Revised March 23, 2017

RECEIVED: 09/26/2018	REVIEWER:	TYPE: SWD	APP NO: pPRG1903944380

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

Applicant: ~~ROPCO, LP~~ XTO Permian Operating LLC **OGRID Number:** 373075
Well Name: Poker Lake Unit 2 TD State SWD 1 **API:** ~~To be assigned~~ 30-015-45223
Pool: ~~Devonian, SWD~~ SWD; Devonian-Silurian **Pool Code:** 97869

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

RECEIVED
SEP 26 2018
DISTRICT II-ARTESIA O.C.D.

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

FOR OCD ONLY
☐ Notice Complete
☐ Application Content Complete

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

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.

Patricia Donald
Print or Type Name

Signature

09/20/2018
Date

432-571-8220
Phone Number

patricia_donald@xtoenergy.com
e-mail Address

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL
RESOURCES DEPARTMENT

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

FORM C-108
Revised June 10, 2003

APPLICATION FOR AUTHORIZATION TO INJECT

I. PURPOSE: _____Secondary Recovery _____Pressure Maintenance ___XXX__Disposal _____Storage
Application qualifies for administrative approval? _____Yes _____No

II. OPERATOR: **BOPCO, LP**

RECEIVED

ADDRESS: **6401 Holiday Hill Rd, BLDG 5, Midland TX 79707**

SEP 26 2018

CONTACT PARTY: **Tessa Fitzhugh** PHONE: **432-620-4336**

DISTRICT II-ARTESIA O.C.D.

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 **XXXXX** 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: _____ TITLE: _____

SIGNATURE: Patricia Donald DATE: _____

E-MAIL ADDRESS: _____

* 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: _____

DISTRIBUTION: Original and one copy to Santa Fe with one copy to the appropriate District Office

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.

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.

Side 1

INJECTION WELL DATA SHEET

OPERATOR: **BOPCO, LP**

WELL NAME & NUMBER: **Poker Lake Unit 2 TD State SWD #1**

WELL LOCATION:	**420' FSL & 659' FEL**	**P**	**2**	**26S**	**30E**
	FOOTAGE LOCATION	UNIT LETTER	SECTION	TOWNSHIP	RANGE

WELLBORE SCHEMATIC

WELL CONSTRUCTION DATA

Surface Casing

Hole Size: 24 Casing Size: 18 5/8

Cemented with: 1950 POZ C sx. *or* _____ ft³

Top of Cement: 0 Method Determined: _____

Intermediate Casing

Hole Size: 17 1/2 Casing Size: 13 3/8

Cemented with: 2300 sxs POZ/Class C & 685sxs Class C

Top of Cement: 0 Method Determined: _____

Production Casing

Hole Size: 12 1/4 Casing Size: 9 5/8

Cemented with: 1925 sxs POZ/H sx. & 400 sxs POZ/H

Top of Cement: 3150 Method Determined: _____

Total Depth: 18031

Injection Interval

16580 feet to 18031

(Perforated or **Open Hole**; indicate which)

Production Liner

Hole Size: 8 1/2" Liner Size: 7"

Cemented with: 760 sxs Poz/H

Top of Cement: 11500'

Open Hole from 16580 to 18031

Side 2

INJECTION WELL DATA SHEET

Tubing Size: 5.5 to 4.5 at 11300' Lining Material: IPC

Type of Packer: Lock Set Packer

Packer Setting Depth: 16530

Other Type of Tubing/Casing Seal (if applicable): _____

Additional Data

1. Is this a new well drilled for injection? XXX Yes ____ No

   If no, for what purpose was the well originally drilled? _____

2. Name of the Injection Formation: Devonian, Silurian, Fusselman

3. Name of Field or Pool (if applicable): Devonian; SWD

4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail, i.e. sacks of cement or plug(s) used. NO

5. Give the name and depths of any oil or gas zones underlying or overlying the proposed injection zone in this area: N/A

PLU Tucker Draw 2 SWD #1

Proposed SWD Schematic (July1, 2018)

County: Eddy
SHL: 420' FSL, 659' FEL
Sec 2, T 26S, R 30E

BHL: 420' FSL, 659' FEL
Sec 2, T 26S, R 30E

AFE # 1802749
XTO ID # N/A

API # N/A
Elevation GL 3214', KB 3241' (27' AGL)
Rig: TBD (RKB 27')

Geology		Casing & Cement	Wellhead	Hole Size	General Notes
TVD	*Formation*				
		Lead (100% OH excess) 1080 sx 12.8ppg Poz/C Top of Lead @ 0		24"	
1,091'	Rustler	*Tail (100% OH excess)* 870 sx 14.8ppg Class C Top of Tail @ 800'			
		18-5/8" 87.5# J-55 BTC	**1200' MD**		
1,416'	Top Salt	*Lead (150% OH excess)* 2300 sx 12.8ppg Poz/C Top of Lead @ 0		17-1/2"	
		Tail (100% OH excess) 685 sx 14.8ppg Class C Top of Tail @ 3150'			
3,641'	Base Salt				
		13-3/8" 68# HCL-80 BTC	**3750' MD**		
3,866'	Delaware			12-1/4"	
		Lead (100% OH excess) 1925 sx 11.5ppg Poz/H Top of Lead @ 3150'			
7,681'	Bone Spring	*Tail (100% OH excess)* 400 sx 14.8ppg Poz/H Top of Tail @ 11100'	**11500' MD**		
11,016'	Wolfcamp				
11,612'	Wolfcamp B				
		9-5/8" 53.5# P-110 BTC	**11800' MD**		
				8-1/2"	
13,641'	Strawn				
13,776'	Atoka				
14,356'	Morrow	*Tail (40% OH excess)* 760 sx 14.5ppg Poz/H Top of Tail @ 11500'			
16,016'	Mississippian Lm				
16,391'	Woodford				
16,551'	Devonian				
		7" 32# P-110 BTC	**16580' MD**		
				6"	
17,931'	Simpson	**Open hole completion**			
			18,031' MD **18,031' TVD**		
18,031'	TVD at BHL				

Approvals

Prepared by: _____ **Peer Reviewed by:** _____ Date

Reviewed by: _____ **Approved by:** _____

Exhibit C

BOPCO, LP
Poker Lake Unit 2 TD State SWD #1
420' FSL & 659' FEL , SEC 2, T26S, R30E
Eddy County, New Mexico
Re: C-108 (Application for Authorization in Inject)

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.

Map attached

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.

No wells within the area of review penetrate the proposed injection zone

VII. Data for Proposed Operation

1. Proposed average & maximum daily rate and volume: **40,000 bwpd maximum, 20,000 bwpd average.**
2. **System is closed**
3. Proposed injection pressure: **3316 psi**
4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water: This well is part of a SWD system

VIII.

Lithologic Detail:	**Carbonate**
Geological Name:	**Devonian/ Silurian, Fusselman**
Thickness:	**Est. 1,250**
Depth:	**Est.16,550'/17800'**

The alluvial beds (possibly equivalent to the Dewey Lake Red Beds) above and possible near the top of Rustler Formation may contain fresh water throughout this geographic area. The average depth to top of Rustler is nea surface to 125 feet below surface and an estimated average 275 to 350 feet thick in the area based on published Maps and off-set well tops.

IX. Proposed Stimulation Program

The open-hole with an acid frac using acid and rock salt for diversion with 5,000 gals of 15% HCL. No further stimulation is planned.

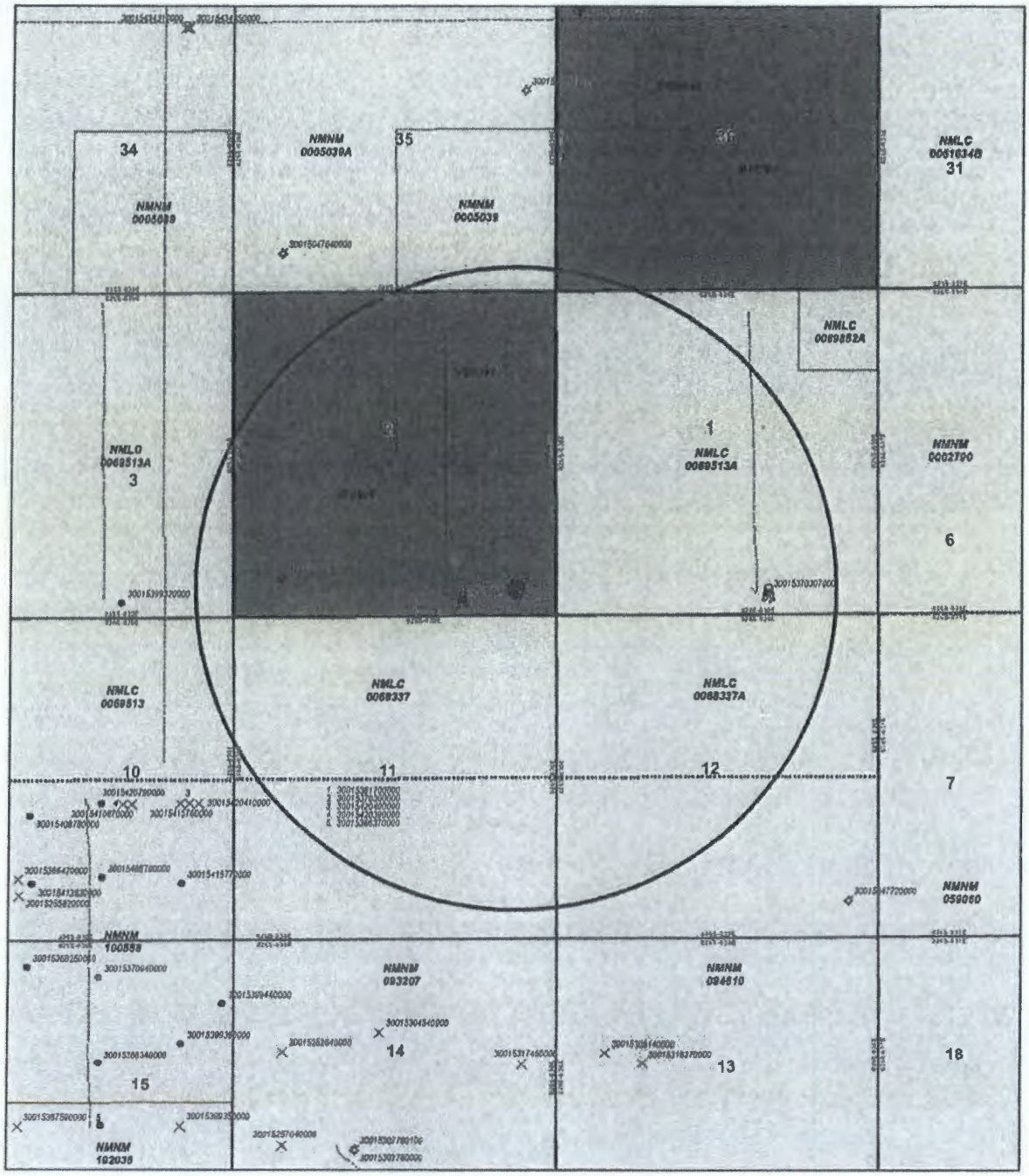
X. Well Test Information

No well test is available. Log will be provided to Division once well is drilled.

XI. Chemical Analysis

Review of OSE data base indicates no water wells in this well's area of review.

Poker Lake Unit 2 TD SWD



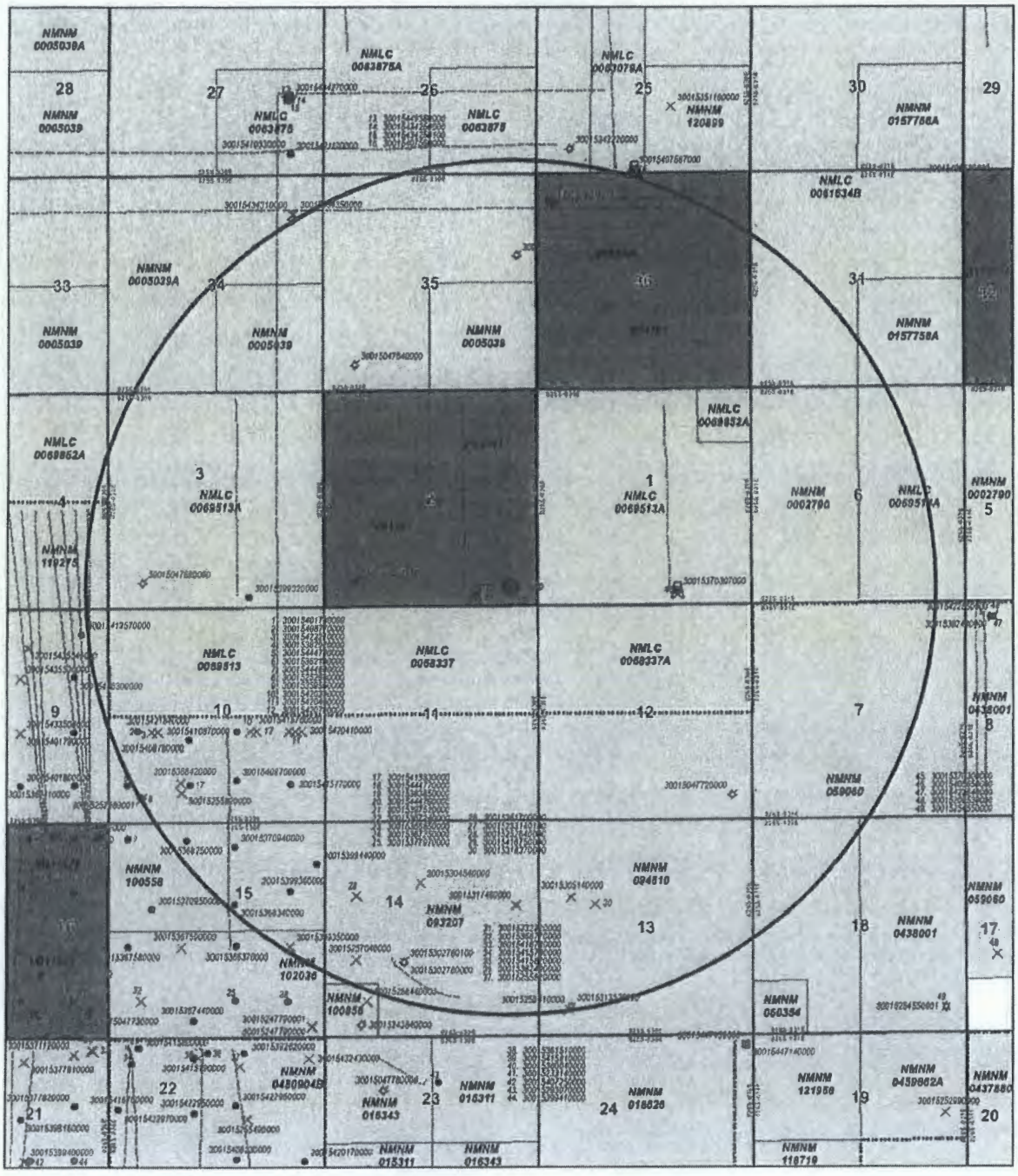
0 0.25 0.5 1 Miles

wellbore
State Lease
Federal Lease
one mile buffer
BLM Active Unit

Well Status Name

- GAS
- INJECTION
- MULTI OIL AND GAS PRODUCER
- OIL
- OIL AND GAS PRODUCER
- MULTIPLE GAS PRODUCER
- MULTIPLE OIL PRODUCER
- ABANDONED
- DRILLING
- NON-PRODUCING OTHER
- CO2
- DRY
- STORAGE
- CBM
- OTHER PRODUCING
- WATER SUPPLY WELL
- WELL PERMIT
- WELL START

Poker Lake Unit 2 TD SWD



0 0.25 0.5 1 Miles

wellbore
State Lease
Federal Lease
two mile buffer
BLM Active Unit

Well Status Name

- GAS
- INJECTION
- MULTI OIL AND GAS PRODUCER
- OIL
- OIL AND GAS PRODUCER
- MULTIPLE GAS PRODUCER
- MULTIPLE OIL PRODUCER
- ABANDONED
- DRILLING
- NON-PRODUCING OTHER
- CO2
- DRY
- STORAGE
- CBM
- OTHER PRODUCING
- WATER SUPPLY WELL
- WELL PERMIT
- WELL START

New Mexico Office of the State Engineer
Water Column/Average Depth to Water

No records found.

PLSS Search:

Section(s): 11 **Township:** 26S **Range:** 30E

New Mexico Office of the State Engineer
Water Column/Average Depth to Water

No records found.

PLSS Search:

Section(s): 2 Township: 26S Range: 30E

New Mexico Office of the State Engineer
Water Column/Average Depth to Water

No records found.

PLSS Search:

Section(s): 1 **Township:** 26S **Range:** 30E

August 22, 2018

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 Tucker Draw 2 SWD #1,
Section 2, Township 26S, Range 30E,
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 420 FSL & 659 FEL, Unit P, Section 2, T26S, R30E, 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.

Respectively Submitted,

Kesli Ivy

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

XTO ENERGY

September 20, 2018

Bureau of Land Management
620 E. Greene Street
Carlsbad, NM 88220-6292

DK Farms, Inc.
David Kirk
2727 Raquet Club Drive
Midland, TX 79705

The New Mexico State Land Office
310 Old Santa Fe Trail
Santa Fe, NM 87501

Re: Notice of Application to Inject Fluid
Poker Lake Unit 2 TD State SWD #1
Eddy County, New Mexico

To whom this may concern:

This letter is to notify you XTO Energy Inc. has submitted to the Oil Conservation Division an application to drill a salt water disposal well. Our records indicate that you are the offset operator or surface owner. Attached please find a copy of the application sent to the Oil Conservation Division for your review.

If you have any questions please feel free to contact me.

Sincerely,

Patricia Donald
Regulatory Analyst
Patricia_Donald@xtoenergy.com
XTO Energy, Inc.
6401 Holiday Hill Rd, BLDG 5
Midland, Tx 79707
432-571-8220

CERTIFIED MAILING LIST
BOPCO, LP
Poker Lake Unit 2 TD State SWD #1

Certified #7016 2070 0000 9005 6317
Bureau of Land Management
620 E. Greene Street
Carlsbad, NM 88220-6292

Certified #7016 2070 0000 9005 6294
DK Farms, Inc.
David Kirk
2727 Raquet Club Drive
Midland, TX 79705

Certified #7016 2070 0000 9005 6300
The New Mexico State Land Office
310 Old Santa Fe Trail
Santa Fe, NM 87501

CURRENT-ARGUS

AFFIDAVIT OF PUBLICATION

Ad No.
0001260581

REC'D/MIDLAND
SEP 13 2018

XTO ENERGY, INC.
6401 HOLIDAY HILL RD, BLDG #5

MIDLAND TX 79701

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:

09/06/18

Tara Kanitz
Legal Clerk

Subscribed and sworn before me this
6th of September 2018.

Tara Mondloch
State of WI, County of Brown
NOTARY PUBLIC

Aug 6 2021
My Commission Expires

NOTICE OF APPLICATION FOR WATER DISPOSAL WELL PERMIT

BOPCO, L.P. 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 **Poker Lake Unit 2 TD State SWD #1** (Devonian, Silurian, & Fusselman Formations). The maximum injection pressure will be 3316 psi and the maximum rate will be 40,000 bbls. produced water per day. The proposed disposal well is located in Section 2, T26S - R30E, 420' FSL & 659' FEL, Eddy County, New Mexico. The produced water will be disposed at a subsurface depth of 16,580' -18,031'.

Any questions concerning this application should be directed to Tessa Fitzhugh, Regulatory Coordinator, BOPCO, L.P, 6401 Holiday Hill Rd, Bldg 5, Midland, Texas 79707, (432) 620-4336.

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.

September 6th, 2018

Ad#:0001260581
P O : Poker Lake Unit 2 TD
# of Affidavits :0.00

TARA MONDLOCH
Notary Public
State of Wisconsin

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Oil Conservation Division
811 S. First St
Artesia, NM 88210

9590 9402 3579 7305 8132 85

2. Article Number (Transfer from service label)

7016 2070 0000 9005 7741

COMPLETE THIS SECTION ON DELIVERY

A. Signature

X Laura Tulle ☐ Agent ☐ Addressee

B. Received by (Printed Name) Laura Tulle C. Date of Delivery 9-26-18

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☐ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Deliver
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☐ Return Receipt for

PS Form 3811, July 2015 PSN 7530-02-000-9053

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

BLM-CARLSBAD FIELD OFFICE
620 E. GREENE STREET
CARLSBAD, NM 88220

9590 9402 3579 7305 8132 92

2. Article Number (Transfer from service label)

7016 2070 0000 9005 6317

COMPLETE THIS SECTION ON DELIVERY

A. Signature

X ☐ Agent ☐ Addressee

B. Received by (Printed Name) C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☐ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☐ Return Receipt for Merchandise
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2015 PSN 7530-02-000-9053 Domestic Return Receipt

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

The New Mexico State Land Office
310 Old Santa Fe Trail
Santa Fe, NM 87501

9590 9402 3579 7305 8133 08

2. Article Number (Transfer from service label)

7016 2070 0000 9005 6300

COMPLETE THIS SECTION ON DELIVERY

A. Signature

X ☐ Agent ☐ Addressee

B. Received by (Printed Name) C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☐ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☐ Return Receipt for Merchandise
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2015 PSN 7530-02-000-9053 Domestic Return Receipt

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

DK Farms, Inc.
David Kirk
2727 Raquet Club Drive
Midland TX 79705

9590 9402 3579 7305 8133 15

2. Article Number *(Transfer from service label)*

7016 2070 0000 9005 6294

COMPLETE THIS SECTION ON DELIVERY

A. Signature

X

☑ Agent
☐ Addressee

B. Received by *(Printed Name)* L Hunt

C. Date of Delivery 9-25-18

D. Is delivery address different from Item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type

- ☐ Adult Signature
- ☐ Adult Signature Restricted Delivery
- ☐ Certified Mail®
- ☐ Certified Mail Restricted Delivery
- ☐ Collect on Delivery
- ☐ Collect on Delivery Restric
- ☐ Priority Mail Express®
- ☐ Registered Mail™
- ☐ Registered Mail Restricted Delivery
- ☐ Return Receipt for Merchandise

Restricted De

PS Form 3811, July 2015 PSN 7530-02-000-9053

XTO ENERGY

Statements Regarding Seismicity

XTO has performed a seismicity risk assessment associated with the proposed Poker Lake Unit Tucker Draw 2 SWD 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 (FSP; Walsh et al. 2017). To accommodate the tool's analytics, a simplified spatial relationship between the proposed well and possible fault was established.

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

A summary of our evaluation and seismicity monitoring plan follows:

Historic Seismicity

There are no seismic events reported on the USGS earthquake websiste within 15+ miles of the proposed well. 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 interpreted a fault and/or linear feature with an azimuth of approximately 86 degrees from north with a dip of approximately 75 degrees. 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 well is primarily a normal faulting regime with the maximum horizontal stress oriented at ~65 degrees from north.

Geomechanical Modeling

A simple screening level geometric / geomechanical assessment of the possible fault was performed utilizing the FSP tool. The model was run using the Aphi option which makes a simplifying and conservative assumption that the faults are critically stressed and thus close to failure. Additionally, given the uncertainties in the geophysical interpretation and stress information, a probabilistic scenario was run varying fault and stress characteristics. The results of the model runs 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' 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. Results of the model and the screening level inputs are shown in Figure 3.

Integration of Geomechanical and Pore Pressure Modeling

Integrating the geomechanical and hydrological elements of the assessment was performed using the FSP Integrated module and are shown in Figure 4. Note the y-axis in the lower right hand colored graph in Figure 4 is labeled 'Fault Slip Potential'. This 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

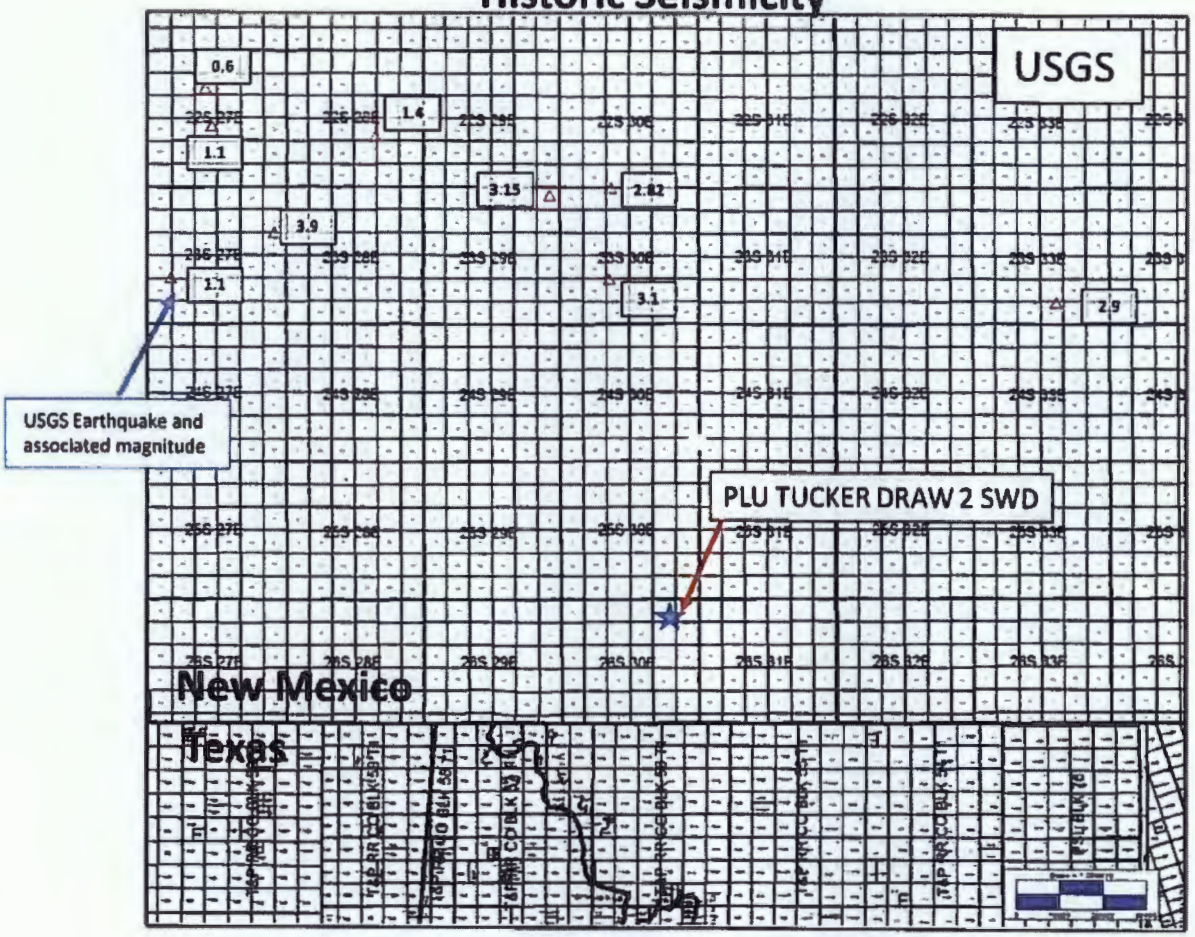
The analysis presented is a screening level approach that encompasses a range of uncertainties in several components that are difficult to individually constrain due to the limited static and dynamic data available from deep disposal wells. Accordingly, the analysis was done by varying key inputs to 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 monitor disposal zone reservoir pressure for a minimum period of five years to better constrain reservoir properties and pore pressure increase (if any). Upon request, XTO will share the results of this work with the EMNRD's UIC staff.

Tim Tyrrell
XTO Geoscience Technical Manager

Poker Lake Unit Tucker Draw 2 SWD Well
Historic Seismicity



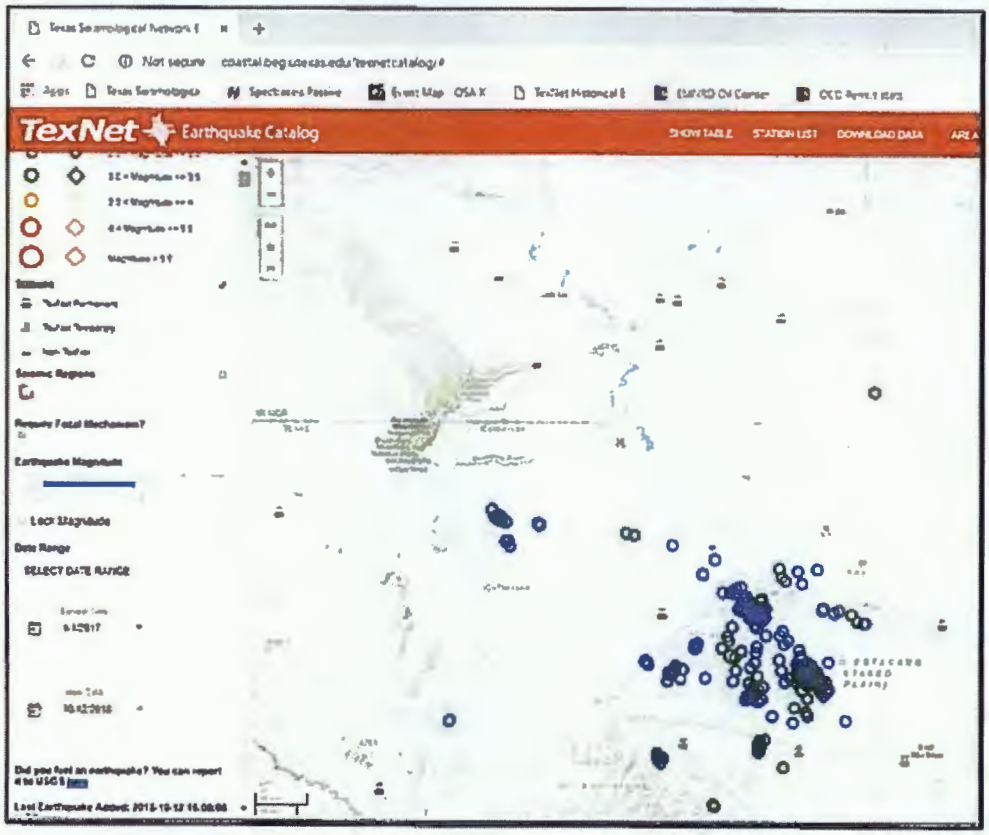
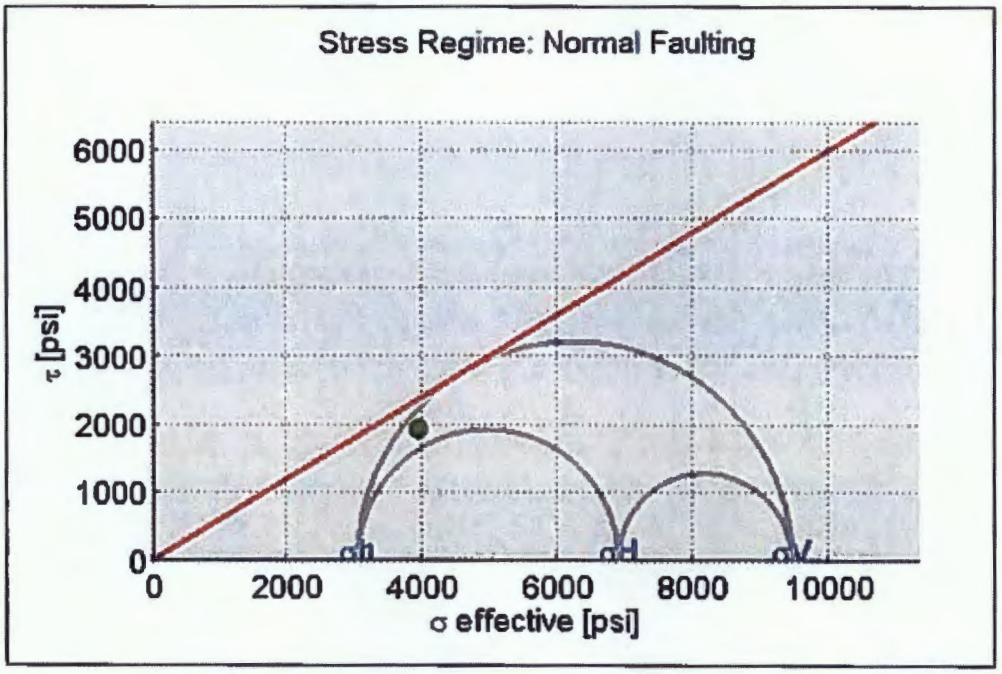
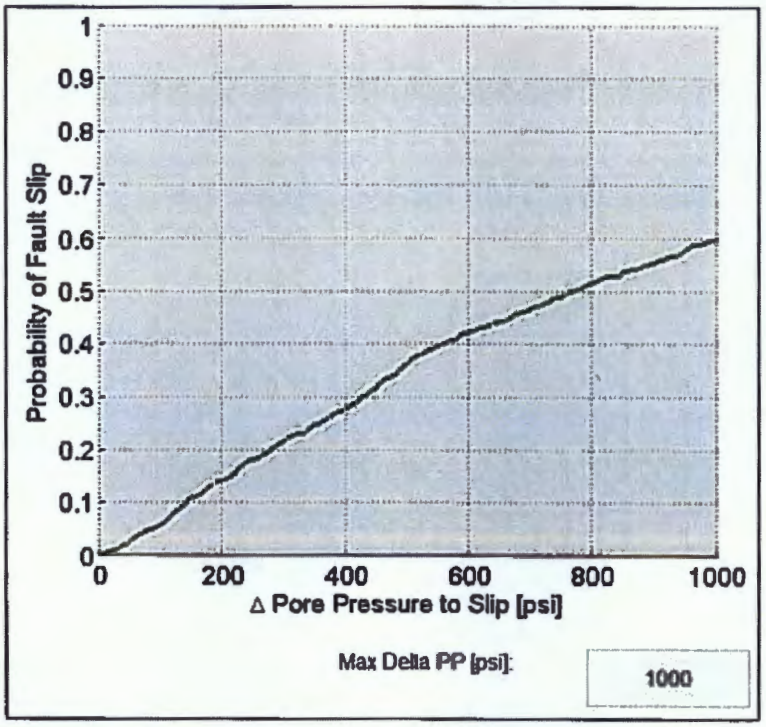
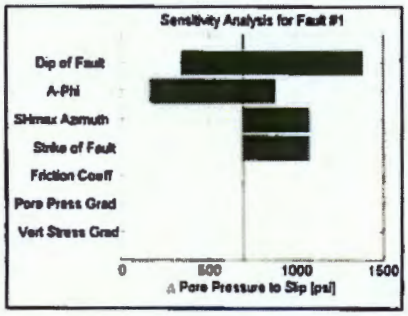


Figure 1

Poker Lake Unit Tucker Draw 2 SWD Well
Geomechanical Analysis







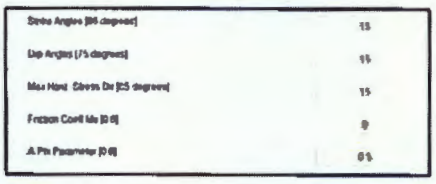
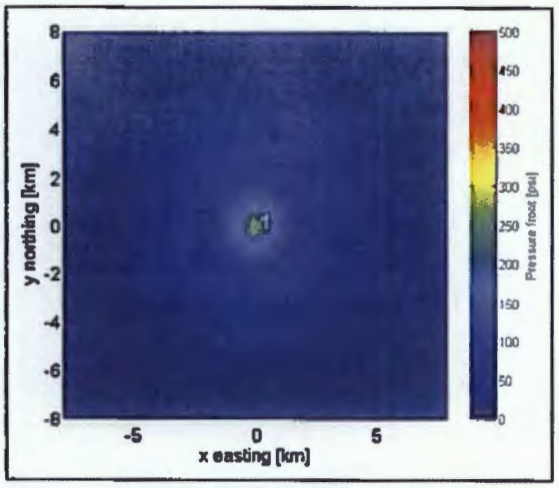
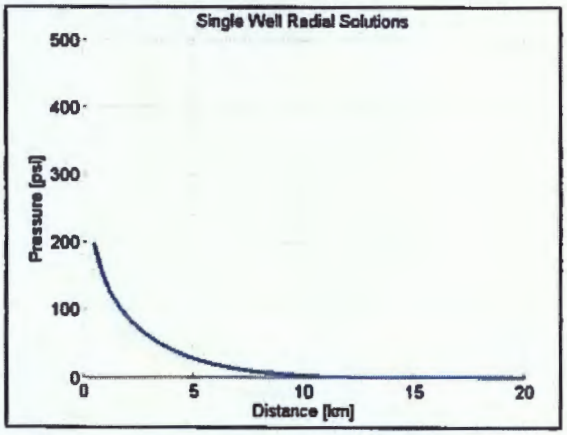


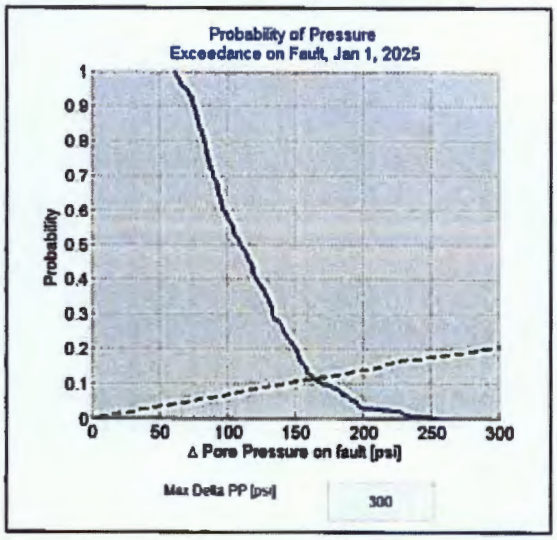
Figure 2

Poker Lake Unit Tucker Draw 2 SWD Well
Pore Pressure Analysis

2025 Snapshot

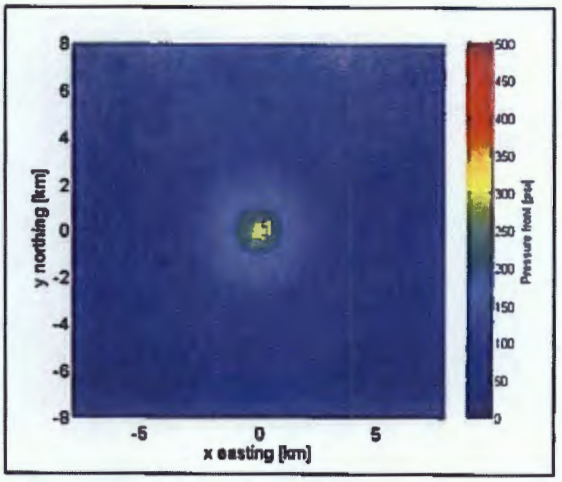


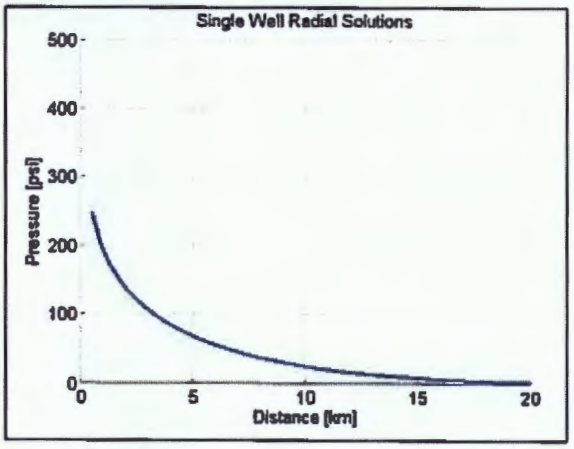


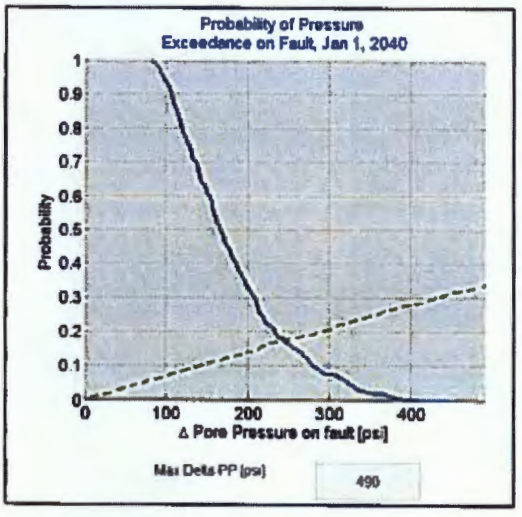


Aquifer Thickness [750 ft]	250
Porosity [5 %]	3
Perm [75 mD]	50

2040 Snapshot







Aquifer Thickness [ft]	750
Porosity [%]	6
Permeability [mD]	75

Figure 3

Poker Lake Unit Tucker Draw 2 SWD Well
Geomechanical / Pore Pressure Integration

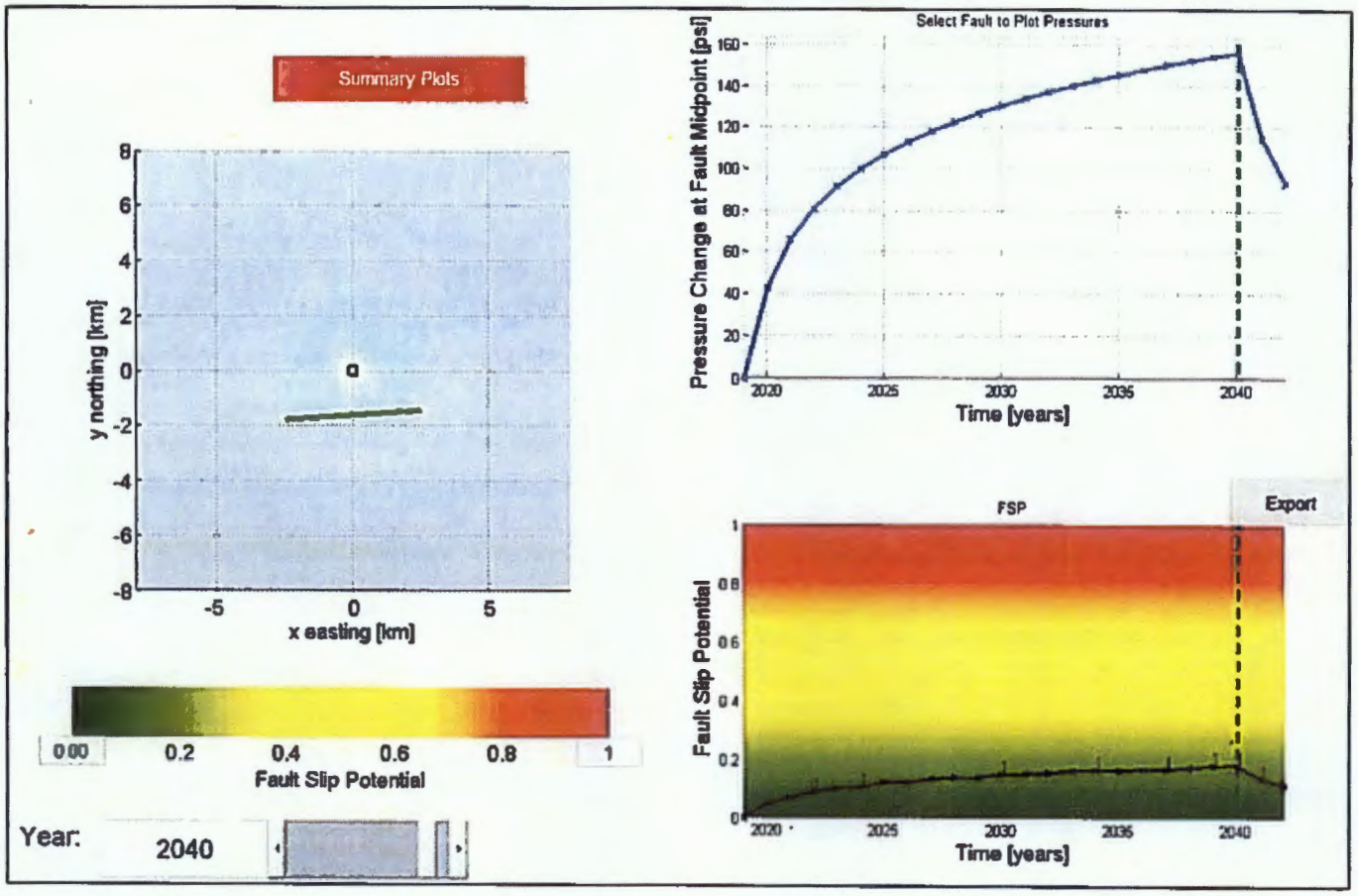


Figure 4

FORM C-108 Technical Review Summary [Prepared by reviewer and included with application; V17]

DATE RECORD: First Rec: 09/26/2018 **Admin Complete:** 09/26/2018 **Or Suspended:** 10/1/2018 * Add. Request/Reply: _____

ORDER TYPE: WFX / PMX / SWD Number: 1974 Order Date: 6/20/19 Legacy Permits/Orders: _____

Well No. 1 Well Name(s): Poker Lake Unit 2 TD State SWD

API : 30-0 15-45223 Spud Date: TBD New or Old (EPA): New (*UIC Class II Primacy 03/07/1982*)

Footages 420 FSL / 659 FEL Lot - or Unit P Sec 2 Tsp 26S Rge 30E County Eddy

General Location: ~4.5 mi north of TX/NM border / ~13 mi E of US285 Pool: SWD; Devonian-Silurian Pool No.: 97869

BLM 100K Map: Jal north of Brushy Draw Operator: XTO Permian Operating LLC GRID: 373075 Contact: _____

COMPLIANCE RULE 5.9: Total Wells: 762 Inactive: 7 **Fincl Assur:** OK Compl. Order? NO **IS 5.9 OK?** Yes **Date:** 06/20/19

WELL FILE REVIEWED ✓ Current Status: APD filed.

WELL DIAGRAMS: NEW: Proposed ✓ or **RE-ENTER:** Before Conv. ◯ After Conv. ◯ Logs in Imaging: _____

Planned Rehab Work to Well: * Requested IS probability assessment - December 2018

Well Construction Details	Sizes (in) Borehole / Pipe	Setting Depths (ft)	Stage Tool	Cement Sx or Cf	Cement Top and Determination Method
Planned ✓ or Existing — Surface	24 / 18 1/8	0 to 1200	Stage Tool	1950	Surface - visual
Planned ✓ or Existing — Interm/Prod	17 1/2 / 13 3/8	0 to 3750	—	2985	Surface - visual
Planned ✓ or Existing — Interm/Prod	12 1/4 / 9 5/8	0 to 11800	DV	2325	Not described but not Calc. DL Circulated to surf.
Planned ✓ or Existing — Prod/Liner	8 1/2 / 7	11500 to 16580	None	760	Calc. DL
Planned — or Existing — Liner	—	—	—	—	—
Planned ✓ or Existing — OH PERF	6	16580 to 18031	Inj Length		

Injection Lithostratigraphic Units:	Depths (ft)	Injection or Confining Units	Tops
Adjacent Unit: Litho. Struc. Por.		Mississippian	16016
Confining Unit: Litho. Struc. Por.	+160	Woodford	16391
Proposed Inj Interval TOP:	16580	Devonian	16561
Proposed Inj Interval BOTTOM:	18031	Fusselman	
Confining Unit: Litho. Struc. Por.	-100	Montoya/Simpson	17931
Adjacent Unit: Litho. Struc. Por.		—	—

Completion/Operation Details:

Drilled TD — PBTD —

NEW TD 18031 NEW PBTD —

NEW Open Hole ✓ or NEW Perfs ◯

Tubing Size 4 1/2 x 5 1/2 in. Inter Coated? Yes

Proposed Packer Depth 16530 ft

Min. Packer Depth 16480 (100-ft limit)

Proposed Max. Surface Press. 3316 psi

Admin. Inj. Press. 3316 (0.2 psi per ft)

AOR: Hydrologic and Geologic Information

POTASH: R-111-P NO Noticed? NO **BLM Sec Ord** NO **WIPP** NO Noticed? — **Salt/Salado** T: 1416 B: 3641 **NW: Cliff House fm** —

USDW: Aquifer(s) Rustler / Dewey (?) Max Depth <1200 1091 Rustler top **HYDRO AFFIRM STATEMENT By Qualified Person** ✓

NMOSE Basin: Carlsbad **CAPITAN REEF:** thru — adj — NA ✓ **No. GW Wells in 1-Mile Radius?** 0 FW Analysis? NA

Disposal Fluid: Formation Source(s) Permian (WC/BS/DMG) Analysis? Yes / on file On Lease ◯ Operator Only ◯ or Commercial ◯

Disposal Interval: Inject Rate (Avg/Max BWPD): 20,000 / 40,000 Protectable Waters? No Source: Historical System: Closed or Open

HC Potential: Producing Interval? No Formerly Producing? No Method: Logs/DST/P&A/Other Require mudlog 2-Mi Radius Pool Map ✓

AOR Wells: 1/2-M — or ONE-M ✓ **RADIUS MAP/WELL LIST: Total Penetrating Wells:** 0 [AOR Hor: — AOR SWDs: —]

Penetrating Wells: No. Active Wells 0 No. Corrective? — on which well(s)? — Diagrams? —

Penetrating Wells: No. P&A Wells 0 No. Corrective? — on which well(s)? — Diagrams? —

Induced-Seismicity Risk Assess: analysis submitted ✓ historical/catalog review ✓ fault-slip model ✓ **probability** low

NOTICE: 1/2-M — or ONE-M ✓ : Newspaper Date 09/06/2018 **Mineral Owner*** SLO Surface Owner SLO N. Date 9/20/18

RULE 26.7(A): Identified Tracts? Yes **Affected Persons*:** SLO & BLM IX Farms noticed N. Date 9/20/18

*** new definition as of 12/28/2018** [any the mineral estate of United States or state of New Mexico; SWD operators within the notice radius]

Order Conditions: Issues: HC potential; cmt for liner and 7-in casing; correlation

Additional COAs: Cmt to top 7-in casing; mudlog & geophysical log; report/CBL to district for uncir. cmt.; SI pressure

Revised June 1972

STATE ENGINEER OFFICE 77 DEC 8 AM 11 54 SANTA FE

WELL RECORD

Section 1. GENERAL INFORMATION STATE ENGINEER OFFICE SANTA FE, N.M. 87501

(A) Owner of well Buck Jackson Owner's Well No. _____
Street or Post Office Address Box 671
City and State Pecos, Texas 79772

Well was drilled under Permit No. C-1777 and is located in the:

a. _____ ¼ _____ ¼ _____ ¼ _____ ¼ of Section 8 Township ~~26-S~~ 26-S Range ~~XXXE~~ 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 Eddy County.

d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in the _____ Grant.

(B) Drilling Contractor W. L. Van N oy License No. WD-208
Address R. O. Box 74 Oil Center, N. M. 88266

Drilling Began Sept. 9, 1977 Completed Sept.16, 1977 Type tools Spudde r Size of hole 10 in.

Elevation of land surface or _____ at well is _____ ft. Total depth of well 325 ft.

Completed well is ☐ shallow ☐ artesian. Depth to water upon completion of well 300 ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)
300	325	25	course grey water sand.	

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet Top	Depth in Feet Bottom	Length (feet)	Type of Shoe	Perforations From	Perforations To
6 5/8	welded		0	325	325	non e	295	325

Section 4. RECORD OF MUDDING AND CEMENTING

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

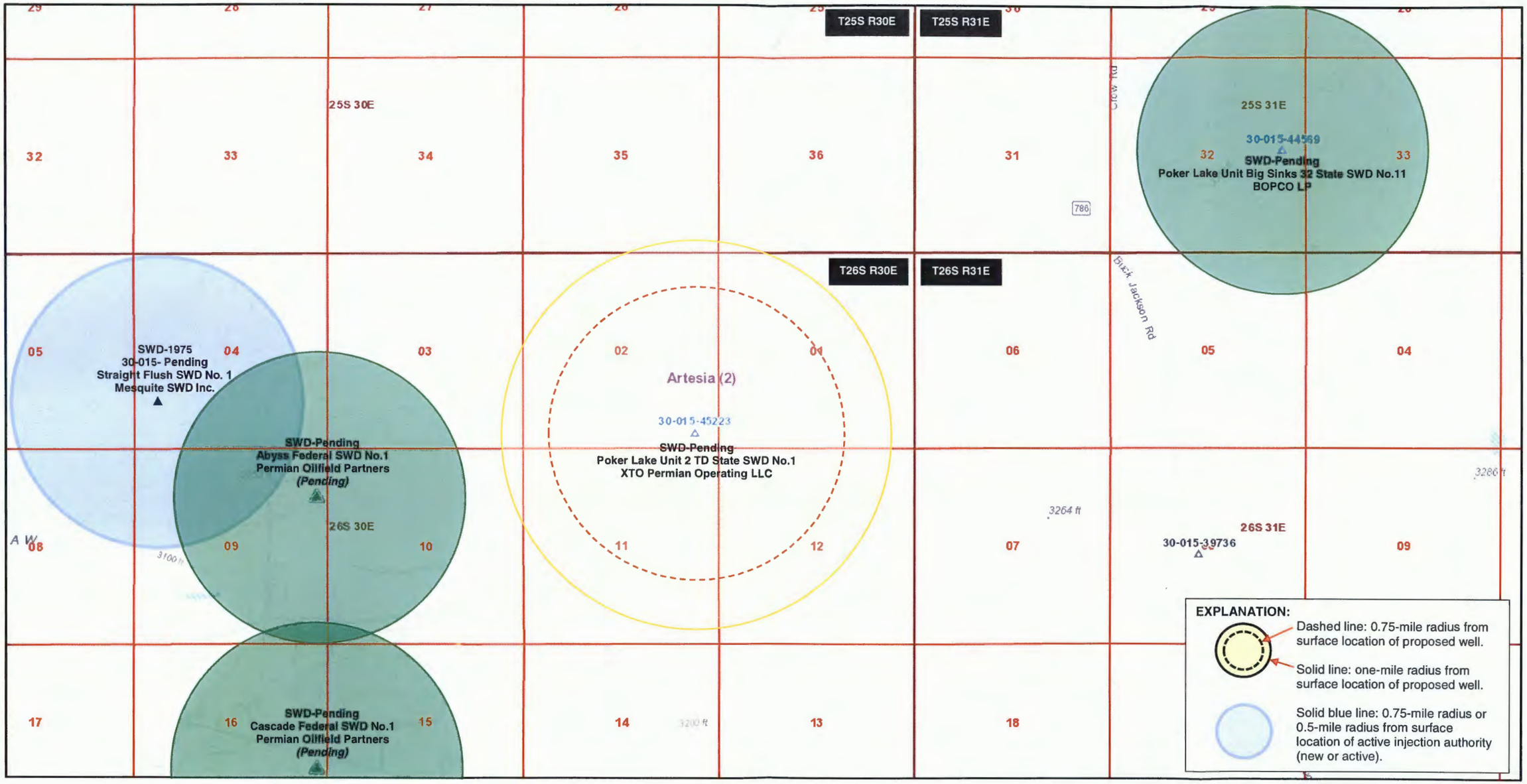
Section 6. LOG OF HOLE

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color and Type of Material Encountered
0	5	5	top soil
5	30	25	caliche
30	150	120	dry sand
150	160	10	blue shale
160	250	90	sandy red shale
250	300	50	red clay
300	325	25	course grey water sand
325	-	-	red bed.

Section 7. REMARKS AND ADDITIONAL INFORMATION

gravel packed 6 yds .

Pending Applications for High-Volume Devonian Disposal Well
C-108 Applications for Poker Lake Unit Area (T25/26S, R30/31E) – XTO Permian Operating LLC [formerly BOPCO LP]



Poker Lake Unit 2 TD State SWD No. 1; BOPCO LP ["PLU Tucker Draw 2 SWD"]
API 30-015-45223; APD identifies well as disposal well, C-108 application pending