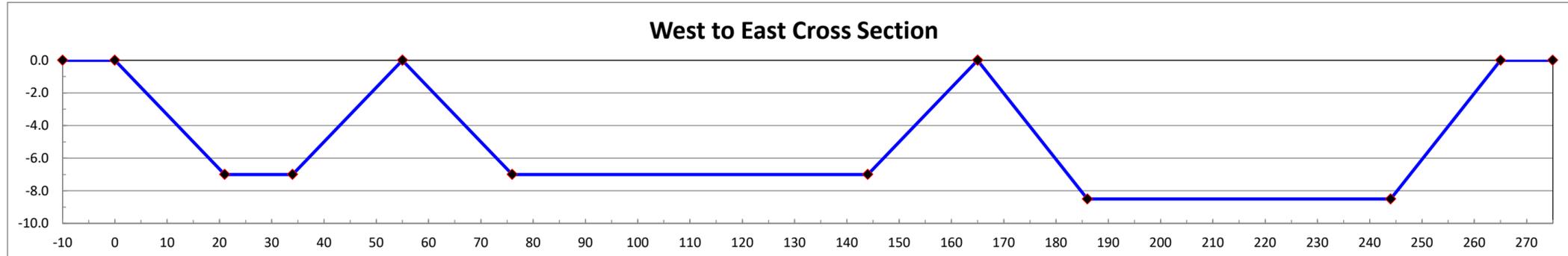
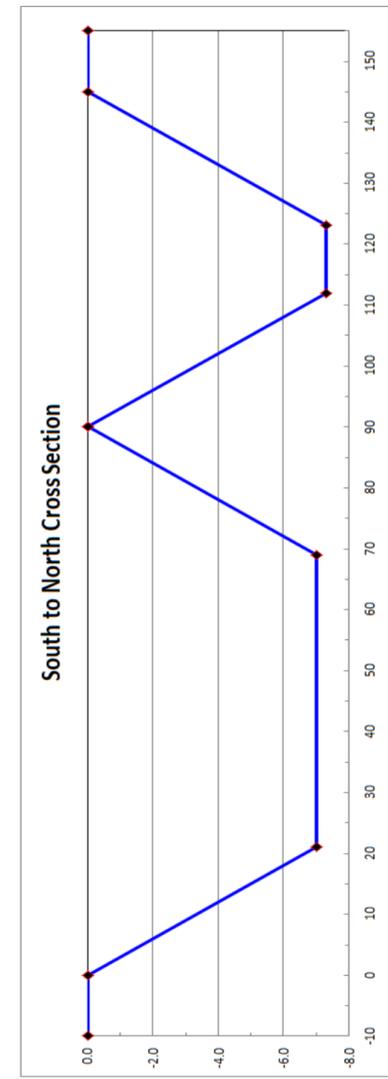
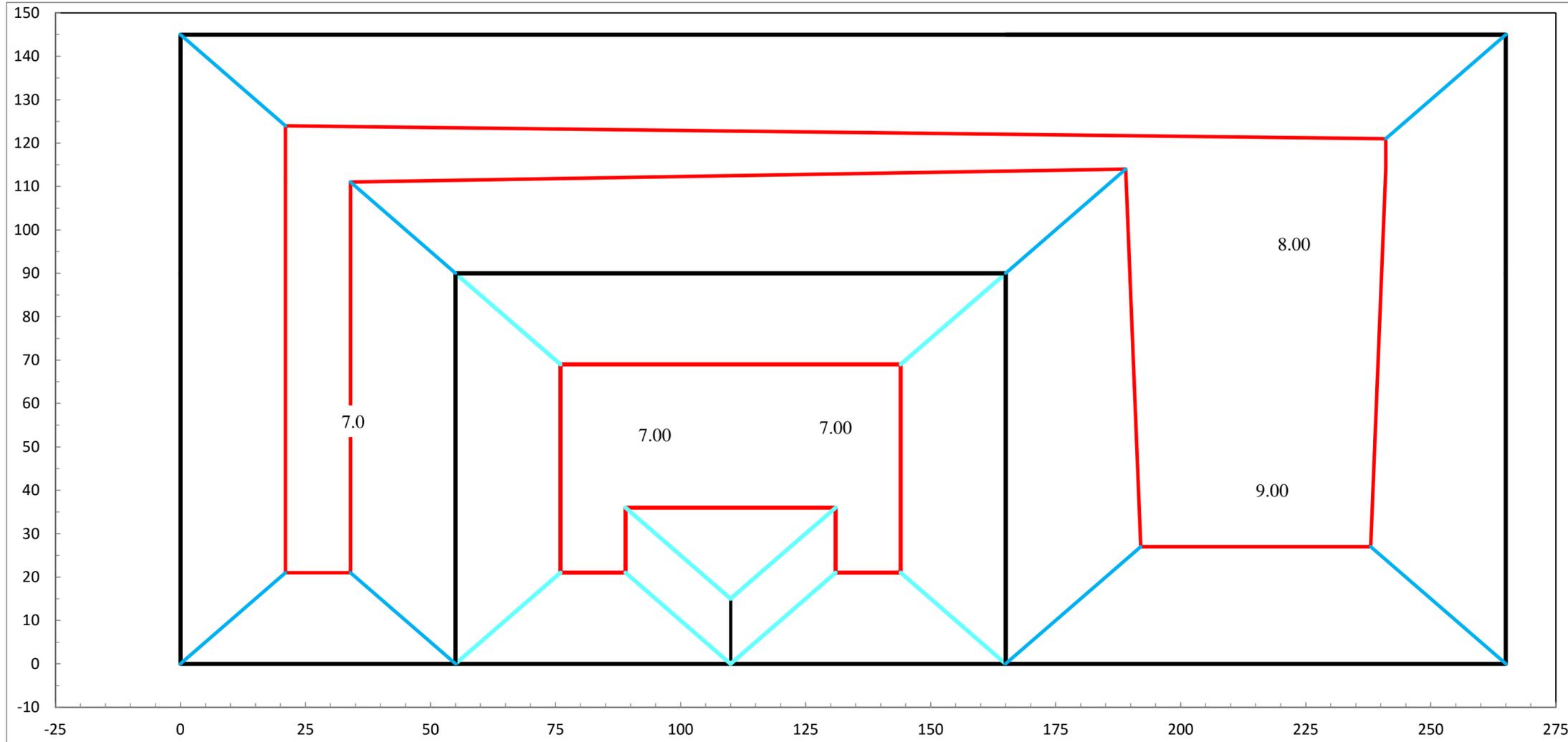
**R.T. Hicks Consultants**  
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Drawing of Temporary Pit and Well in Relation to Pad Boundary

Plate 1

Tomb Raider 12 Fed 213H & 51\*H

November 2018



<b>Inner Horseshoe</b>	
total width (left right)	110.00
total length (up down)	90.00
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	15.00
Divider Width	0.00
Capacity 2' Freeboard - bbls	4411
Capacity 4' Freeboard - cu. Ft.	11583

<b>Outer Horseshoe</b>	
width discharge side	100.00
width suction side	55.00
length far side (up down)	55.00
Depth on Discharge Side	9.00
Depth on Far Side (Discharge)	8.00
Depth on Far Side (Suction)	7.00
Depth on Suction Side	7.00
Capacity 2' Freeboard - bbls	14433
Capacity 4' Freeboard - cu. Ft.	38721

<b>Drilling Cell total width</b>	<b>265.00</b>
<b>Drilling Cell total length</b>	<b>145.00</b>
<b>Common Dimensions</b>	
Slopes of Pit Horizontal Distance	3.00
Slopes of Pit Vertical Distance	1.00
Inner Outer horseshoe divider width at su	0.00
<b>Inner Pit Suction Side</b>	
Slopes of Pit Horizontal Distance	3.00
Slopes of Pit Vertical Distance	1.00
<b>Outer Pit Suction Side</b>	
Slopes of Pit Horizontal Distance	3.00
Slopes of Pit Vertical Distance	1.00

<b>Total Capacity</b>	<b>32764</b>	<b>bbls</b>
<b>Fluid Capacity (2' Freeboard)</b>	<b>18844</b>	<b>bbls</b>
<b>Solids Capacity (4' Freeboard)</b>	<b>50304</b>	<b>cubic ft</b>
<b>Solids Generated</b>	<b>41528</b>	<b>cubic ft</b>

<b>RT Hicks Consultants Albuquerque, NM</b>	<b>Pit Diagram</b>	<b>Plate 2</b>
	<b>Tomb Raider 12 Fed 213H &amp; 51*H</b>	<b>November 2018</b>

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

GEO.SKRIM® J24BDX1

PRO-FORMA DATA SHEET

TYPICAL

PROPERTIES	TEST METHOD	TYPICAL	
		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 <sup>2</sup>
CONSTRUCTION		Extrusion laminated with scrim reinforcement	
<sup>2</sup> GRAB TENSILE STRENGTH	ASTM D7004	130 lbs	578 N
<sup>2</sup> GRAB TENSILE ELONGATION	ASTM D7004	17 %	17 %
<sup>3</sup> TONGUE TEAR	ASTM D5884	55 lbs	244 N
CBR PUNCTURE RESISTANCE	ASTM D6241	338 lbs	1500 N
WVTR	ASTM E96	0.011 grains/ft <sup>2</sup> •hr	0.184 g/m <sup>2</sup> •day
PERM RATING	ASTM E96	0.027 Perms	0.018 g/m <sup>2</sup> •day•mm Hg
HYDRAULIC CONDUCTIVITY	ASTM E96	2.2x10 <sup>-10</sup> cm/sec	
MAXIMUM STATIC USE TEMPERATURE		180° F	82° C
MINIMUM STATIC USE TEMPERATURE		-70° F	-57° C

<sup>2</sup> Tests are an average of primary reinforcement directions.

<sup>3</sup> 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.

Note: To the best of our knowledge, unless otherwise stated, these are typical property values and are intended as guides only, not as specification limits. Chemical resistance, odor transmission, longevity as well as other performance criteria is not implied or given and actual testing must be performed for applicability in specific applications and/or conditions. GeoCHEM, Inc. MAKES NO WARRANTIES AS TO THE FITNESS FOR A SPECIFIC USE OR MERCHANTABILITY OF PRODUCTS REFERRED TO, no guarantee of satisfactory results from reliance upon contained information or recommendations and disclaims all liability for resulting loss or damage.

# PREVIOUSLY APPROVED VARIANCES

8.

**Variations 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 variations 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”.

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](mailto:Oberding.Tomas.EMNRD)  
**To:** [Kristin Pope](mailto:Kristin.Pope)  
**Cc:** [ccottrell@jdmii.com](mailto:ccottrell@jdmii.com); [Chace Walls](mailto:Chace.Walls); [gboans@jdmii.com](mailto:gboans@jdmii.com); [Randy Hicks](mailto:Randy.Hicks); [Griswold, Jim, EMNRD](mailto: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](mailto: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](mailto:kristin@rthicksconsult.com)]  
**Sent:** Tuesday, December 16, 2014 7:51 AM  
**To:** Oberding, Tomas, EMNRD  
**Cc:** [ccottrell@jdmii.com](mailto:ccottrell@jdmii.com); [Chace Walls](mailto:Chace.Walls); [gboans@jdmii.com](mailto:gboans@jdmii.com); [Randy Hicks](mailto:Randy.Hicks); [Griswold, Jim, EMNRD](mailto: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](mailto:Oberding.Tomas.EMNRD)  
**To:** [Kristin Pope](mailto:Kristin.Pope)  
**Cc:** [ccottrell@jdmii.com](mailto:ccottrell@jdmii.com); [Randy Hicks](mailto:Randy.Hicks); [gboans@jdmii.com](mailto:gboans@jdmii.com); [Chace Walls](mailto:Chace.Walls); [Martin, Ed](mailto: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](mailto: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:** Wednesday, December 31, 2014 1:35 PM  
**To:** Oberding, Tomas, EMNRD  
**Cc:** [ccottrell@jdmii.com](mailto:ccottrell@jdmii.com); [Randy Hicks](mailto:Randy.Hicks); [gboans@jdmii.com](mailto:gboans@jdmii.com); [Chace Walls](mailto:Chace.Walls); [Martin, Ed](mailto: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

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

## 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 proposed temporary pit as a blue rectangle. The temporary pit lies about 100 feet south of the staked well as shown on the attached C-102 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. Well numbers showing “No DTW” and “No Date” are typically permit applications and not completed water supply wells.
3. Water wells from the USGS database as triangles. Well numbers correspond to an identifier in the USGS database.
4. Water wells that 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. Data from all of these wells are in Open File Report 95<sup>1</sup>.
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 pit as a rectangle with the surface elevation.
2. Water wells measured by the USGS, the year of the measurement and the calculated elevation of the groundwater surface.
3. The five MISC wells in Figure 2 have data as measured professionals and obtained from public data, such as from USGS or, as in this map, NMBMMR Open File Report 95.
4. Isocontour lines displaying the elevation of the groundwater surface are based upon these measurements made by professionals and are the product of Hicks Consultants.

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. Data suggest that water levels are declining by about 0.5 foot per year in the area (e.g. USGS-14211 and 14435 in northeast quadrant of map).

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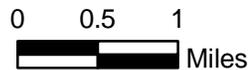
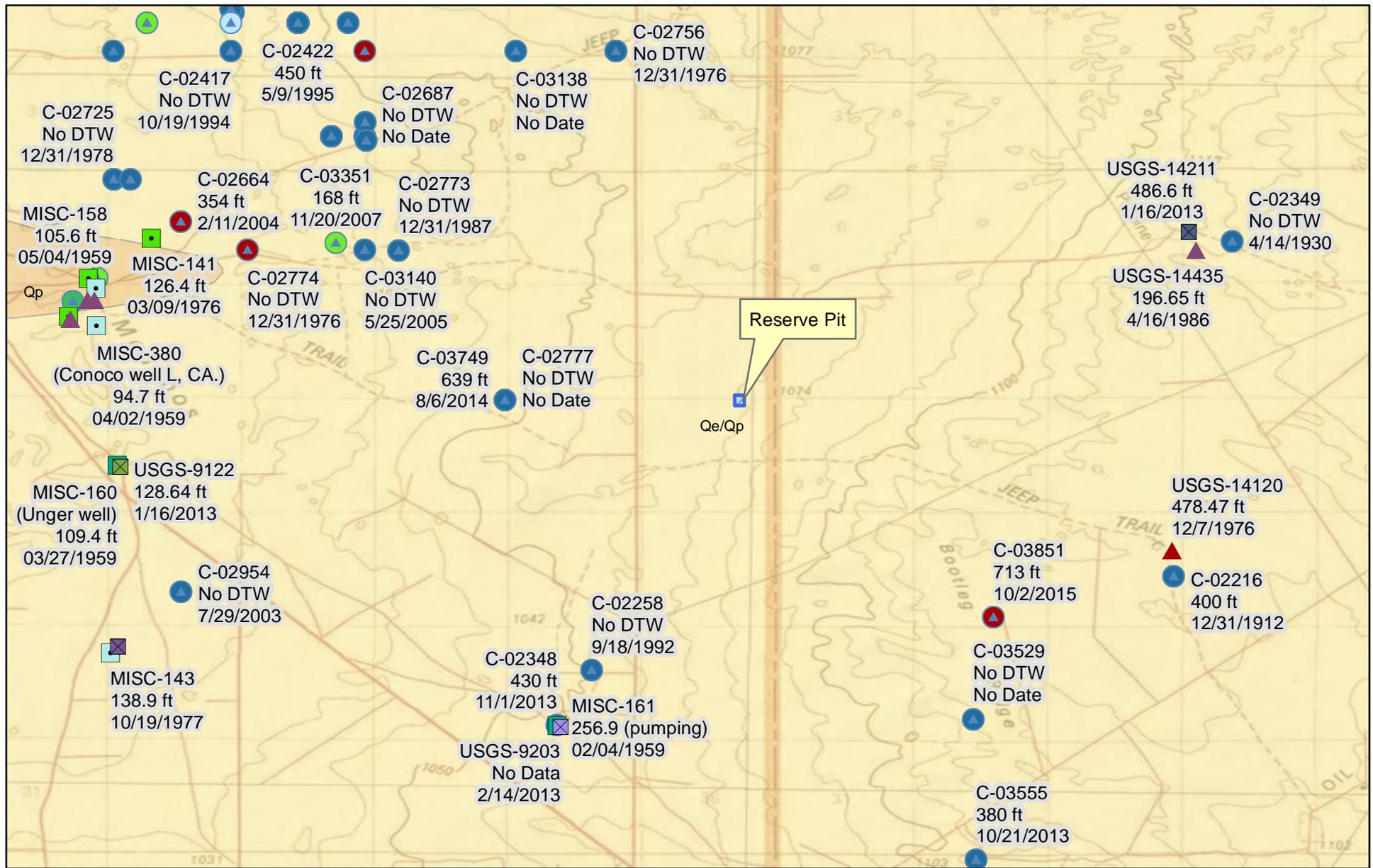
<sup>1</sup> [https://geoinfo.nmt.edu/publications/openfile/downloads/0-99/95/ofr\\_95.pdf](https://geoinfo.nmt.edu/publications/openfile/downloads/0-99/95/ofr_95.pdf)

Devon Energy – Tomb Raider 12-1 Fed #516H and #213H Drilling Pit

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 proposed pit is about 3330.
- No evidence exists to suggest the presence of perched, shallow groundwater zones within the area of the proposed pit.
- The *minimum* distance between the bottom of a 10-foot deep temporary pit and the potentiometric surface of the regional aquifer is approximately  $(3502-3330-10)$  162 feet
- Well logs available from the OSE database report that groundwater sufficient for beneficial use exists at depths of more than 500 feet below land surface (see Appendix WELL LOGS)



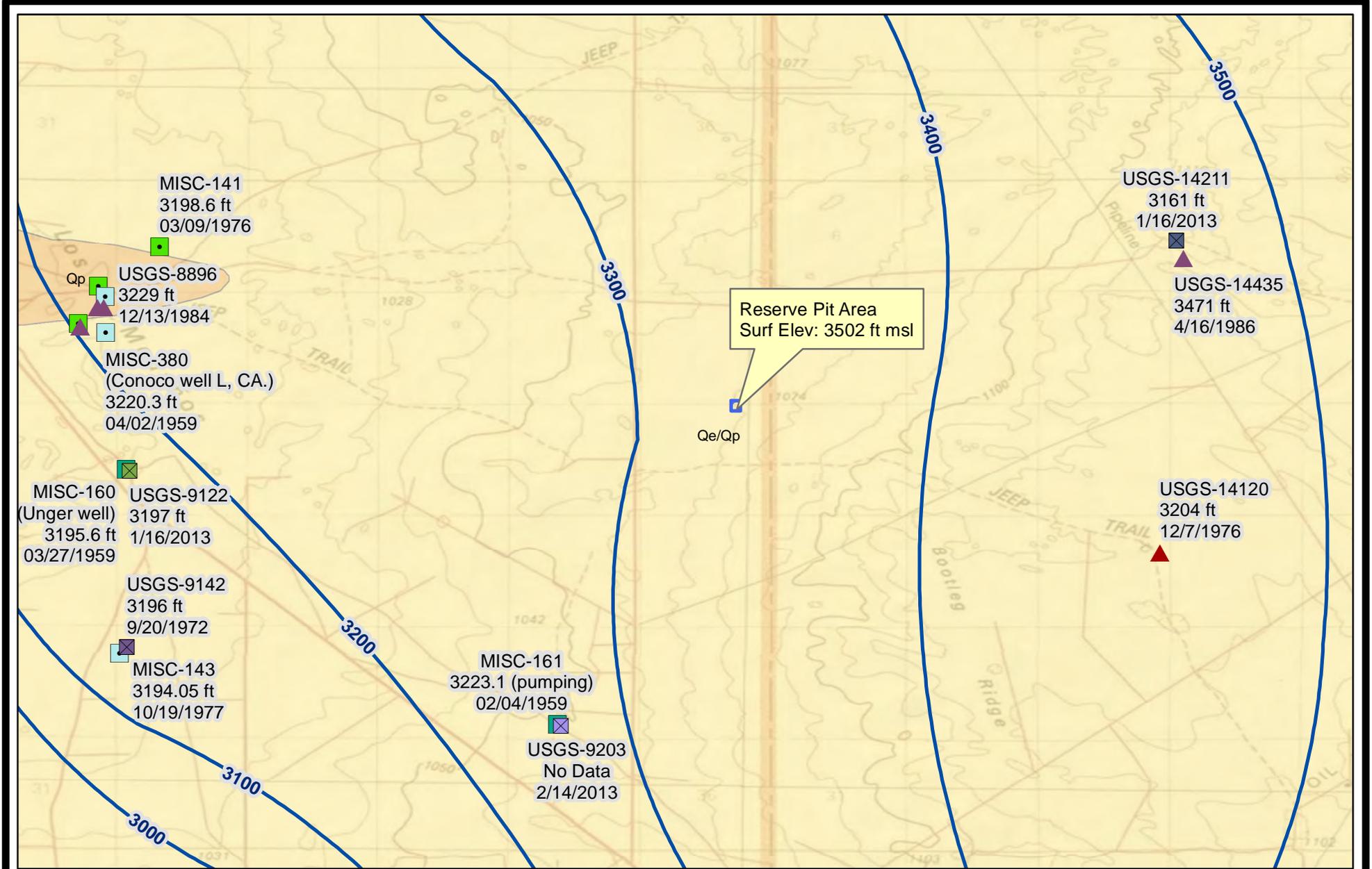
R.T. Hicks Consultants, Ltd  
 901 Rio Grande Blvd NW Suite F-142  
 Albuquerque, NM 87104  
 Ph: 505.266.5004

Depth To Water and Geology  
 Devon Energy Production Company, LP  
 Tomb Raider 12-1 Fed 516H

Figure 1  
 November 2018

Legend		NM Geology	
<b>USGS Gauging Station (DTW, Date)</b>		<b>Map Unit, Description</b>	
<b>Aquifer Code, Well Status</b>			Qe/Qp, Quaternary-Eolian Piedmont Deposits
	Chinle		Qp, Quaternary-Piedmont Alluvial Deposits
	Santa Rosa		
	Santa Rosa, Site was being pumped.		
	Dewey Lake Redbeds, Site had been pumped recently.		
	Dewey Lake Redbeds, Site was being pumped.		
	Rustler, Site had been pumped recently.		
<b>Misc. Water Wells (Well ID, DTW)</b>			
<b>Well Depth (ft)</b>			
	<= 150		
	151 - 350		
	351 - 500		
<b>OSE Water Wells (DTW, Date)</b>			
<b>Well Depth (ft)</b>			
	<= 150		
	151 - 350		
	351 - 500		
	501 - 1000		
	> 1000		

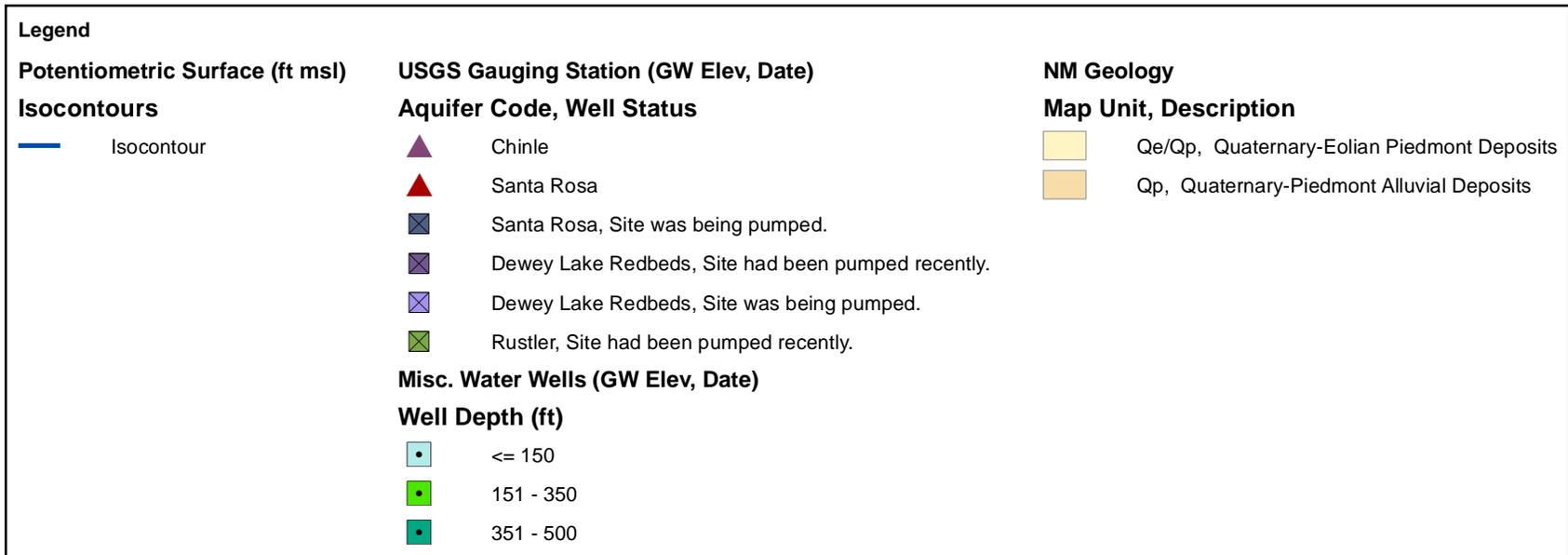
R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Depth To Water and Geology	Figure 1 LEGEND
	Devon Energy Production Company, LP Tomb Raider 12-1 Fed 516H	November 2018



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 Company, LP  
 Tomb Raider 12-1 Fed 516H

Figure 2  
 November  
 2018



### **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 Loving and Carlsbad, which are about 25 miles west
- The closest public wells listed in the OSE database are in Carlsbad. The Otis water system and the public wells of Loving are not identified in the OSE database but surely exist on the ground.

### **Distance to Subsurface Mines**

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

- The proposed pit is about 1000 feet north and east of the Potash Main mapped area but no subsurface mines are mapped in the area

### **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 6 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.

### **Distance to 100-Year Floodplain**

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

- Zone X is described as areas outside the 0.2% Annual Chance Floodplain.
- 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.



Reserve Pit Area

**Legend**

**Municipal Supply Wells (OSE)**

**Well Depth (ft)**

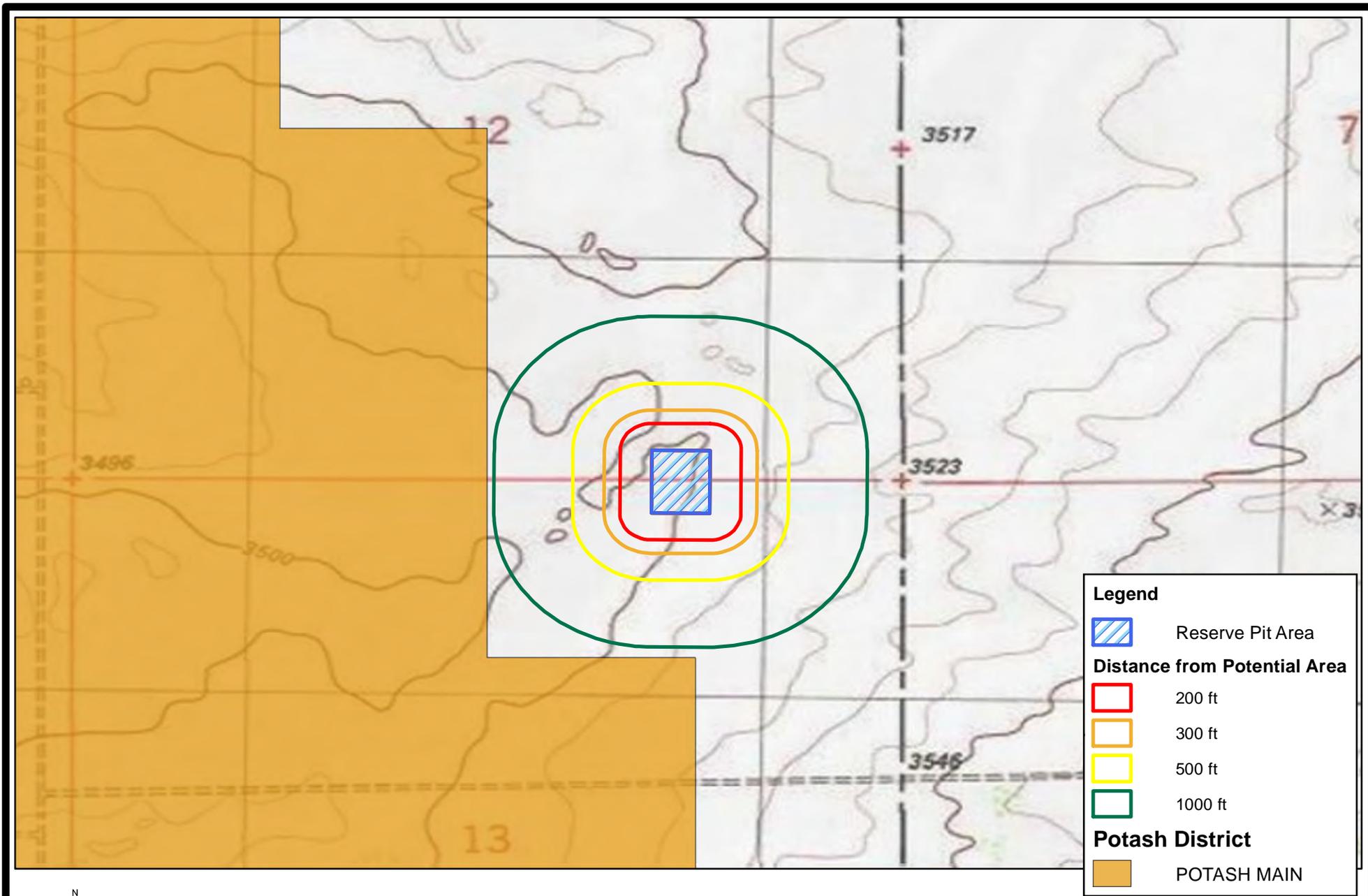
- ▲ <= 150
- ▲ 151 - 350
- ▲ 351 - 500
- ▲ 501 - 1000

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

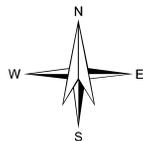
Devon Energy Production Company, LP  
 Tomb Raider 12-1 Fed 516H

Figure 3  
 November 2018



**Legend**

-  Reserve Pit Area
- Distance from Potential Area**
-  200 ft
-  300 ft
-  500 ft
-  1000 ft
- Potash District**
-  POTASH MAIN



0 500 1,000  
 Feet

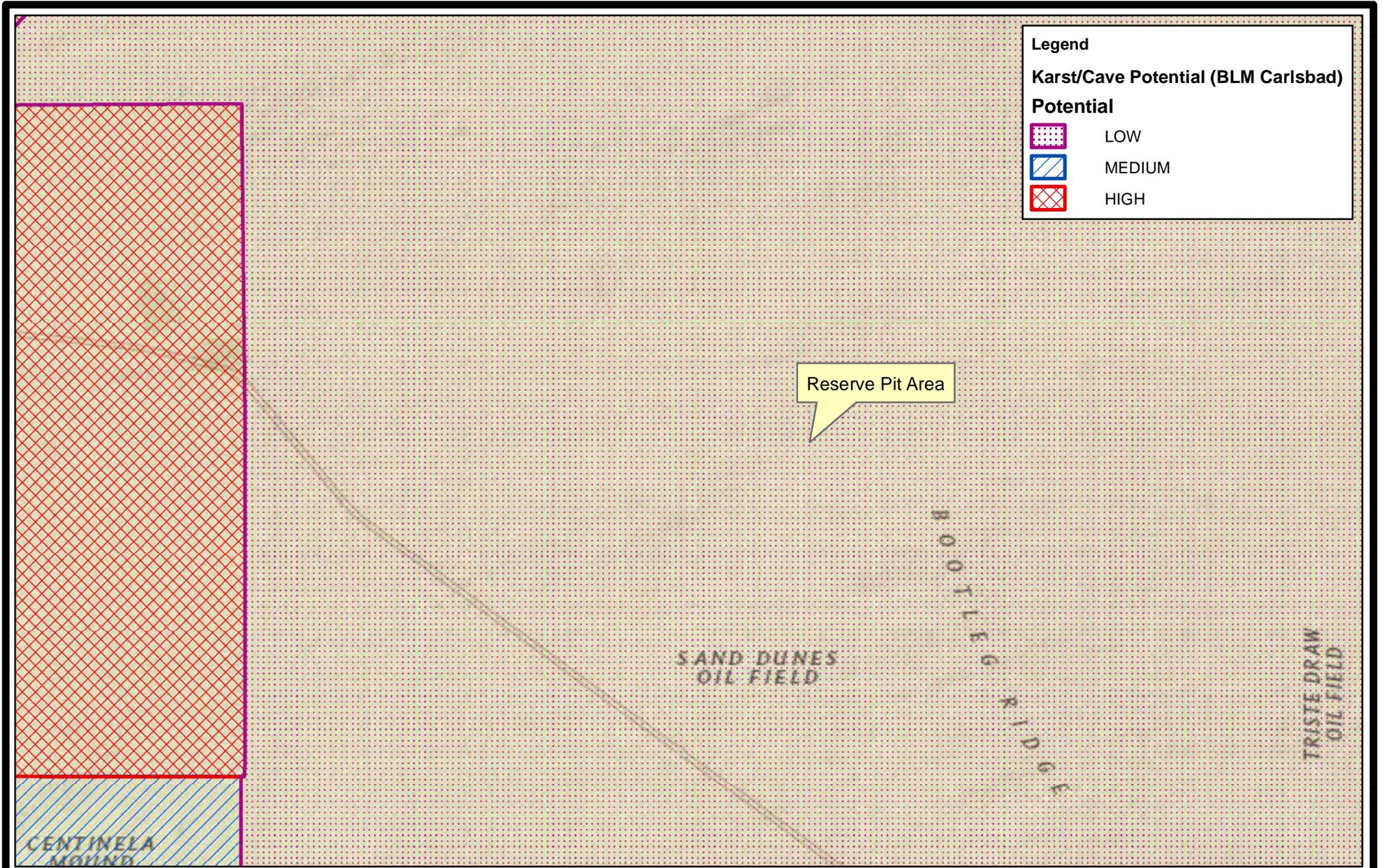
R.T. Hicks Consultants, Ltd  
 901 Rio Grande Blvd NW Suite F-142  
 Albuquerque, NM 87104  
 Ph: 505.266.5004

Nearby Mines and Minerals

Devon Energy Production Company, LP  
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Figure 4

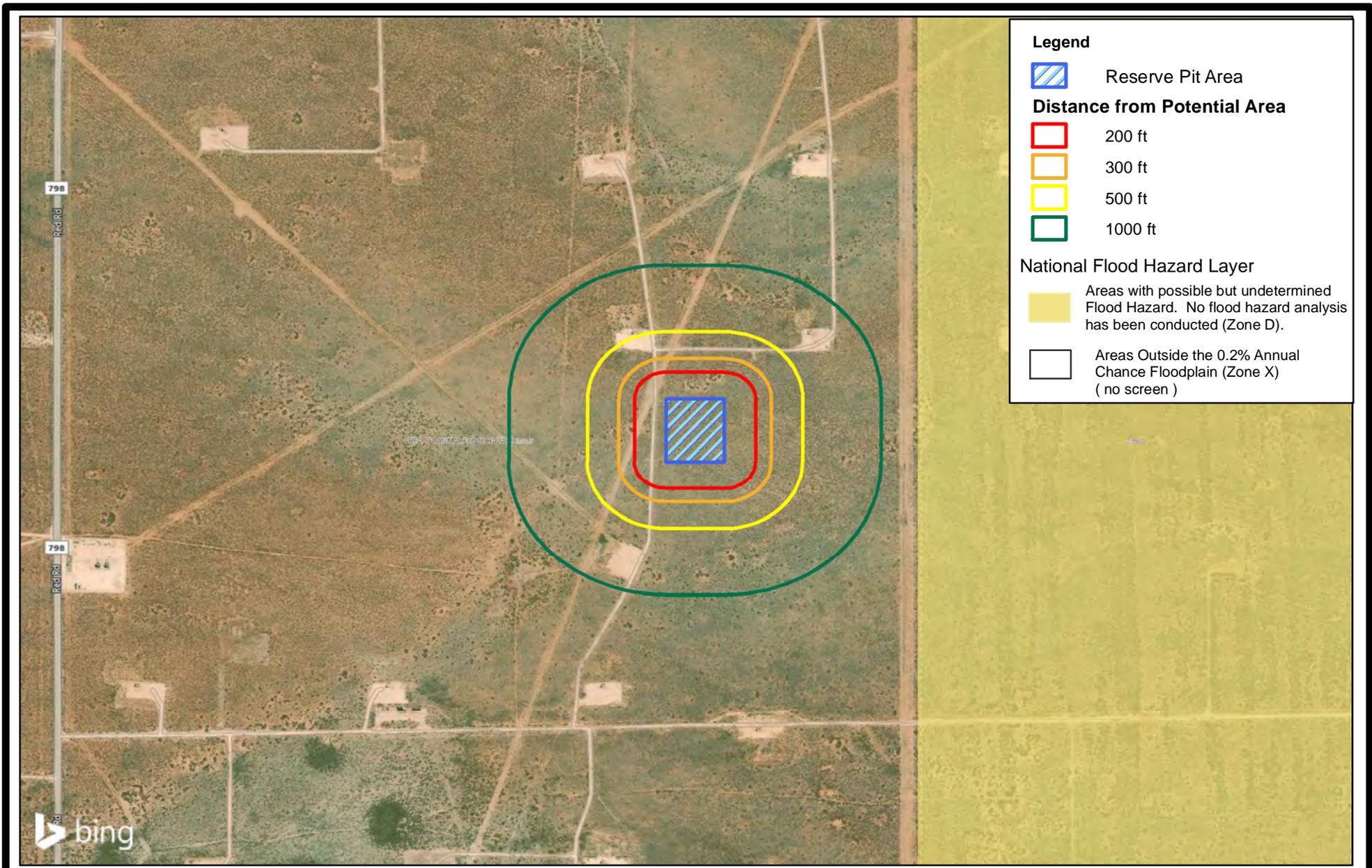
November  
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Ph: 505.266.5004

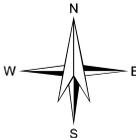
Karst Potential  
Devon Energy Production Company, LP  
Tomb Raider 12-1 Fed 516H

Figure 5  
November 2018



**Legend**

-  Reserve Pit Area
- Distance from Potential Area**
-  200 ft
-  300 ft
-  500 ft
-  1000 ft
- National Flood Hazard Layer**
-  Areas with possible but undetermined Flood Hazard. No flood hazard analysis has been conducted (Zone D).
-  Areas Outside the 0.2% Annual Chance Floodplain (Zone X) ( no screen )

0 500 1,000 Feet

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 Albuquerque, NM 87104  
 Ph: 505.266.5004

FEMA Flood Map

Devon Energy Production Company, LP  
 Tomb Raider 12-1 Fed 516H

Figure 6

November 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 and 7 (springs)**

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, an “intermittent stream,” lies about five miles north
- An area north of the location contains isolated, stabilized sand dunes; however, no drainages were observed or expected in the area of the pit.
- There are no mapped water bodies in the area of the pit and none were observed.

### **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.

### **Distance to Non-Public Water Supply**

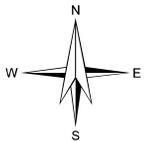
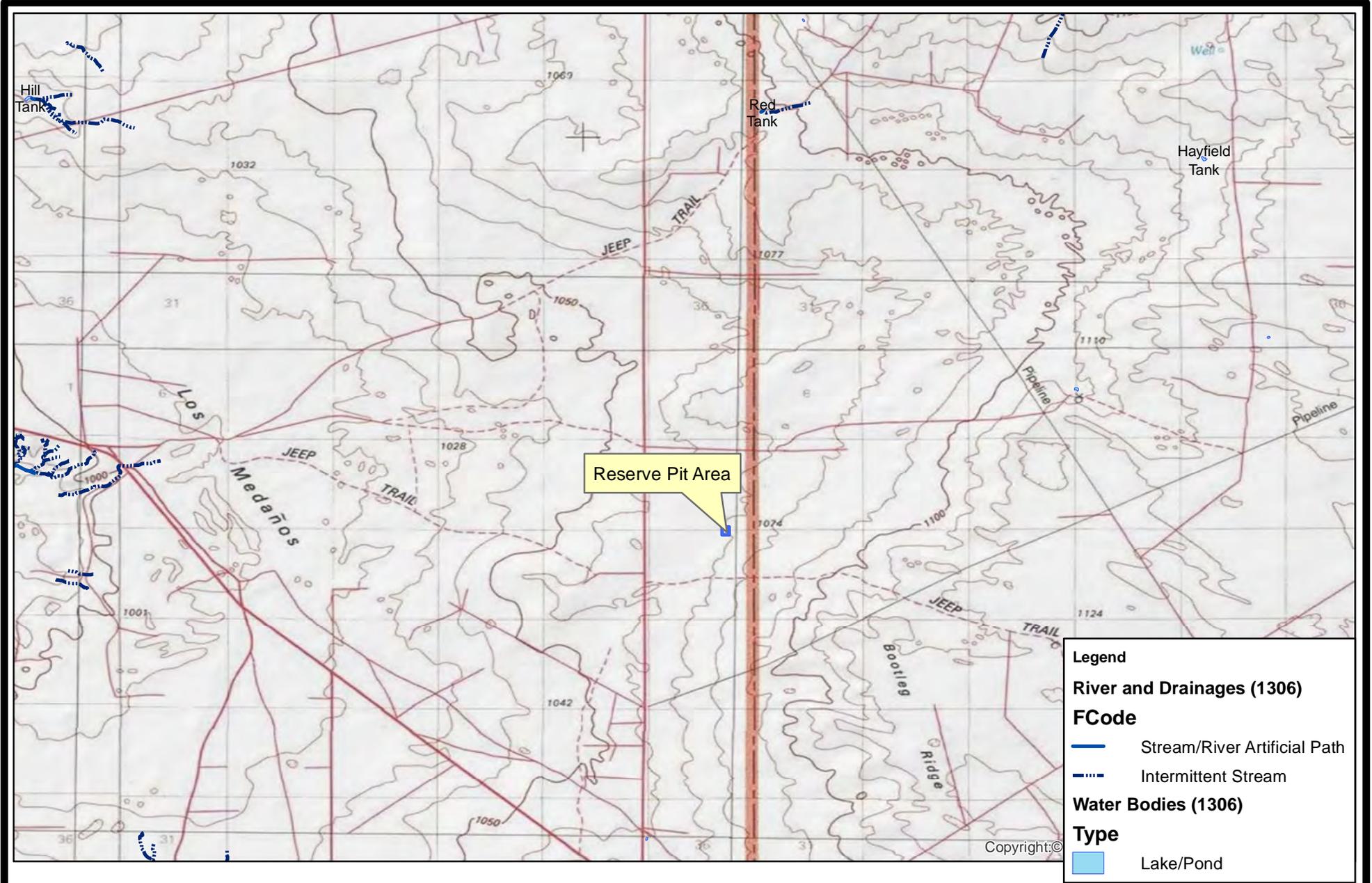
**Figures 1 and Figure 2 demonstrates that the location is not within 500 horizontal feet of a private, domestic fresh water well or spring that less than five households use for domestic or stock watering purposes, or within 1,000 horizontal feet of any other fresh water well or spring, in existence 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 water well in the OSE database is C-03749, a DOE monitoring well completed into the Culebra Dolomite (820-846 feet below ground surface). Appendix WELL LOGS provides information regarding selected nearby wells.
- Well C-2258 is a Devon Energy boring located about 3 miles south-southwest that did not encounter sufficient water to develop a supply for their needs.
- Well C-2348 is southwest of the Devon well and encountered sufficient water at a depth of 560-620 feet below grade for stock watering.
- Up-dip and northwest of the location is a BLM stock well C-3351. This well draws about 25 GPM from the Santa Rosa Sandstone at a depth of 240-265.
- 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 7).

### **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 1.25 miles to the north
- No evidence of wetlands were observed during the site inspection.



0 0.5 1  
Miles

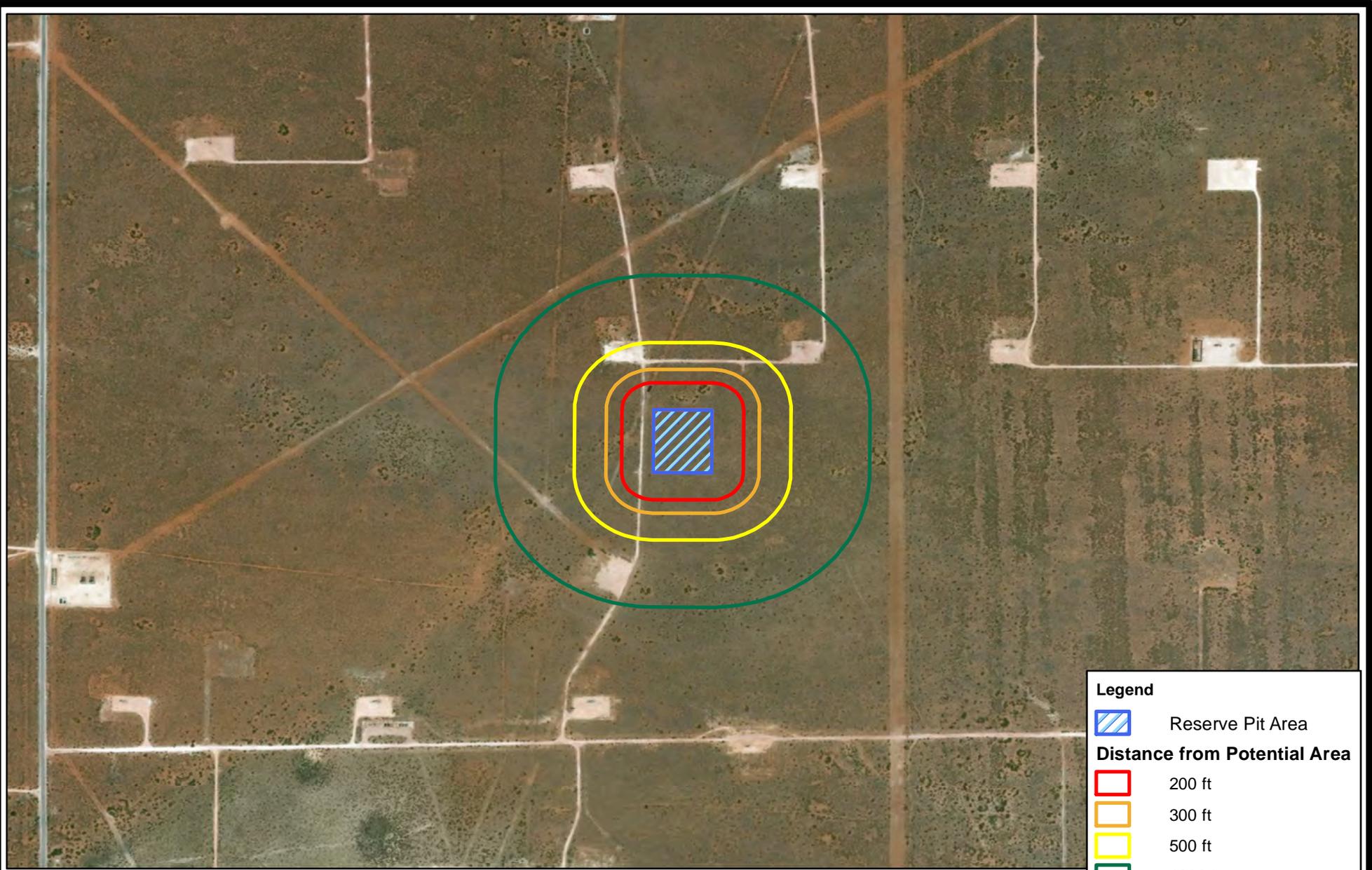
R.T. Hicks Consultants, Ltd  
901 Rio Grande Blvd NW Suite F-142  
Albuquerque, NM 87104  
Ph: 505.266.5004

Surface Water and Topography

Devon Energy Production Company, LP  
Tomb Raider 12-1 Fed 516H

Figure 7

November  
2018



**Legend**

-  Reserve Pit Area
- Distance from Potential Area**
-  200 ft
-  300 ft
-  500 ft
-  1000 ft



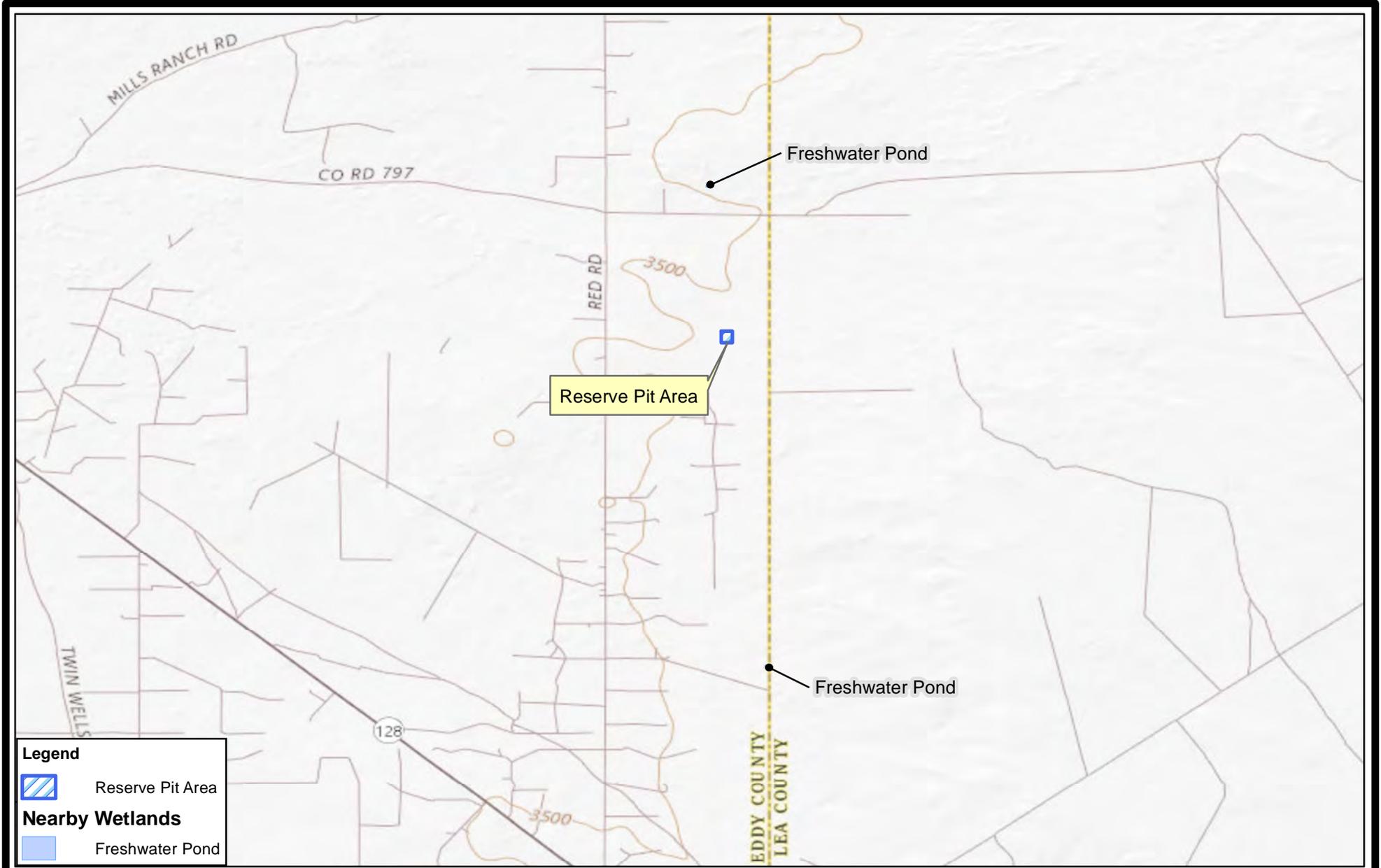
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901 Rio Grande Blvd NW Suite F-142  
Albuquerque, NM 87104  
Ph: 505.266.5004

Nearby Structures

Devon Energy Production Company, LP  
Tomb Raider 12-1 Fed 516H

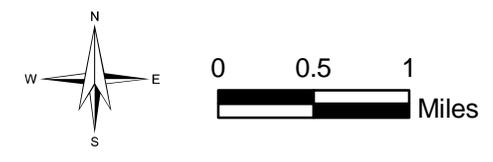
Figure 8

November 2018



**Legend**

-  Reserve Pit Area
- Nearby Wetlands**
-  Freshwater Pond



A north arrow is located to the left of a scale bar. The scale bar is marked with 0, 0.5, and 1 mile.

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 Albuquerque, NM 87104  
 Ph: 505.266.5004

**Nearby Wetlands**

Devon Energy Production Company, LP  
 Tomb Raider 12-1 Fed 516H

Figure 9  
 November  
 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: 30 025 45070 or Permit Number: \_\_\_\_\_

## Randall Hicks

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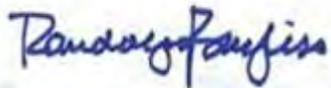
**From:** Bayliss, Randolph, EMNRD <Randolph.Bayliss@state.nm.us>  
**Sent:** Thursday, October 11, 2018 9:50 AM  
**To:** r@rthicksconsult.com; kristin@rthicksconsult.com  
**Cc:** Griswold, Jim, EMNRD; Yu, Olivia, EMNRD; Jamison.Hart@dvn.com; lan.Norwalk@dvn.com; Martin, Ed; Hernandez, Christina, EMNRD  
**Subject:** Devon Energy - Approved C-144 Permit Application Package for North Thistle 3-34 State COM 1H  
**Attachments:** C144 NorthThistle1H RBokd.pdf

Hello all

The OCD-approved C-144 is attached and can be found online at

[http://ocdimage.emnrd.state.nm.us/Imaging/FileStore/santafeenvironmental/wf/20181011/30025450700000\\_10\\_11\\_2018\\_09\\_43\\_19.pdf](http://ocdimage.emnrd.state.nm.us/Imaging/FileStore/santafeenvironmental/wf/20181011/30025450700000_10_11_2018_09_43_19.pdf)

Cheers



Randolph Bayliss, P.E.  
Hydrologist, Districts III and IV  
NMOCD Environmental Bureau  
1220 S St Francis St, Santa Fe, NM 87505  
505-476-3084, Cell 575-840-5961



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**From:** Randall Hicks <[r@rthicksconsult.com](mailto:r@rthicksconsult.com)>  
**Sent:** Wednesday, September 19, 2018 9:55 AM  
**To:** Griswold, Jim, EMNRD <[Jim.Griswold@state.nm.us](mailto:Jim.Griswold@state.nm.us)>; Yu, Olivia, EMNRD <[Olivia.Yu@state.nm.us](mailto:Olivia.Yu@state.nm.us)>  
**Cc:** Kristin Pope <[kristin@rthicksconsult.com](mailto:kristin@rthicksconsult.com)>; 'Hart, Jamison' <[Jamison.Hart@dvn.com](mailto:Jamison.Hart@dvn.com)>; Norwalk, Ian <[lan.Norwalk@dvn.com](mailto:lan.Norwalk@dvn.com)>; Martin, Ed <[emartin@slo.state.nm.us](mailto:emartin@slo.state.nm.us)>  
**Subject:** Devon Energy - C-144 Permit Application Package for North Thistle 3-34 State COM 1H

Jim

This permit application incorporates the changes we discussed to provide for a more efficient review on the part of OCD staff. Let me know what you think.

## **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 ...

**C-144 Supplemental Documentation for Temporary Pit  
Design/Construction**

**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.

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.

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.

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.

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.

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

### 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..

(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.

(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...

(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.

(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.

## C-144 Supplemental Documentation for Temporary Pit Closure Plan

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.

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.

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.

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).

(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.

(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.

(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

(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.

### **Siting Criteria Compliance Demonstration**

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

### **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.

### **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.

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:

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.

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

(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.

(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).

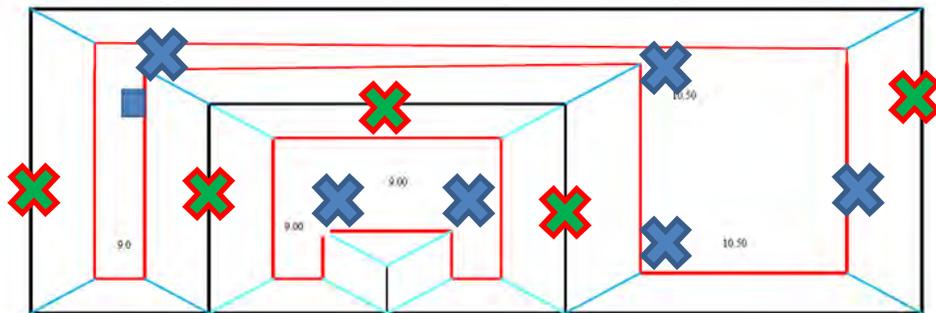
(5) The operator shall collect, at a minimum, a five point composite of the contents of the temporary pit ... to demonstrate that, after the waste is solidified or stabilized with soil or other non-waste material at a ratio of no more than 3:1 soil or other non-waste material to waste, the concentration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

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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

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### 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.

### 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.

### 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,

19.15.17.1 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.

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

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

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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-105. 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-105 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.

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Closure Plan**

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 or SM4500 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

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

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.

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. (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.

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, ....

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

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