

# Initial Application Part I

Received: [10/09/2019](#)

*This application is placed in file for record. It MAY or MAY NOT have been reviewed to be determined Administratively Complete*

RECEIVED:	REVIEWER:	TYPE:	APP NO:
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ABOVE THIS TABLE FOR OCD DIVISION USE ONLY

**NEW MEXICO OIL CONSERVATION DIVISION**  
 - Geological & Engineering Bureau -  
 1220 South St. Francis Drive, Santa Fe, NM 87505



**ADMINISTRATIVE APPLICATION CHECKLIST**

THIS CHECKLIST IS MANDATORY FOR ALL ADMINISTRATIVE APPLICATIONS FOR EXCEPTIONS TO DIVISION RULES AND REGULATIONS WHICH REQUIRE PROCESSING AT THE DIVISION LEVEL IN SANTA FE

<b>Applicant:</b> XTO Permian Operating, LLC	<b>OGRID Number:</b> 373075
<b>Well Name:</b> Poker Lake Unit 19 Madison Fed SWD 1	<b>API:</b> TBA
<b>Pool:</b> SWD; Devonian-Silurian	<b>Pool Code:</b> 96101

**SUBMIT ACCURATE AND COMPLETE INFORMATION REQUIRED TO PROCESS THE TYPE OF APPLICATION INDICATED BELOW**

- 1) **TYPE OF APPLICATION:** Check those which apply for [A]
- A. Location – Spacing Unit – Simultaneous Dedication  
 NSL       NSP (PROJECT AREA)       NSP (PRORATION UNIT)       SD
- B. Check one only for [ I ] or [ II ]
- [ I ] Commingling – Storage – Measurement  
 DHC    CTB    PLC    PC    OLS    OLM
- [ II ] Injection – Disposal – Pressure Increase – Enhanced Oil Recovery  
 WFX    PMX    SWD    IPI    EOR    PPR

- 2) **NOTIFICATION REQUIRED TO:** Check those which apply.
- A.  Offset operators or lease holders  
 B.  Royalty, overriding royalty owners, revenue owners  
 C.  Application requires published notice  
 D.  Notification and/or concurrent approval by SLO  
 E.  Notification and/or concurrent approval by BLM  
 F.  Surface owner  
 G.  For all of the above, proof of notification or publication is attached, and/or,  
 H.  No notice required

FOR OCD ONLY	
<input type="checkbox"/>	Notice Complete
<input type="checkbox"/>	Application Content Complete

3) **CERTIFICATION:** I hereby certify that the information submitted with this application for administrative approval is **accurate** and **complete** to the best of my knowledge. I also understand that **no action** will be taken on this application until the required information and notifications are submitted to the Division.

**Note: Statement must be completed by an individual with managerial and/or supervisory capacity.**

Cheryl Rowell, Regulatory Coordinator

Print or Type Name

*Cheryl Rowell*

Signature

8/30/19  
Date

432-571-8205

Phone Number

cheryl\_rowell@xtoenergy.com

e-mail Address

**APPLICATION FOR AUTHORIZATION TO INJECT**

- I. PURPOSE: \_\_\_\_\_ Secondary Recovery \_\_\_\_\_ Pressure Maintenance \_\_\_\_\_ Disposal \_\_\_\_\_ Storage  
Application qualifies for administrative approval? xx Yes \_\_\_\_\_ No
- II. OPERATOR: XTO PERMIAN OPERATING, LLC  
ADDRESS: 6401 HOLIDAY HILL RD., BLDG 5, MIDLAND, TX 79707  
CONTACT PARTY: Cheryl Rowell PHONE: 432-571-8205
- III. WELL DATA: Complete the data required on the reverse side of this form for each well proposed for injection.  
Additional sheets may be attached if necessary.
- IV. Is this an expansion of an existing project? \_\_\_\_\_ Yes X No  
If yes, give the Division order number authorizing the project: \_\_\_\_\_
- V. Attach a map that identifies all wells and leases within two miles of any proposed injection well with a one-half mile radius circle drawn around each proposed injection well. This circle identifies the well's area of review.
- VI. Attach a tabulation of data on all wells of public record within the area of review which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of completion, and a schematic of any plugged well illustrating all plugging detail.
- VII. Attach data on the proposed operation, including:
1. Proposed average and maximum daily rate and volume of fluids to be injected;
  2. Whether the system is open or closed;
  3. Proposed average and maximum injection pressure;
  4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and,
  5. If injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water (may be measured or inferred from existing literature, studies, nearby wells, etc.).
- \*VIII. Attach appropriate geologic data on the injection zone including appropriate lithologic detail, geologic name, thickness, and depth. Give the geologic name, and depth to bottom of all underground sources of drinking water (aquifers containing waters with total dissolved solids concentrations of 10,000 mg/l or less) overlying the proposed injection zone as well as any such sources known to be immediately underlying the injection interval.
- IX. Describe the proposed stimulation program, if any.
- \*X. Attach appropriate logging and test data on the well. (If well logs have been filed with the Division, they need not be resubmitted).
- \*XI. Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken.
- XII. Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground sources of drinking water.
- XIII. Applicants must complete the "Proof of Notice" section on the reverse side of this form.
- XIV. Certification: I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.
- NAME: Cheryl Rowell TITLE: Regulatory Coordinator  
SIGNATURE: *Cheryl Rowell* DATE: 8/27/19  
E-MAIL ADDRESS: cheryl\_rowell@xtoenergy.com
- \* If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be resubmitted. Please show the date and circumstances of the earlier submittal: \_\_\_\_\_

### III. WELL DATA

A. The following well data must be submitted for each injection well covered by this application. The data must be both in tabular and schematic form and shall include:

- (1) Lease name; Well No.; Location by Section, Township and Range; and footage location within the section.
- (2) Each casing string used with its size, setting depth, sacks of cement used, hole size, top of cement, and how such top was determined.
- (3) A description of the tubing to be used including its size, lining material, and setting depth.
- (4) The name, model, and setting depth of the packer used or a description of any other seal system or assembly used.

Division District Offices have supplies of Well Data Sheets which may be used or which may be used as models for this purpose. Applicants for several identical wells may submit a "typical data sheet" rather than submitting the data for each well.

B. The following must be submitted for each injection well covered by this application. All items must be addressed for the initial well. Responses for additional wells need be shown only when different. Information shown on schematics need not be repeated.

- (1) The name of the injection formation and, if applicable, the field or pool name.
- (2) The injection interval and whether it is perforated or open-hole.
- (3) State if the well was drilled for injection or, if not, the original purpose of the well.
- (4) Give the depths of any other perforated intervals and detail on the sacks of cement or bridge plugs used to seal off such perforations.
- (5) Give the depth to and the name of the next higher and next lower oil or gas zone in the area of the well, if any.

### XIV. PROOF OF NOTICE

All applicants must furnish proof that a copy of the application has been furnished, by certified or registered mail, to the owner of the surface of the land on which the well is to be located and to each leasehold operator within one-half mile of the well location.

Where an application is subject to administrative approval, a proof of publication must be submitted. Such proof shall consist of a copy of the legal advertisement which was published in the county in which the well is located. The contents of such advertisement must include:

- (1) The name, address, phone number, and contact party for the applicant;
- (2) The intended purpose of the injection well; with the exact location of single wells or the Section, Township, and Range location of multiple wells;
- (3) The formation name and depth with expected maximum injection rates and pressures; and,
- (4) A notation that interested parties must file objections or requests for hearing with the Oil Conservation Division, 1220 South St. Francis Dr., Santa Fe, New Mexico 87505, within 15 days.

NO ACTION WILL BE TAKEN ON THE APPLICATION UNTIL PROPER PROOF OF NOTICE HAS BEEN SUBMITTED.

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NOTICE: Surface owners or offset operators must file any objections or requests for hearing of administrative applications within 15 days from the date this application was mailed to them.

III. Well Data

- A. 1) Lease name: **Poker Lake Unit 19 Madison Fed SWD**  
 Well #: **1** API # **TBA**  
 Section: **19**  
 Township: **24S**  
 Range: **31E**  
 Footage: **631 FNL & 416 FWL**

- 2) Casing Info:

Casing size	Set depth	Sacks cmt	Hole size	TOC	Method
18-5/8", 87.5# J-55 BTC	730'	1520 sx C	24	Surf	Circ
13-3/8" 68# HCL-80 BTC	3630'	1970 sx Poz/C 840 sx C	17-1/2"	Surf	Circ
9-5/8" 53.5# HCP-110 BTC	12100'	2165 sx Poz/H	12-1/4"	Surf	Circ
	DV tool set @ 3730'	1065 sx Poz/H		3730'	
7" 32# HCP-110 BTC	11,700'-16,800'	790 sx Poz/H	8-1/2"	11,700	Circ

- 3) Tubing to be used (size, lining material, setting depth):

**Tapered String**

**5-1/2" , 17#, P-110 IPC to 11,200'**

**4-1/2" , 13.65#, P-110 IPC tubing @ 11,200'-16,700'**

- 4) Name, model, and depth of packer to be used:

**Baker Series F nickle plated permanent packer @ 16,700'**

- B. 1) Name of the injection formation and, if applicable, the field or pool name:

**SWD; Devonian-Silurian**

- 2) The injection interval and whether it is perforated or open hole:

**Open hole, 16,800'-17,991' (or to the base of the Fusselman as determined by mud logs)**

- 3) State if the well was drilled for injection or, if not, the original purpose of the well:

**This well is being drilled for the purpose of injection**

- 4) Give the depths of any other perforated intervals and detail on the sacks of cement or BPs used to seal off such perforations:

**N/A**

- 5) Give the depth to and the name of the next higher and next lower oil or gas zone in the area of the well, if any:

**Higher: Cherry Canyon (+/-5169') Brushy Canyon (+/-6469'),**

**Avalon/Bone Spring (+/-9061'), Wolfcamp (+/-11,436'), Atoka (+/-13,666'), Morrow (+/-14,241')**

**Lower: None**

# PLU 19 Madison Fed SWD 1

*Proposed SWD Schematic (August 16, 2019)*

County: Eddy  
 SHL: 631' FSecL, 416' FWL  
 Sec 19, T 24S, R 31E  
 BHL: 631' FNL, 416' FWL  
 Sec 19, T 24S, R 31E



API # N/A  
 Elevation GL 3484', KB 3516' (32' AGL)  
 Rig: TBD (RKB 32')

Geology	Casing & Cement	Wellhead	Hole Size	General Notes
<b>(Tech Data Sheet)</b>				
TVD Formation  518' Rustler	<u>Lead (100% OH excess)</u> 540 sx 12.8ppg Class C Top of Tail @ 0'  <u>Tail (100% OH excess)</u> 980 sx 14.8ppg Class C Top of Tail @ 400'  <b>18-5/8" 87.5# J-55 BTC</b>	730' MD	24"	
941' Top Salt  3,001' Base Salt	<u>Lead (150% OH excess)</u> 1970 sx 12.8ppg Poz/C Top of Lead @ 0'  <u>Tail (100% OH excess)</u> 840 sx 14.8ppg Class C Top of Tail @ 2900'  <b>13-3/8" 68# HCL-80 BTC</b>	3630' MD	17-1/2"	
4,256' Delaware  8,113' Bone Spring	<u>Stg 2 Lead (100% OH excess)</u> 665 sx 11.5ppg Poz/H Top of Lead @ 0'  <u>Stg 2 Tail (100% OH excess)</u> 400 sx 14.8ppg Poz/H Top of Tail @ 2900'  DV tool at 3730'  <u>Stg 1 Lead (100% OH excess)</u> 1610 sx 11.5ppg Poz/H Top of Lead @ 3730'	11700' MD	12-1/4"  5-1/2", 17#, P-110 IPC tbg to 11,200'	Crossover 11,200'
11,336' Wolfcamp 11,946' Wolfcamp B	<u>Stg 1 Tail (100% OH excess)</u> 555 sx 14.8ppg Poz/H Top of Tail @ 11100'  <b>9-5/8" 53.5# HCP-110 BTC</b>	12100' MD	4-1/2", 13.65#, P-110 IPC tbg 11,200-16,700'	
13,536' Strawn 13,666' Atoka 14,241' Morrow  16,271' Mississippian Lm 16,646' Woodford 16,776' Devonian	<u>Tail (40% OH excess)</u> 790 sx 14.5ppg Poz/H Top of Tail @ 11700'  <b>7" 32# HCP-110 BTC</b>	16800' MD	8-1/2"	Baker Series F nickle plated permanent packer at 16,700'
17,836' Base of Fusselman  17,991' TVD at BHL	<b>Open hole completion</b>	17,991' MD 17,991' TVD	6"	

**Approvals**

Prepared by: \_\_\_\_\_

Peer Reviewed by: \_\_\_\_\_ Date \_\_\_\_\_

Reviewed by: \_\_\_\_\_

Approved by: \_\_\_\_\_

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 30-015-	<sup>2</sup> Pool Code	<sup>3</sup> Pool Name
<sup>4</sup> Property Code	<sup>5</sup> Property Name PLU MADISON 19 FED SWD	
<sup>7</sup> OGRID No. 260737	<sup>8</sup> Operator Name XTO PERMIAN OPERATING, LLC.	
		<sup>6</sup> Well Number 1
		<sup>9</sup> Elevation 3,484'

<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
LOT 1	19	24 S	31 E		631	NORTH	416	WEST	EDDY

<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

<sup>12</sup> Dedicated Acres	<sup>13</sup> Joint or Infill	<sup>14</sup> Consolidation Code	<sup>15</sup> Order No.

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.

<p><sup>16</sup></p>			<p><sup>17</sup> OPERATOR CERTIFICATION</p> <p>I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.</p> <p>Signature _____ Date _____</p> <p>Printed Name _____</p> <p>E-mail Address _____</p>		
<p>GEODETIC COORDINATES NAD 83 NME SURFACE LOCATION Y= 439,898.8 X= 698,763.7 LAT.= 32.208334°N LONG.= 103.824336°W</p> <p>CORNER COORDINATES TABLE NAD 83 NME A - Y= 440,527.6 N, X= 698,345.6 E B - Y= 440,540.1 N, X= 701,051.7 E C - Y= 437,882.8 N, X= 698,355.7 E D - Y= 437,896.8 N, X= 701,069.1 E</p>			<p>GEODETIC COORDINATES NAD 27 NME SURFACE LOCATION Y= 439,840.0 X= 657,579.7 LAT.= 32.208211°N LONG.= 103.823851°W</p> <p>CORNER COORDINATES TABLE NAD 27 NME A - Y= 440,468.8 N, X= 657,161.6 E B - Y= 440,481.3 N, X= 659,867.7 E C - Y= 437,824.1 N, X= 657,171.6 E D - Y= 437,838.1 N, X= 659,885.0 E</p>		
<p><sup>18</sup> SURVEYOR CERTIFICATION</p> <p>I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.</p> <p>06-03-2019 Date of Survey</p> <p>Signature and Seal of Professional Surveyor: _____</p> <p><b>PRELIMINARY, THIS DOCUMENT SHALL NOT BE RECORDED FOR ANY PURPOSE AND SHALL NOT BE USED OR VIEWED OR RELIED UPON AS A FINAL SURVEY DOCUMENT</b></p> <p>MARK DILLON HARP 23786 Certificate Number _____ AW 2019051204</p>					

## C-108 DATA

- V. Attach a map that identifies all wells and leases within two miles of any proposed injection well with a one-half mile radius circle drawn around each proposed injection well.

**Maps attached (Exhibit A & Exhibit B).**

- VI. Attach a tabulation of data on all wells of public record within the area of review which penetrate the proposed injection zone. Such data shall include a description of each wells type, construction, date drilled, location, depth, record of completion, and a schematic of any plugged well illustrating all plugging detail.

**(Exhibit C)**

**Fifteen (15) horizontal wells terminate within the one-mile Area of Review. None of the wells penetrates the proposed disposal zone.**

**Six (6) plugged and abandoned wells are within the one-mile Area of Review. None of the wells penetrates the proposed disposal zone.**

- VII. Attach data on the proposed operation, including:

1. Proposed average and maximum daily rate and volume of fluids to be injected:

**20,000 average, 40,000 maximum BWPD**

2. Whether the system is open or closed: **closed**

3. Proposed average and maximum injection pressure: **2,000 psi average, 3360 psi maximum**

4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water: **Well will be part of a multi-well SWD system taking Permian waters. The majority of the produced water will come from Delaware, Bone Spring and Wolfcamp formations with minor amounts from Atoka and Morrow.**

**An analysis of water to be disposed is attached (Exhibit D)**

5. If injection is for disposal purposes into a zone not productive of oil & gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water:

**No disposal wells are within one mile of the proposed well.**

- VIII. Attach appropriate geologic data on the injection zone including appropriate lithologic detail, geologic name, thickness, and depth. Give the geologic name, and depth to bottom of all underground sources of drinking water (aquifers containing waters with TDS of 10,000 mg/l or less) overlying the proposed injection zone as well as any such sources known to be immediately underlying the injection interval:

**Lithologic Detail: Carbonates (Dolomite and Limestone)**

**Geological Name: Devonian (Silurian-Devonian)**

**Thickness: Est. 1,215'**

**Depth: Est. 16776' to 17991' (includes 100' buffer)**

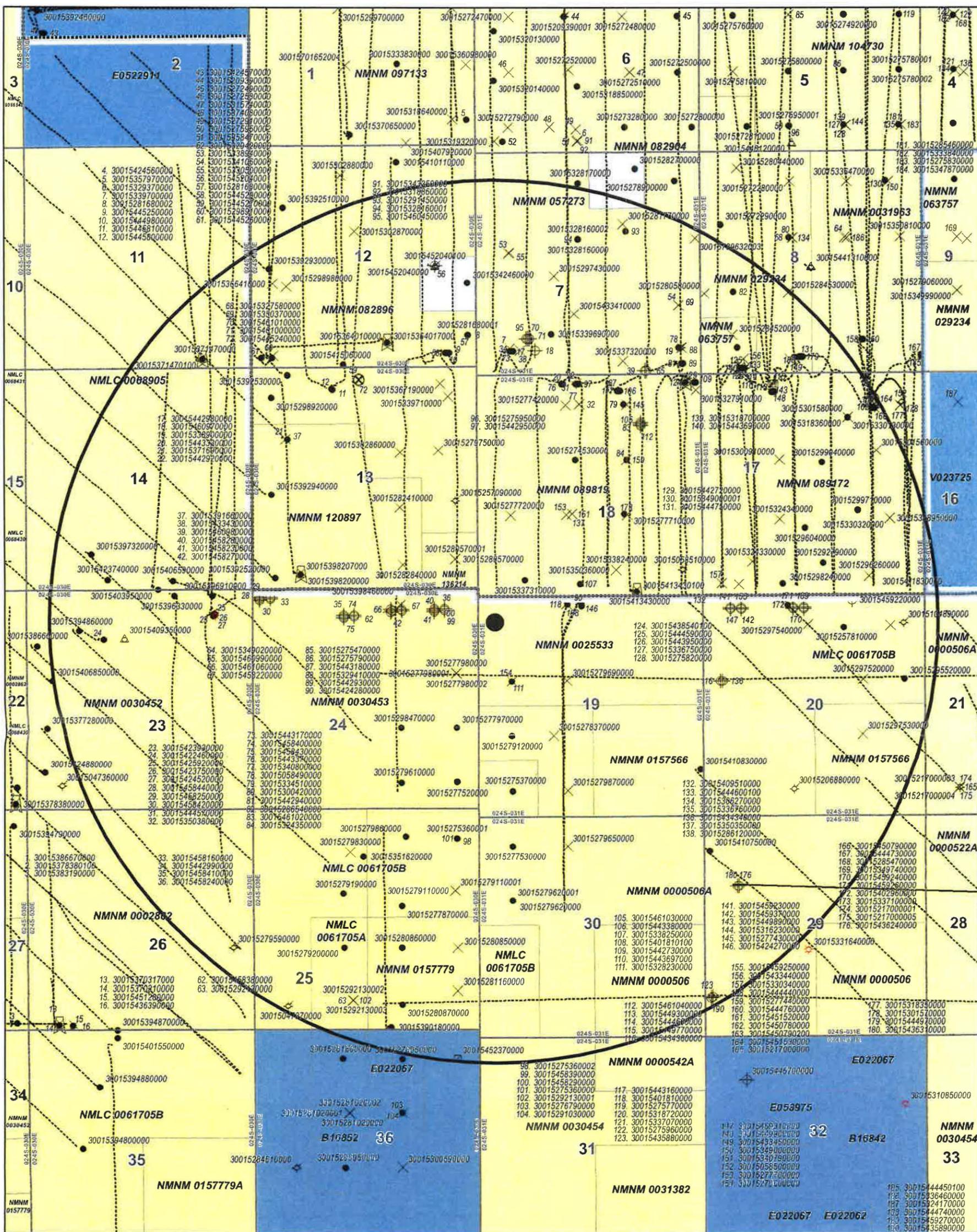
The Dewey Lake Red Beds consisting of alluvial sandstones, siltstones, and shales are present from the surface to the top of the Rustler Anhydrite. The top of the Rustler Anhydrite is estimated to be at approximately 518 feet below the surface in this PLU Madison 19 Fed SWD 1 well. These Dewey Lake Red Beds may contain fresh water throughout this geographic area, but it is not likely of drinking water quality (TDS of 10,000 mg/L or less).

Based on published maps, the Capitan Reef Aquifer is not present in this area

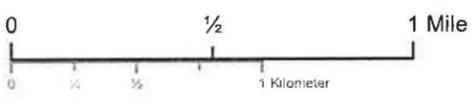
No sources of fresh water are known to exist below the proposed disposal zone.

- IX. Describe the proposed stimulation program, if any:  
**Acid stimulate with approximately 5000 gallons of 15% NEFE HCL acid.**
- X. Attach appropriate logging and test data on the well. (If well logs have been filed with the Division, they need not be resubmitted.)  
**Logs will be submitted with completion papers when well is drilled.**
- XI. Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken.  
**According to the New Mexico Office of State Engineer database there are six (6) wells and/or points of diversion exist within one mile radius of the proposed well. POD's C03558 1-5 were boreholes drilled to deliniate spill. POD C03702 1 drilled as monitor well.**
- XII. Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering data and find no evidence of open faults or any other hydology connection between the disposal zone and any underground sources of drinking water.  
**(Exhibit F)**
- XIV. Proof of Notice  
**(Exhibit G)**

# PLU Madison 19 FED SWD 1 Eddy County, New Mexico



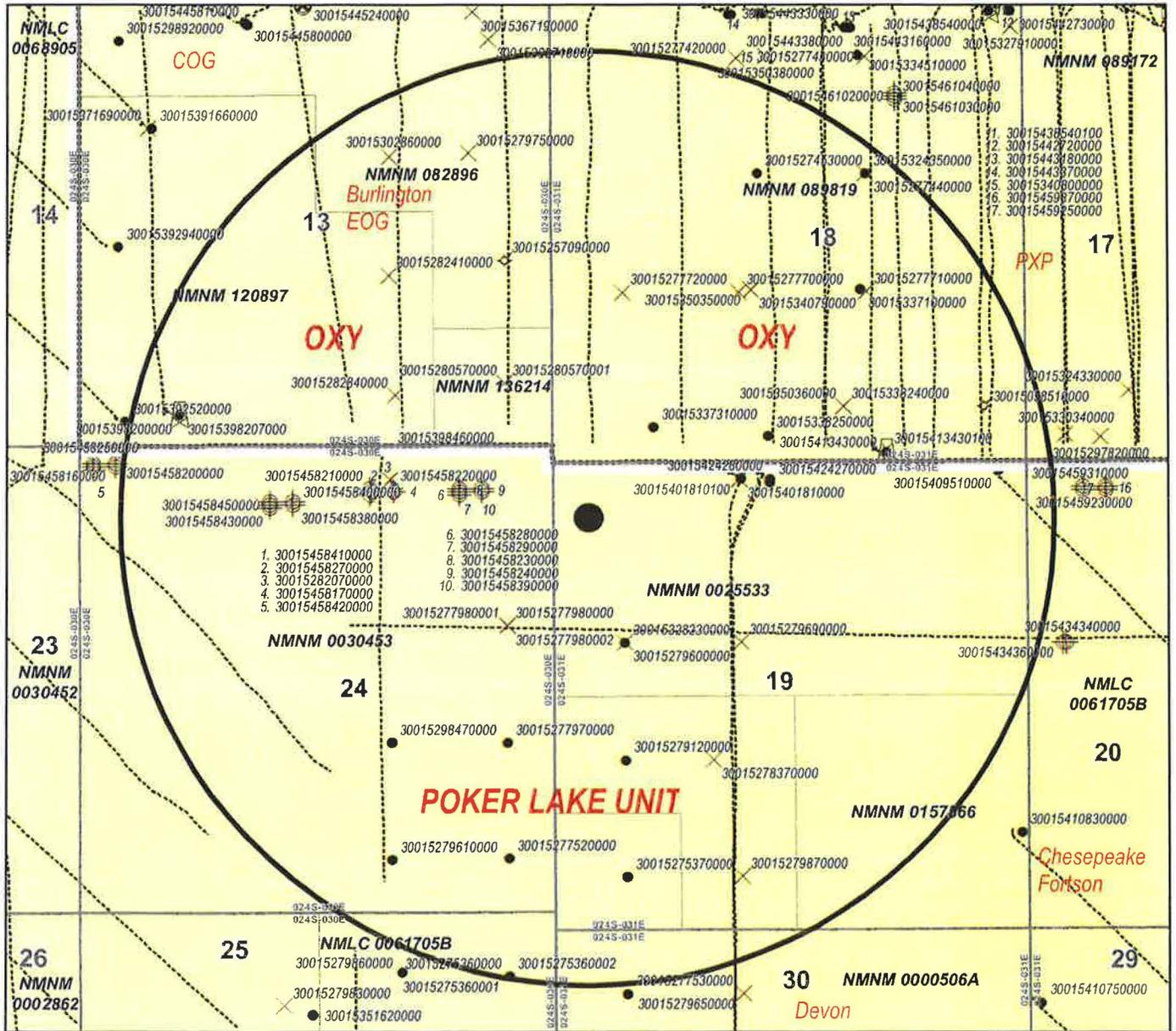
- |   |   |  |
|---|---|--|
| <ul style="list-style-type: none"> <li>----- wellbore</li> <li>State Lease</li> <li>Federal Lease</li> <li>two mile buffer</li> <li>BLM Active Unit</li> <li>Poker Lake</li> <li>Chevron - NMNM 13915X</li> </ul> | <p><b>Well Status Name</b></p> <ul style="list-style-type: none"> <li>GAS</li> <li>INJECTION</li> <li>MULTI OIL AND GAS PRODUCER</li> <li>OIL</li> <li>OIL AND GAS PRODUCER</li> <li>MULTIPLE GAS PRODUCER</li> <li>MULTIPLE OIL PRODUCER</li> <li>ABANDONED</li> <li>DRILLING</li> </ul> | <ul style="list-style-type: none"> <li>NON-PRODUCING OTHER</li> <li>CO2</li> <li>DRY</li> <li>STORAGE</li> <li>CBM</li> <li>OTHER PRODUCING</li> <li>WATER SUPPLY WELL</li> <li>WELL PERMIT</li> <li>WELL START</li> </ul> |
|---|---|--|



- known operators in buffer**
- |                       |                      |
|-----------------------|----------------------|
| AMBASSADOR OIL CORP   | HILL & MEEKER        |
| BASS ENTRPRRS PROD CO | HILLIN SIMON OIL CO  |
| BOPCO LP              | MERIDIAN OIL INC     |
| CHESAPEAKE OPERG INC  | OXY U S A INC        |
| CHEVRON U S A INC     | PAULEY PETROLEUM INC |
| COG PROD LLC          | POGO PRODUCING CO    |
| EOG RESOURCES INC     | READ CHARLS B        |
| FASKEN DAVID          | SOLARIS WATER MIDSTM |
| FORTSON OIL CO        | XTO PERMAN OPER LLC  |

**Exhibit A**  
Two Mile Radius Map

# PLU Madison 19 FED SWD 1 Eddy County, New Mexico

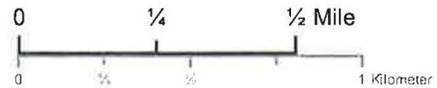
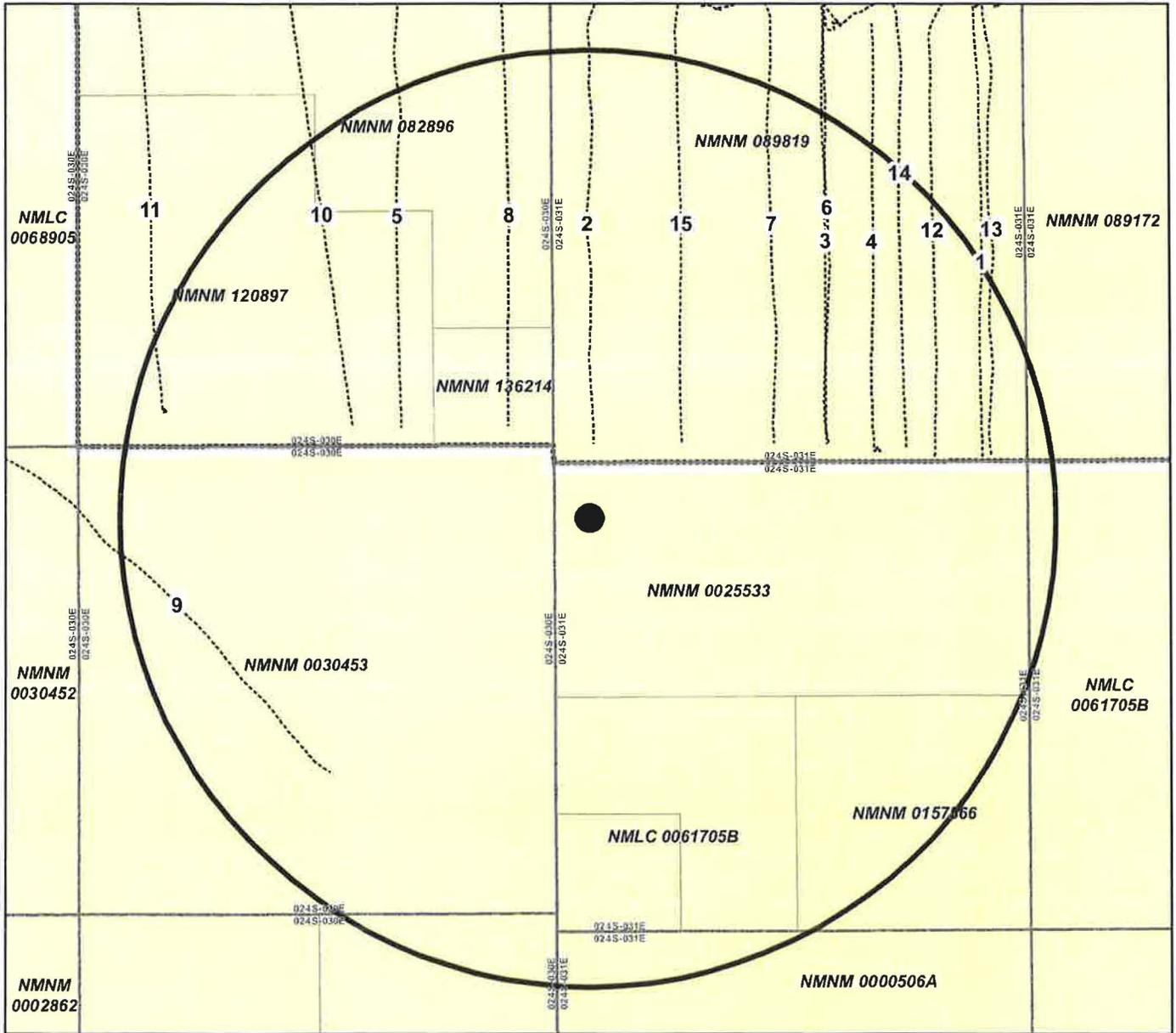


- |                                 |                              |                       |
|---------------------------------|------------------------------|-----------------------|
| ----- wellbore                  | <b>Well Status Name</b>      | ☐ NON-PRODUCING OTHER |
| State Lease                     | ☀ GAS                        | ○ CO2                 |
| Federal Lease                   | ☀ INJECTION                  | ☐ DRY                 |
| one mile buffer                 | ☀ MULTI OIL AND GAS PRODUCER | ☐ STORAGE             |
| BLM Active Unit -<br>Poker Lake | ● OIL                        | ☀ CBM                 |
|                                 | ☀ OIL AND GAS PRODUCER       | ☀ OTHER PRODUCING     |
|                                 | ☀ MULTIPLE GAS PRODUCER      | ☀ WATER SUPPLY WELL   |
|                                 | ☀ MULTIPLE OIL PRODUCER      | ☀ WELL PERMIT         |
|                                 | ☀ ABANDONED                  | ☀ WELL START          |
|                                 | ☀ DRILLING                   |                       |

- known operators in buffer**
- BASS ENTRPRS PROD CO
  - CHESAPEAKE OPERG INC
  - COG PROD LLC
  - EOG RESOURCES INC
  - HILLIN SIMON OIL CO
  - OXY U S A INC
  - READ CHARLS B
  - XTO PERMAN OPER LLC

**Exhibit B**  
One Mile Radius Map

PLU Madison 19 FED SWD 1  
 Eddy County, New Mexico  
 Terminus wells within one mile radius



- one mile buffer
- BLM Active Unit - Poker Lake
- borestick\_selection\_082619
- State Lease
- Federal Lease

ObjID	UWI	WELL_NAME	WELL_NUM
1	30015438540100	PATTON MDP1 18 FEDER	6H
2	30015443170000	PATTON MDP1 18' FED	001H
3	30015443180000	PATTON MDP1 18' FED	073H
4	30015413430100	PATTON 18' FEDERAL	8H
5	30015444980000	NIMITZ MDP1 13' FED	002H
6	30015443160000	PATTON MDP1 18' FED	023H
7	30015443330000	PATTON MDP1 18' FED	003H
8	30015445250000	NIMITZ MDP1 13' FED	003H
9	30015406590000	POKER LAKE UNIT	339H
10	30015445240000	NIMITZ MDP1 13 FEDER	1H
11	30015398200000	SILVER STREAK 13' F	2H
12	30015442720000	PATTON MDP1 18' FED	005H
13	30015442730000	PATTON MDP1 18' FED	007H
14	30015443380000	PATTON MDP1 18' FED	033H
15	30015443370000	PATTON MDP1 18' FED	002H

API	wellname	SEC	TWN	RNG	UL	ogrid_name	pool_id_list	Well Status
30-015-27453	POKER LAKE 18 FEDERAL #001	18	24S	31E	F	EOG RESOURCES INC	[96046] POKER LAKE, DELAWARE, NORTHWEST	Active
30-015-32435	PATTON 18 FEDERAL #001	18	24S	31E	G	OXY USA INC	[50382] POKER LAKE, DELAWARE	Active
30-015-33710	PATTON 18 FEDERAL #004	18	24S	31E	J	OXY USA INC	[50382] POKER LAKE, DELAWARE; [96046] POKER LAKE, DELAWARE, NORTHWEST	Active
30-015-33731	PATTON 18 FEDERAL #007	18	24S	31E	4	OXY USA INC	[96046] POKER LAKE, DELAWARE, NORTHWEST	Active
30-015-33825	PATTON 18 FEDERAL #006	18	24S	31E	N	OXY USA INC	[96046] POKER LAKE, DELAWARE, NORTHWEST	Active
30-015-39820	SILVER STREAK 13 FEDERAL COM #002H	13	24S	30E	M	OXY USA INC	[96047] POKER LAKE, DELAWARE, SOUTHWEST; [97798] WILDCAT G-06 S243026M, BONE SPRING	Active
30-015-41343	PATTON 18 FEDERAL #008H	18	24S	31E	O	OXY USA INC	[13367] COTTON DRAW, BONE SPRING	Active
30-015-27537	POKER LAKE UNIT #080	19	24S	31E	4	XTO PERMIAN OPERATING LLC.	[96047] POKER LAKE, DELAWARE, SOUTHWEST	Active
30-015-27752	POKER LAKE UNIT #082	24	24S	30E	P	XTO PERMIAN OPERATING LLC.	[96047] POKER LAKE, DELAWARE, SOUTHWEST	Active
30-015-27797	POKER LAKE UNIT #092	24	24S	30E	1	XTO PERMIAN OPERATING LLC.	[96047] POKER LAKE, DELAWARE, SOUTHWEST	Active
30-015-27912	POKER LAKE UNIT #086	19	24S	31E	3	XTO PERMIAN OPERATING LLC.	[96047] POKER LAKE, DELAWARE, SOUTHWEST	Active
30-015-27961	POKER LAKE UNIT #100	24	24S	30E	O	XTO PERMIAN OPERATING LLC.	[96047] POKER LAKE, DELAWARE, SOUTHWEST	Active
30-015-29847	POKER LAKE #139	24	24S	30E	J	XTO PERMIAN OPERATING LLC.	[96047] POKER LAKE, DELAWARE, SOUTHWEST	Active
30-015-32823	POKER LAKE UNIT #099Q	19	24S	31E	2	XTO PERMIAN OPERATING LLC.	[96047] POKER LAKE, DELAWARE, SOUTHWEST	Active
30-015-39846	POKER LAKE UNIT CVX JV BS #010H	24	24S	30E	B	XTO PERMIAN OPERATING LLC.	[96403] WILDCAT, BONE SPRING; [97798] WILDCAT G-06 S243026M, BONE SPRING	Active
30-015-40261	POKER LAKE CVX JV BS FEDERAL COM #014H	19	24S	31E	C	XTO PERMIAN OPERATING LLC.	[97975] WC-015 G-06 S243119C, BONE SPRING	Active
30-015-40951	POKER LAKE UNIT #393H	19	24S	31E	A	XTO PERMIAN OPERATING LLC.	[96047] POKER LAKE, DELAWARE, SOUTHWEST	Active
30-015-42427	POKER LAKE UNIT CVX JV BS #035H	19	24S	31E	C	XTO PERMIAN OPERATING LLC.	[97975] WC-015 G-06 S243119C, BONE SPRING	Active
30-015-42428	POKER LAKE UNIT CVX JV BS #036H	19	24S	31E	C	XTO PERMIAN OPERATING LLC.	[97975] WC-015 G-06 S243119C, BONE SPRING	Active
30-015-27960	POKER LAKE UNIT #099	19	24S	31E	2	BEPCO, LP	No Data	Cancelled APD
30-015-27969	POKER LAKE UNIT #104	19	24S	31E	F	BEPCO, LP	No Data	Cancelled APD
30-015-27987	POKER LAKE UNIT #088	19	24S	31E	N	BEPCO, LP	No Data	Cancelled APD
30-015-28207	POKER LAKE UNIT #122	24	24S	30E	B	BEPCO, LP	No Data	Cancelled APD
30-015-27744	POKER LAKE 18 FEDERAL #009	18	24S	31E	G	BURLINGTON RESOURCES OIL & GAS CO	No Data	Cancelled APD
30-015-27770	POKER LAKE 18 FEDERAL #002	18	24S	31E	K	BURLINGTON RESOURCES OIL & GAS CO	No Data	Cancelled APD
30-015-27772	POKER LAKE 18 FEDERAL #004	18	24S	31E	3	BURLINGTON RESOURCES OIL & GAS CO	No Data	Cancelled APD
30-015-27771	POKER LAKE 18 FED #003	18	24S	31E	J	BURLINGTON RESOURCES OIL & GAS COMPANY LP	No Data	Cancelled APD
30-015-27975	GILA 13 FEDERAL #001	13	24S	30E	H	BURLINGTON RESOURCES OIL & GAS COMPANY LP	No Data	Cancelled APD
30-015-27837	POKER LAKE UNIT #090	19	24S	31E	K	FORTSON OIL CO	No Data	Cancelled APD
30-015-35035	PATTON 18 FEDERAL #008	18	24S	31E	K	OXY USA INC	[53818] SAND DUNES, DELAWARE, SOUTH	Cancelled APD
30-015-35036	PATTON 18 FEDERAL #005	18	24S	31E	O	OXY USA INC	[96046] POKER LAKE, DELAWARE, NORTHWEST	Cancelled APD
30-015-30286	NIMITZ 13 FEDERAL #002	13	24S	30E	G	POGO PRODUCING CO	No Data	Cancelled APD
30-015-33824	PATTON 18 FEDERAL #005E	18	24S	31E	O	POGO PRODUCING CO	[96046] POKER LAKE, DELAWARE, NORTHWEST	Cancelled APD
30-015-34079	PATTON 18 FEDERAL #008E	18	24S	31E	K	POGO PRODUCING CO	[53818] SAND DUNES, DELAWARE, SOUTH	Cancelled APD
30-015-28241	PALLADIUM 13 FEDERAL #003	13	24S	30E	J	SANTA FE ENERGY OPERATING PARTNERS L P	No Data	Cancelled APD
30-015-28284	PALLADIUM 13 FEDERAL #002	13	24S	30E	O	SANTA FE ENERGY OPERATING PARTNERS L P	No Data	Cancelled APD
30-015-45817	POKER LAKE UNIT 13 DTD #106H	24	24S	30E	B	XTO PERMIAN OPERATING LLC.	[98220] PURPLE SAGE, WOLFCAMP (GAS)	New (Not Drilled/Completed)
30-015-45821	POKER LAKE UNIT 13 DTD #125H	24	24S	30E	B	XTO PERMIAN OPERATING LLC.	[98220] PURPLE SAGE, WOLFCAMP (GAS)	New (Not Drilled/Completed)
30-015-45822	POKER LAKE UNIT 13 DTD #126H	24	24S	30E	B	XTO PERMIAN OPERATING LLC.	[98220] PURPLE SAGE, WOLFCAMP (GAS)	New (Not Drilled/Completed)
30-015-45823	POKER LAKE UNIT 13 DTD #127H	24	24S	30E	A	XTO PERMIAN OPERATING LLC.	[98220] PURPLE SAGE, WOLFCAMP (GAS)	New (Not Drilled/Completed)
30-015-45824	POKER LAKE UNIT 13 DTD #128H	24	24S	30E	A	XTO PERMIAN OPERATING LLC.	[98220] PURPLE SAGE, WOLFCAMP (GAS)	New (Not Drilled/Completed)
30-015-45827	POKER LAKE UNIT 13 DTD #705H	24	24S	30E	B	XTO PERMIAN OPERATING LLC.	[97975] WC-015 G-06 S243119C, BONE SPRING	New (Not Drilled/Completed)
30-015-45828	POKER LAKE UNIT 13 DTD #707H	24	24S	30E	A	XTO PERMIAN OPERATING LLC.	[97975] WC-015 G-06 S243119C, BONE SPRING	New (Not Drilled/Completed)
30-015-45838	POKER LAKE UNIT 13 DTD #104H	24	24S	30E	C	XTO PERMIAN OPERATING LLC.	[98220] PURPLE SAGE, WOLFCAMP (GAS)	New (Not Drilled/Completed)
30-015-45839	POKER LAKE UNIT 13 DTD #108H	24	24S	30E	A	XTO PERMIAN OPERATING LLC.	[98220] PURPLE SAGE, WOLFCAMP (GAS)	New (Not Drilled/Completed)
30-015-45840	POKER LAKE UNIT 13 DTD #124H	24	24S	30E	C	XTO PERMIAN OPERATING LLC.	[98220] PURPLE SAGE, WOLFCAMP (GAS)	New (Not Drilled/Completed)
30-015-45841	POKER LAKE UNIT 13 DTD #123H	24	24S	30E	C	XTO PERMIAN OPERATING LLC.	[98220] PURPLE SAGE, WOLFCAMP (GAS)	New (Not Drilled/Completed)
30-015-45843	POKER LAKE UNIT 13 DTD #703H	24	24S	30E	C	XTO PERMIAN OPERATING LLC.	[97975] WC-015 G-06 S243119C, BONE SPRING	New (Not Drilled/Completed)
30-015-45845	POKER LAKE UNIT 13 DTD #903H	24	24S	30E	C	XTO PERMIAN OPERATING LLC.	[97975] WC-015 G-06 S243119C, BONE SPRING	New (Not Drilled/Completed)
30-015-46106	POKER LAKE UNIT 13 DTD #905H	24	24S	30E	B	XTO PERMIAN OPERATING LLC.	[97975] WC-015 G-06 S243119C, BONE SPRING	New (Not Drilled/Completed)
30-015-27536	POKER LAKE UNIT #078	25	24S	30E	A	BOPCO, L.P.	[96047] POKER LAKE, DELAWARE, SOUTHWEST	Plugged (Site Released)
30-015-27798	POKER LAKE UNIT #093	24	24S	30E	H	BOPCO, L.P.	[96047] POKER LAKE, DELAWARE, SOUTHWEST	Plugged (Site Released)
30-015-28057	PALLADIUM 13 FEDERAL #001	13	24S	30E	P	BOPCO, L.P.	[96046] POKER LAKE, DELAWARE, NORTHWEST;	Plugged (Site Released)
30-015-40181	PLU BIG SINKS 19 24 31 USA #001	19	24S	31E	C	CHESAPEAKE OPERATING, INC.	[96047] POKER LAKE, DELAWARE, SOUTHWEST	Plugged (Site Released)
30-015-05851	RITCHIE FEDERAL	18	24S	31E	P	CHARLES B. READ	[96403] WILDCAT, BONE SPRING	Plugged (Site Released)
30-015-25709	AMOCO FEDERAL 005	13	24S	30E	I	REMNANT OIL OPERATING, LLC	WILDCAT	Plugged (Site Released)
							HACKBERRY, YATES 7 RIVERS, NORTH	

## Exhibit C

### List of Wells - 1 Mile Radius

<i>API</i>	<i>wellname</i>	<i>SEC</i>	<i>TWN</i>	<i>RNG</i>	<i>UL</i>	<i>ogrid_name</i>	<i>pool_id_list</i>	<i>Well Status</i>
<i>Wells with terminus location inside the one mile</i>								
30-015-43854-01	PATTON MDP1 18 FEDER 6H	18	24S	31E		OXY USA INC	WOLFCAMP HORIZONTAL - DELAWARE BASIN	Active
30-015-44317	PATTON MDP1 `18` FED 001H	7	24S	31E		OXY USA INC	BONE SPRING/WOLFBONE - DELAWARE BASIN	Active
30-015-44318	PATTON MDP1 `18` FED 073H	18	24S	31E		OXY USA INC	BONE SPRING/WOLFBONE - DELAWARE BASIN	Active
30-015-41343	PATTON `18` FEDERAL 8H	18	24S	31E		OXY USA INC	BONE SPRING/WOLFBONE - DELAWARE BASIN	Active
30-015-44498	NIMITZ MDP1 `13` FED 002H	12	24S	30E		OXY USA INC	BONE SPRING/WOLFBONE - DELAWARE BASIN	Active
30-015-44316	PATTON MDP1 `18` FED 023H	18	24S	31E		OXY USA INC	BONE SPRING/WOLFBONE - DELAWARE BASIN	Active
30-015-44333	PATTON MDP1 `18` FED 0032H	18	24S	31E		OXY USA INC	BONE SPRING/WOLFBONE - DELAWARE BASIN	Active
30-015-44525	NIMITZ MDP1 `13` FED 003H	12	24S	30E		OXY USA INC	BONE SPRING/WOLFBONE - DELAWARE BASIN	Active
30-015-40659	POKER LAKE UNIT 339H	14	24S	30E		BOPCO LP	[96047] POKER LAKE, DELAWARE, SOUTHWEST	Active
30-015-44524	NIMITZ MDP1 13 FEDER 1H	13	24S	30E		OXY USA INC	BONE SPRING/WOLFBONE - DELAWARE BASIN	New (Not Drilled/Completed)
30-015-39820	SILVER STREAK `13` F 2H	13	24S	30E		COG PRODUCTION LLC	BONE SPRING/WOLFBONE - DELAWARE BASIN	Active
30-015-44272	PATTON MDP1 `18` FED 005H	18	24S	31E		OXY USA INC	BONE SPRING/WOLFBONE - DELAWARE BASIN	Active
30-015-44273	PATTON MDP1 `18` FED 007H	18	24S	31E		OXY USA INC	BONE SPRING/WOLFBONE - DELAWARE BASIN	Active
30-015-44338	PATTON MDP1 `18` FED 033H	18	24S	31E		OXY USA INC	BONE SPRING/WOLFBONE - DELAWARE BASIN	Active
30-015-44337	PATTON MDP1 `18` FED 002H	18	24S	31E		OXY USA INC	BONE SPRING/WOLFBONE - DELAWARE BASIN	Active

Customer: **XTO ENERGY INC**  
 Region: **Carlsbad, NM**  
 Location: **Nash Draw 8**  
 System: **Production System**

Equipment: **NASH DRAW 8 FEDERAL001H SWD**  
 Sample Point: **Well Head**  
 Sample ID: **AL07041**  
 Acct Rep Email: **Anthony.Baeza@ecolab.com**

Collection Date: **06/08/2018**  
 Receive Date: **06/21/2018**  
 Report Date: **06/25/2018**  
 Location Code: **343691**

Field Analysis					
Bicarbonate	48 mg/L	Dissolved CO2	400 mg/L	Dissolved H2S	9 mg/L
Pressure Surface	20 psi	Temperature	97 ° F	pH of Water	6.3
Oil per Day	0 B/D	Gas per Day	0 Mcf/D	Water per Day	6500 B/D

Sample Analysis					
Calculated Gaseous CO2	0.81 %	Calculated pH	6.30	Conductivity (Calculated)	319277 µS - cm3
Ionic Strength	4.15	Resistivity	0.031 ohms - m	Specific Gravity	1.175
Total Dissolved Solids	204372.5 mg/L				

Cations					
Iron	30.5 mg/L	Manganese	4.8 mg/L	Barium	5.18 mg/L
Strontium	1420 mg/L	Calcium	19900 mg/L	Magnesium	2960 mg/L
Sodium	44800.00 mg/L	Potassium	1340 mg/L	Boron	25 mg/L
Lithium	15.2 mg/L	Copper	0.037 mg/L	Nickel	0.019 mg/L
Zinc	0.377 mg/L	Lead	0.084 mg/L	Cobalt	0.014 mg/L
Chromium	0.002 mg/L	Silicon	5.26 mg/L	Aluminum	0.078 mg/L
Molybdenum	0.02 mg/L	Phosphorus	0.857 mg/L		

Anions					
Bromide	1407.806 mg/L	Chloride	134917 mg/L	Sulfate	286.045 mg/L

	PTB Value							Saturation Index						
	Barite PTB	Calcite PTB	Celestite PTB	Gypsum PTB	Halite PTB	Iron Carbonate PTB	Iron Sulfide PTB	Barite SI	Calcite SI	Celestite SI	Gypsum SI	Halite SI	Iron Carbonate SI	Iron Sulfide SI
50°	2.87	6.39	117.45	0.00	0.00	0.00	5.48	1.15	0.77	0.46	-0.06	-0.80	-0.74	1.77
75°	2.61	5.82	97.91	0.00	0.00	0.00	4.88	0.82	0.69	0.35	-0.18	-0.82	-0.72	1.47
100°	2.20	5.35	85.10	0.00	0.00	0.00	4.42	0.55	0.62	0.29	-0.24	-0.84	-0.69	1.25
125°	1.59	5.00	78.13	0.00	0.00	0.00	4.08	0.32	0.58	0.26	-0.29	-0.85	-0.66	1.10
150°	0.77	4.80	75.51	0.00	0.00	0.00	3.86	0.13	0.55	0.25	-0.33	-0.87	-0.63	1.00
175°	0.00	4.74	76.85	0.00	0.00	0.00	3.75	-0.04	0.54	0.25	-0.38	-0.88	-0.60	0.94
200°	0.00	4.80	77.23	0.00	0.00	0.00	3.73	-0.18	0.55	0.25	-0.44	-0.89	-0.57	0.91
225°	0.00	4.97	79.35	0.00	0.00	0.00	3.78	-0.30	0.56	0.27	-0.51	-0.90	-0.55	0.92
250°	0.00	5.23	81.43	0.00	0.00	0.00	3.90	-0.41	0.59	0.28	-0.58	-0.91	-0.53	0.94
275°	0.00	5.55	83.16	0.00	0.00	0.00	4.05	-0.52	0.63	0.28	-0.66	-0.92	-0.53	0.97
300°	0.00	5.91	84.45	0.00	0.00	0.00	4.22	-0.63	0.66	0.29	-0.72	-0.92	-0.54	1.01
325°	0.00	6.29	85.31	0.00	0.00	0.00	4.40	-0.73	0.70	0.29	-0.76	-0.93	-0.57	1.06
350°	0.00	6.68	85.77	0.00	0.00	0.00	4.58	-0.84	0.73	0.29	-0.76	-0.93	-0.61	1.10
375°	0.00	7.04	85.77	0.00	0.00	0.00	4.74	-0.96	0.76	0.29	-0.68	-0.94	-0.68	1.13
400°	0.00	8.16	84.99	0.00	0.00	0.00	5.87	-1.09	0.92	0.29	-0.52	-0.94	-0.63	1.48

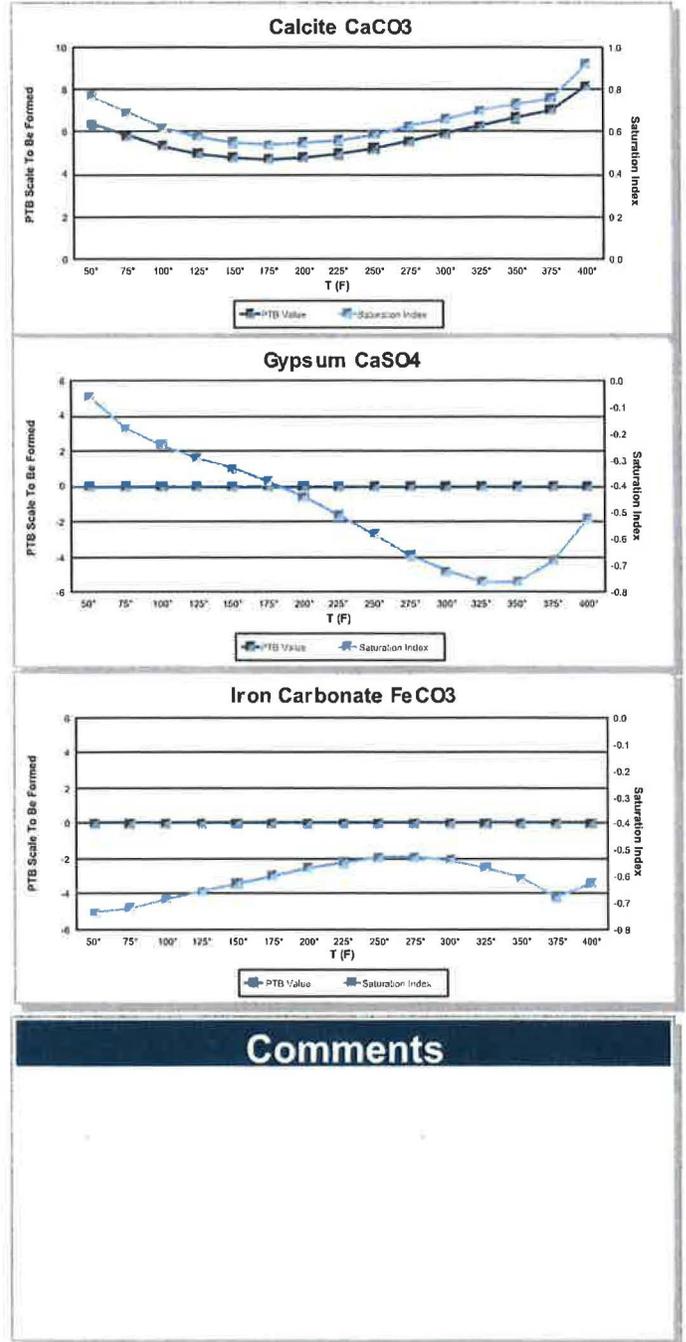
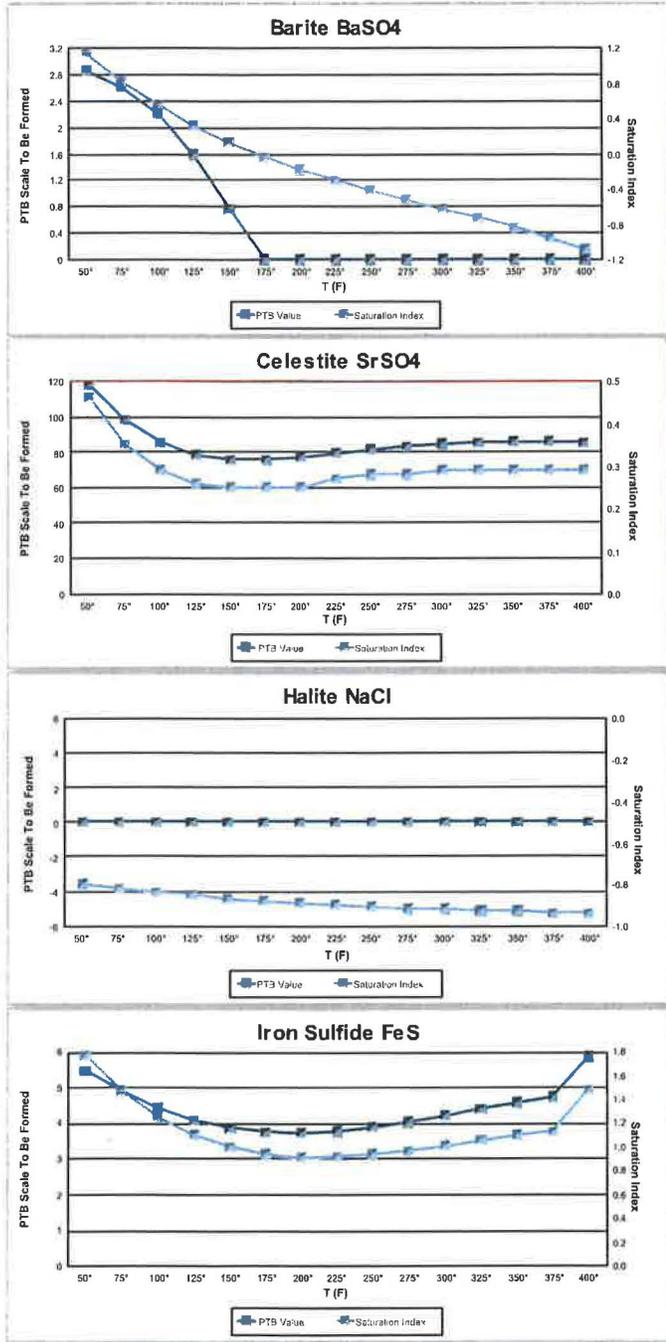
Scaling predictions calculated using Scale Soft Pitzer 2017  
 Scaling predictions dependent on provided field data. Incomplete/partial field data may impact results generated by scaling software.

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 06/27/2018 Page 1 of 2

Customer: XTO ENERGY INC  
 Region: Carlsbad, NM  
 Location: Nash Draw 8  
 System: Production System

Equipment: NASH DRAW 8 FEDERAL001H SWD  
 Sample Point: Well Head  
 Sample ID: AL07041  
 Acct Rep Email: Anthony.Baeza@ecolab.com

Collection Date: 06/08/2018  
 Receive Date: 06/21/2018  
 Report Date: 06/25/2018  
 Location Code: 343691

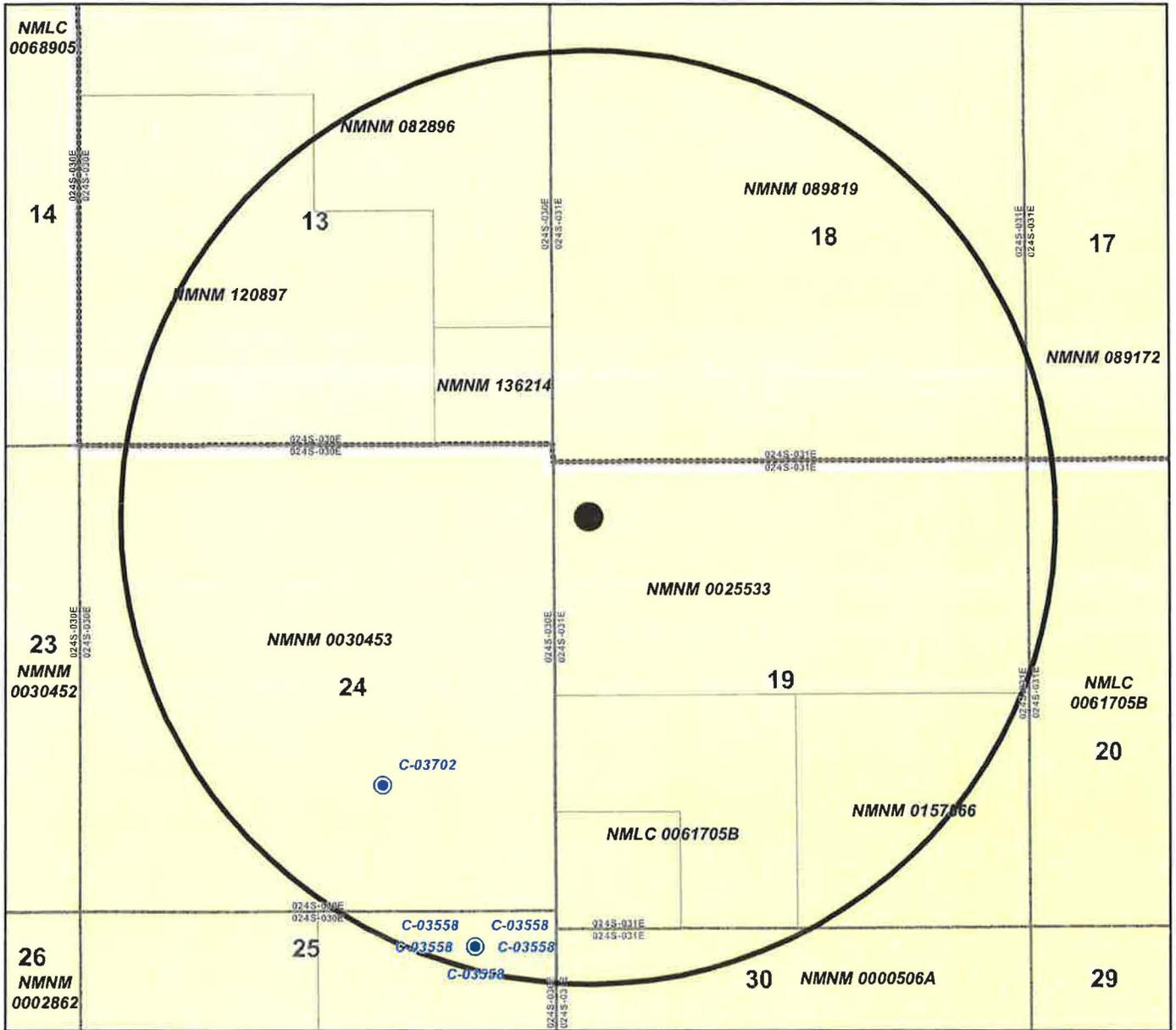


Scaling predictions calculated using Scale Soft Pitzer 2017

Scaling predictions dependent on provided field data. Incomplete/partial field data may impact results generated by scaling software.

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 06/27/2018

# PLU Madison 19 FED SWD 1 Eddy County, New Mexico



- water well
- location
- surface declaration
- surface permit
- State Lease
- Federal Lease
- one mile buffer
- BLM Active Unit -  
Poker Lake

**Exhibit E**  
Water Wells – One Mile Radius



# New Mexico Office of the State Engineer

## Point of Diversion Summary

(quarters are 1=NW 2=NE 3=SW 4=SE)

(quarters are smallest to largest)

(NAD83 UTM in meters)

Well Tag	POD Number	Q64	Q16	Q4	Sec	Tws	Rng	X	Y
	C 03702 POD1	4	1	4	24	24S	30E	610092	3563204 

**Driller License:** 1711

**Driller Company:** STRAUB CORPORATION

**Driller Name:** BRYAN, EDWARD (LD)

**Drill Start Date:** 12/11/2013

**Drill Finish Date:** 12/11/2013

**Plug Date:**

**Log File Date:** 12/23/2013

**PCW Rcv Date:**

**Source:**

**Pump Type:**

**Pipe Discharge Size:**

**Estimated Yield:**

**Casing Size:**

**Depth Well:** 20 feet

**Depth Water:**

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



# New Mexico Office of the State Engineer Point of Diversion Summary

(quarters are 1=NW 2=NE 3=SW 4=SE)  
(quarters are smallest to largest) (NAD83 UTM in meters)

Well Tag	POD Number	Q64	Q16	Q4	Sec	Tws	Rng	X	Y
	C 03558 POD1	1	2	2	25	24S	30E	610412	3562651 

---

<b>Driller License:</b> 1478	<b>Driller Company:</b> STRAUB CORPORATION	
<b>Driller Name:</b> EDWARD BRYAN		
<b>Drill Start Date:</b> 08/01/2012	<b>Drill Finish Date:</b> 08/01/2012	<b>Plug Date:</b> 08/01/2012
<b>Log File Date:</b> 08/13/2012	<b>PCW Rcv Date:</b>	<b>Source:</b>
<b>Pump Type:</b>	<b>Pipe Discharge Size:</b>	<b>Estimated Yield:</b>
<b>Casing Size:</b> 0.00	<b>Depth Well:</b> 20 feet	<b>Depth Water:</b> 0 feet

---

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# New Mexico Office of the State Engineer

## Point of Diversion Summary

(quarters are 1=NW 2=NE 3=SW 4=SE)  
(quarters are smallest to largest) (NAD83 UTM in meters)

Well Tag	POD Number	Q64	Q16	Q4	Sec	Tws	Rng	X	Y
	C 03558 POD2	1	2	2	25	24S	30E	610412	3562651 

**Driller License:** 1478

**Driller Company:** STRAUB CORPORATION

**Driller Name:** BRYAN, EDWARD O.

**Drill Start Date:** 08/01/2012

**Drill Finish Date:** 08/01/2012

**Plug Date:** 08/01/2012

**Log File Date:** 08/13/2012

**PCW Rcv Date:**

**Source:**

**Pump Type:**

**Pipe Discharge Size:**

**Estimated Yield:**

**Casing Size:** 0.00

**Depth Well:** 20 feet

**Depth Water:** 0 feet

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



# New Mexico Office of the State Engineer

## Point of Diversion Summary

(quarters are 1=NW 2=NE 3=SW 4=SE)  
(quarters are smallest to largest) (NAD83 UTM in meters)

Well Tag	POD Number	Q64	Q16	Q4	Sec	Tws	Rng	X	Y
	C 03558 POD3	1	2	2	25	24S	30E	610412	3562651 

**Driller License:** 1478

**Driller Company:** STRAUB CORPORATION

**Driller Name:** BRYAN, EDWARD O.

**Drill Start Date:** 08/01/2012

**Drill Finish Date:** 08/01/2012

**Plug Date:** 08/01/2012

**Log File Date:** 08/13/2012

**PCW Rcv Date:**

**Source:**

**Pump Type:**

**Pipe Discharge Size:**

**Estimated Yield:**

**Casing Size:** 0.00

**Depth Well:** 25 feet

**Depth Water:** 0 feet

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



# New Mexico Office of the State Engineer Point of Diversion Summary

(quarters are 1=NW 2=NE 3=SW 4=SE)  
(quarters are smallest to largest) (NAD83 UTM in meters)

Well Tag	POD Number	Q64	Q16	Q4	Sec	Tws	Rng	X	Y
	C 03558 POD4	1	2	2	25	24S	30E	610412	3562651 

**Driller License:** 1478

**Driller Company:** STRAUB CORPORATION

**Driller Name:** BRYAN, EDWARD O.

**Drill Start Date:** 08/01/2012

**Drill Finish Date:** 08/01/2012

**Plug Date:**

**Log File Date:** 08/13/2012

**PCW Rcv Date:**

**Source:**

**Pump Type:**

**Pipe Discharge Size:**

**Estimated Yield:**

**Casing Size:** 0.00

**Depth Well:** 25 feet

**Depth Water:** 0 feet

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



# New Mexico Office of the State Engineer

## Point of Diversion Summary

(quarters are 1=NW 2=NE 3=SW 4=SE)  
(quarters are smallest to largest) (NAD83 UTM in meters)

Well Tag	POD Number	Q64	Q16	Q4	Sec	Tws	Rng	X	Y
	C 03558 POD5	1	2	2	25	24S	30E	610412	3562651 

**Driller License:** 1478

**Driller Company:** STRAUB CORPORATION

**Driller Name:** BRYAN, EDWARD O.

**Drill Start Date:** 08/01/2012

**Drill Finish Date:** 08/01/2012

**Plug Date:** 08/01/2012

**Log File Date:** 08/13/2012

**PCW Rcv Date:**

**Source:**

**Pump Type:**

**Pipe Discharge Size:**

**Estimated Yield:**

**Casing Size:** 0.00

**Depth Well:** 30 feet

**Depth Water:** 0 feet

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

August 9, 2019

New Mexico, Oil Conservation Division  
1220 South St. Francis Drive  
Santa Fe, New Mexico 87505

**Re: Geology Statement per Question XII on the Application for Authorization to Inject Form C-108 for**  
XTO Energy Inc., an ExxonMobil subsidiary  
PLU Madison 19 Fed SWD 1,  
Section 19, Township 24 South, Range 31 East,  
Eddy County, New Mexico

To whom it may concern:

XTO Energy, Inc., an ExxonMobil subsidiary, has examined available geological data at the above-mentioned well located at 631 feet from the north line and 416 feet from the west line of Section 19, Township 24 South, Range 31 East, Eddy County, New Mexico; and finds no evidence of open faults or other hydrologic connection between the disposal zone and the underground sources of drinking water.

Respectfully Submitted,



**Matthew W. Kearney, P.G.**



Geoscientist

XTO Energy Inc., an ExxonMobil subsidiary  
22777 Springwoods Village Parkway  
Spring, Texas 77389

CARLSBAD  
**CURRENT-ARGUS**

**AFFIDAVIT OF PUBLICATION**

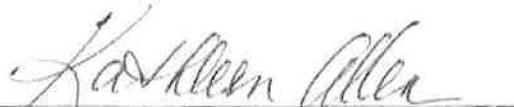
**Ad No.**  
**0001294295**

Tracie J Cherry  
XTO ENERGY  
6401 HOLIDAY HILL RD. BLDG 5  
  
MIDLAND TX 79707

I, a legal clerk of the **Carlsbad Current-Argus**, a newspaper published daily at the City of Carlsbad, in said county of Eddy, state of New Mexico and of general paid circulation in said county; that the same is a duly qualified newspaper under the laws of the State wherein legal notices and advertisements may be published; that the printed notice attached hereto was published in the regular and entire edition of said newspaper and not in supplement thereof on the date as follows, to wit:

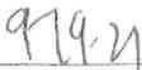
08/20/19

NOTICE OF APPLICATION FOR WATER DISPOSAL WELL PERMIT  
XTO Permian Operating, LLC has applied to the New Mexico Oil Conservation Division for a permit to dispose of produced water into a porous formation not productive of oil or gas. The applicant proposes to dispose of produced water into the PLU 19 MADISON FED SWD 1 (Siluro-Devonian and Fusselman Formations). The maximum injection pressure will be 3360 psi and the maximum rate will be 40,000 bbls. produced water per day. The proposed disposal well is located approximately 14.8 miles East of Malaga, New Mexico in Section 19, T24S, R31E, 631' FNL & 416' FWL, Eddy County, New Mexico. The produced water will be disposed at a subsurface depth of 16,800-17,991'. Any questions concerning this application should be directed to Cheryl Rowell, Regulatory Coordinator, XTO Energy, Inc, 6401 Holiday Hill Rd, Bldg 5, Midland, Texas 79707, (432) 221-7379. Interested parties must file objections or requests for hearing with the Oil Conservation Division, 1220 S. St. Francis Dr., Santa Fe, New Mexico 87505 within 15 days. August 20, 2019

  
\_\_\_\_\_  
Legal Clerk

Subscribed and sworn before me this  
29th of August 2019.

  
\_\_\_\_\_  
State of WI, County of Brown  
NOTARY PUBLIC

  
\_\_\_\_\_  
My Commission Expires



Ad#:0001294295  
P O. 13 PLU Madison  
# of Affidavits :0.00

**Exhibit G**  
Notifications  
1 of 2



### **Statements Regarding Seismicity**

XTO has performed a seismicity risk assessment associated with the proposed Poker Lake Unit Madison 19 Federal SWD 1 Well by investigating historic seismicity, the presence of deep faulting, orientation of faults relative to the current stress regime and the potential for pore pressure build up that might cause a fault to slip. The analysis was done utilizing Stanford's Fault Slip Potential Tool version 2.0 (FSP; Walsh et al. 2017). To accommodate the tool's analytics, a simplified spatial relationship between the proposed well and possible faulting was established.

As part of our risk assessment we also consider mitigation options to address inherent uncertainties associated with the evaluation of possible seismicity. XTO has developed and will implement, as a precautionary measure, a seismicity monitoring plan to address the inherent uncertainty in the subsurface characterization, future rates of disposal and reservoir response.

A summary of the evaluation and seismicity monitoring plan follows:

### **Historic Seismicity**

There is one seismic event reported by the USGS within ~6 miles of the proposed well. The New Mexico Tech Seismological Observatory determined that the March 18, 2012 event was linked to the collapse of a potash mine. Additionally, the Texas Bureau of Economic Geology's TexNet website shows no recent earthquakes in Texas within ~25 miles of the New Mexico border in the Delaware Basin (Figure 1).

### **Deep Faulting**

Utilizing licensed 3D seismic data in the area of the proposed SWD well, XTO has evaluated two faults and/or linear features. Additionally, there are several seismic discontinuities that are interpreted as karst features in the Devonian section that do not appear to have significant lateral continuity.

### **Stress Regime**

Utilizing data and analysis from Snee and Zoback, 'State of Stress in the Permian Basin, Texas and New Mexico: Implications for Induced Seismicity' (Feb 2018, The Leading Edge) the region of the proposed well is primarily a normal faulting regime (Figure 1).

### **Geomechanical Modeling**

A simple screening level geometric / geomechanical assessment of the faults was performed utilizing the FSP tool. The models were run using the Aphi option which makes a simplifying and conservative assumption that faults are critically stressed and thus close to failure. Additionally, given the uncertainties in the geophysical interpretation and stress information, probabilistic scenarios were run varying fault and stress characteristics. FSP model deterministic and uncertainty inputs and results of the modeling are shown in Figure 2

### **Pore Pressure Modeling**

A screening level investigation of possible pore pressure increases due to the proposed SWD well was performed utilizing the FSP tool and a range of reservoir parameters. For this screening level analysis a 'high-side', flat rate model was run assuming disposal of 40,000 BWPD beginning in

2019 and continuing at that rate until 2040. Sensitivities were performed by varying several reservoir parameters. Deterministic models, snap shots of the calculated pore pressure increases in 2025 and 2040 and cross-plots of pore pressure uncertainty analysis and fault slip probabilities are shown in Figure 3.

#### **Integration of Geomechanical and Pore Pressure Modeling**

Integration of the geomechanical and hydrological elements of the assessment was performed using the FSP Integrated module. The results are shown in Figure 4. Note the y-axis in the lower right hand colored graphs in Figure 4 are labeled 'Fault Slip Potential'. This is a labeling convention within the tool but overstates the efficacy of the analysis. The FSP output should not be taken as calculating a reliable probability of a fault slipping but rather a screening method for assessing the relative potential of faults to slip.

#### **Uncertainty**

The analysis presented is a screening level approach that encompasses a range of uncertainties in several components that are difficult to individually constrain due to the limited static and dynamic data available for deep disposal wells. Accordingly, the analysis was done by varying key inputs to understand the relative importance of each and guide the focus of future data collection efforts.

#### **Monitoring Plan**

To manage the inherent uncertainty, XTO has contracted with a third party to provide seismicity monitoring using public seismometers augmented by a private array in the area of the proposed well. This will allow for a better determination of baseline seismicity as well as early detection should there be anomalous events. Additionally, XTO will determine the original pore pressure of the disposal interval prior to initiating operations. Upon request, XTO will share the results of this work with the EMNRD's UIC staff.



Tim Tyrrell  
XTO Geoscience Technical Manager

# PLU Madison 19 Fed SWD 1 Well – Historic Seismicity and Stress Information

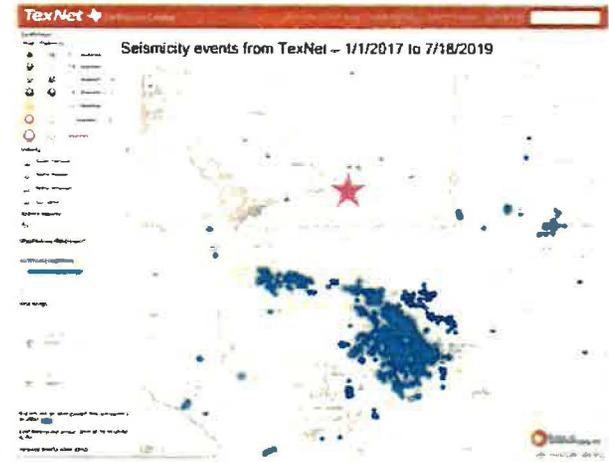
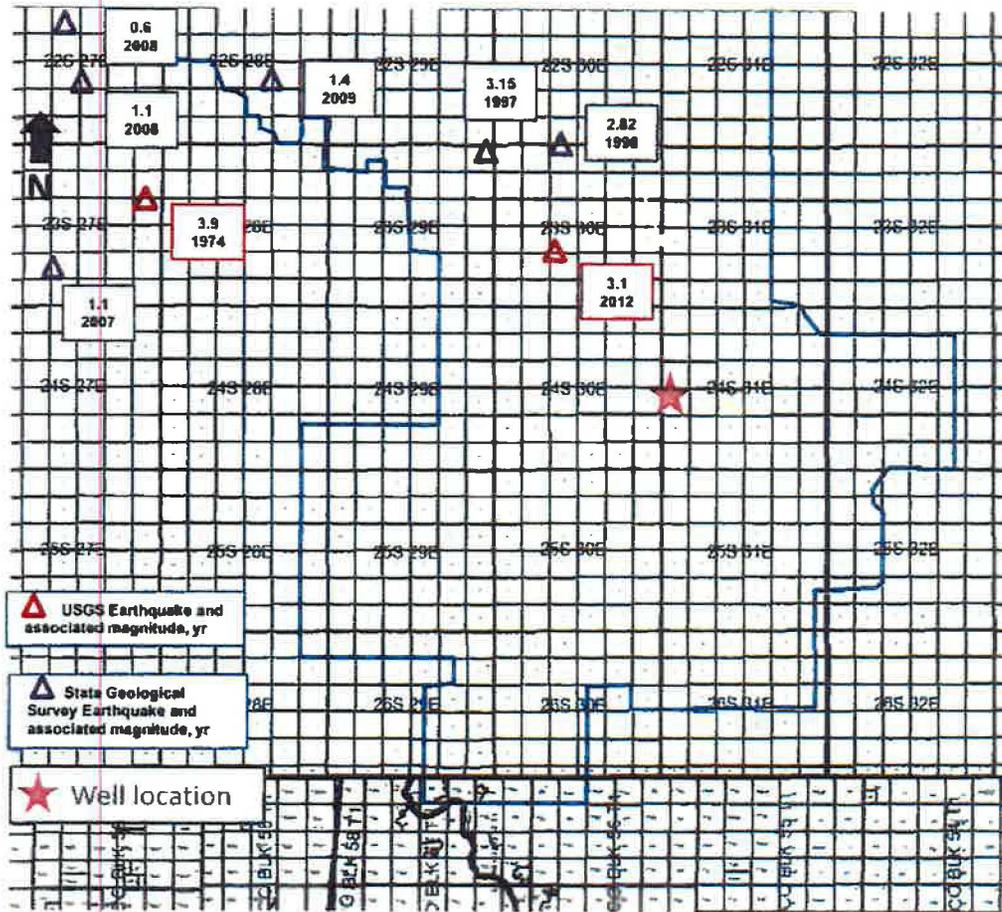


Figure 1

# PLU Madison 19 Fed SWD 1 Well - Geomechanics

## Stress Regime Inputs

- Use A-Phi Mode
- |                                  |              |
|----------------------------------|--------------|
| Vertical Stress Gradient         | 1.1 psi/ft   |
| Initial Res. Pressure Gradient   | 0.47 psi/ft  |
| Reference Depth for Calculations | 16,250 ft MD |
- Maximum Injection Rate: 40,000 bbl/day

## Uncertainty Ranges

- A-Phi stress model is being used
- |                    |              |
|--------------------|--------------|
| Strike Angles:     | +/- 15°      |
| Dip Angles:        | +/- 15°      |
| Max Horiz Stress:  | 71° +/- 15°  |
| Friction Coeff Mu: | 0.6          |
| A Phi Parameter:   | 0.62 +/- 0.2 |

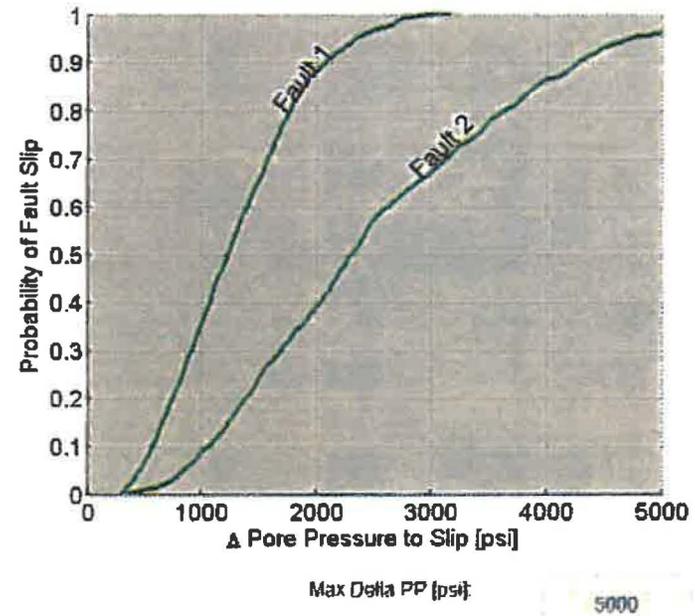
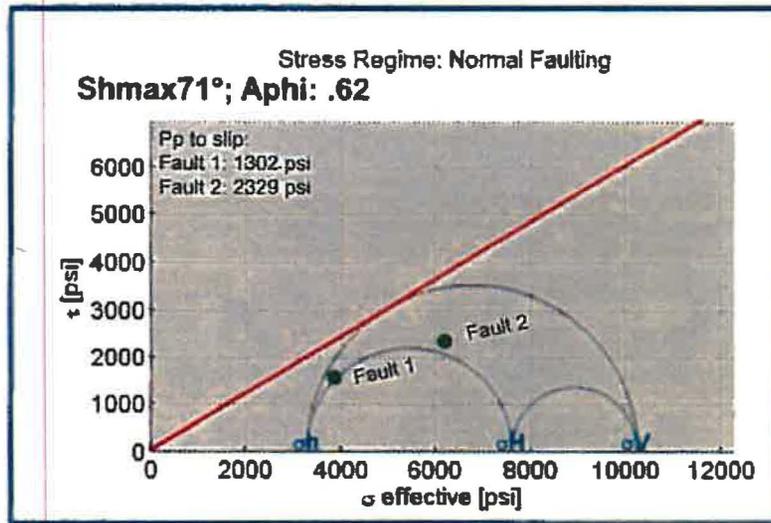


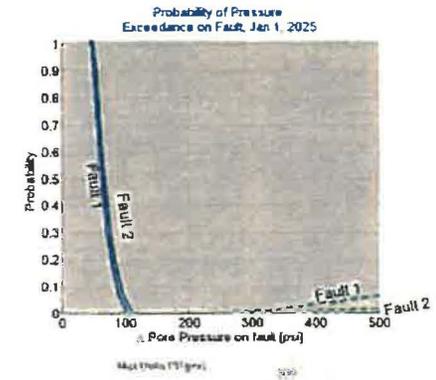
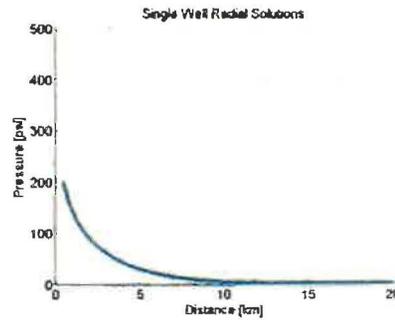
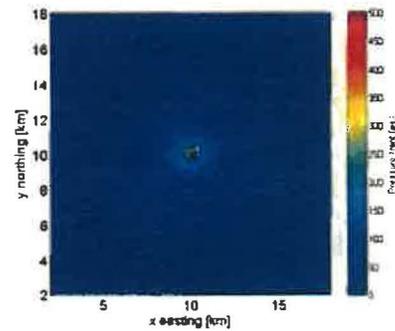
Figure 2

# PLU Madison 19 Fed SWD 1 Well - Pore Pressure Analysis

2025 Snapshot

### Uncertainty Ranges

Aquifer Thickness	750ft +/- 250ft
Porosity	5% +/- 3%
Perm	75 mD +/- 15 mD



2040 Snapshot

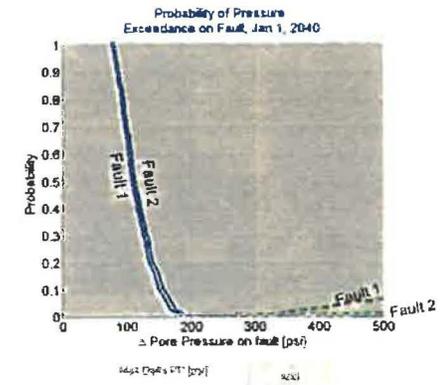
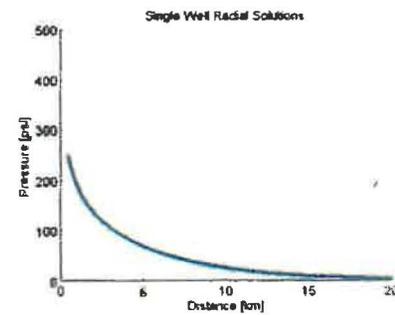
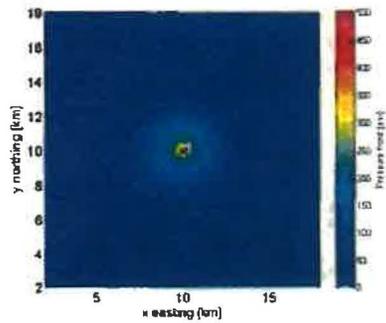


Figure 3

# PLU Madison 19 Fed SWD 1 Well – Geomechanical / Pore Pressure Integration

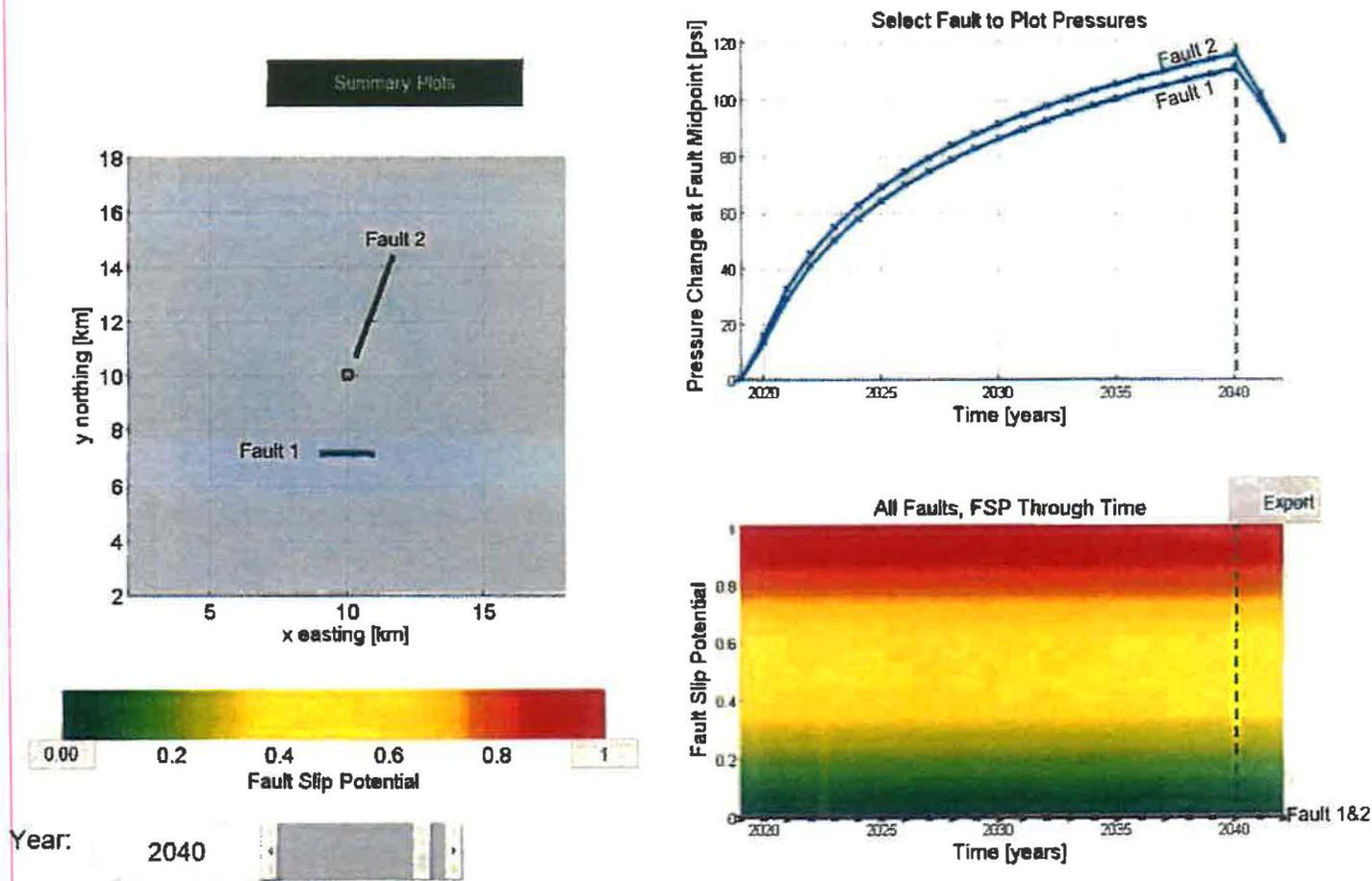


Figure 4

CERTIFIED MAILING LIST  
XTO PERMIAN OPERATING, LLC  
PLU 19 MADISON SWD #1

Surface Owner

**Certified #7018 2290 0001 1289 5214**  
Bureau of Land Management  
620 E. Greene Street  
Carlsbad NM 88220-6292

Offset Notices

**Certified #7018 2290 0001 1289 5122**  
Oxy USA, Inc  
Attn: Kelley Montgomery  
PO Box 4294  
Houston, TX 77210-4294

**Certified #7018 2290 0001 1289 5207**  
Burlington Production Co  
PO Box 2504  
Houston, TX 77210-4294

**Certified #7018 2290 0001 1289 5191**  
Chesapeake Exploration LLC  
6100 N Western  
Oklahoma City, OK 73118

**Certified #7018 2290 0001 1289 5177**  
Devon Energy Production Co LP  
333 W Sheridan Ave  
Oklahoma City, OK 73102-5010

**Certified #7018 2290 0001 1289 5184**  
Chevron USA  
630 Deauville  
Houston, TX 79706-2964

**Certified #7018 2290 0001 1289 5160**  
EOG Resources Inc.  
P.O. BOX 4362  
Houston, TX 77210

**Certified #7018 2290 0001 1289 5153**  
Fortson Oil Co  
301 Commerce #3301  
Fort Worth, TX 76102

**Certified #7018 2290 0001 1289 5153**  
PXP Producing Co LLC  
717 Texas St, Ste 2100  
Houston, TX 77002

Grazing

**Certified #7018 1130 0001 5531 4255**  
Jimmy Richardson  
Richardson Cattle Co.  
794 Buckeye Rd  
Carlsbad, NM 88220

I, Cheryl Rowell, do hereby certify the surface owner and offset parties for the well shown were furnished a copy of XTO Permian Operating, LLC's application for salt water disposal, via certified mail on this date.

Signed:

  
Cheryl Rowell

Title: Regulatory Coordinator

Date:

8/30/19