



RAILROAD COMMISSION OF TEXAS

OIL AND GAS DIVISION

PERMIT TO INJECT FLUID INTO A RESERVOIR PRODUCTIVE OF OIL AND GAS

PROJECT NO. F-20543 AMENDMENT

PANTHER DEVCO LLC
1001 FANNIN STREET STE 1500
HOUSTON, TX 77002

Authority is granted to inject into the well identified herein in accordance with Statewide Rule 46 of the Railroad Commission of Texas and based on the information contained in the application (Forms H-1 and H-1A) dated November 21, 2019 for the permitted interval of the BELL CANYON and CHERRY CANYON formations and subject to the following terms and special conditions:

UL 21 BIGHORN (48447) LEASE
WAR-WINK (CHERRY CANYON) FIELD
WINKLER COUNTY, DISTRICT 08

WELL IDENTIFICATION AND PERMIT PARAMETERS:

Well No.	API No.	UIC Number	Permitted Fluids	Top Interval (feet)	Bottom Interval (feet)	Maximum Liquid Daily Injection Volume (BBL/day)	Maximum Gas Daily Injection Volume (MCF/day)	Maximum Surface Injection Pressure for Liquid (PSIG)	Maximum Surface Injection Pressure for Gas (PSIG)
1W	49533724	000114143	Saltwater, and Other Non-Hazardous O/G Waste	5,080	6,430	30,000		2,540	

SPECIAL CONDITIONS:

Well No.	API No.	Special Conditions
1W	49533724	NOTE: Operator submitted results of injectivity test on January 20, 2020 for rate justification.

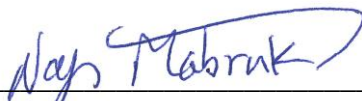
STANDARD CONDITIONS:

1. Injection must be through tubing set on a packer.

2. The District Office must be notified 48 hours prior to:
 - a. running tubing and setting packer.
 - b. beginning any work over or remedial operation.
 - c. conducting any required pressure tests or surveys.
3. The wellhead must be equipped with a pressure observation valve on the tubing and for each annulus.
4. Prior to beginning injection and subsequently after any work over, an annulus pressure test must be performed. The test pressure must equal the maximum authorized injection pressure or 500 psig, whichever is less, but must be at least 200 psig. The test must be performed, and the results submitted in accordance with the instructions of Form H-5.
5. The injection pressure and injection volume must be monitored at least monthly and reported annually on Form H-10 to the Commission's Austin office.
6. Within 30 days after completion, conversion to disposal, or any work over which results in a change in well completion, a new Form W-2 or G-1 must be filed to show the current completion status of the well. The date of the disposal well permit, and the permit number must be included on the new Form W-2 or G-1.
7. Written notice of intent to transfer the permit to another operator by filing Form P-4 must be submitted to the Commission at least 15 days prior to the date of the transfer.
8. A well herein authorized cannot be converted to a producing well and have an allowable assigned without filing an amended Form W-1 and receiving Commission approval.
9. Unless otherwise required by conditions of the permit, completion and operations of the well shall be in accordance with the information represented on the application (Forms H-1 and H-1A).
10. This permit will expire when the Form W-3, Plugging Record, is filed with the Commission. Furthermore, permits issued for wells to be drilled will expire three (3) years from the date of the permit unless drilling operations have commenced.

Provided further that, should it be determined that such injection fluid is not confined to the approved interval, then the permission given herein is suspended and the fluid injection operation must be stopped until the fluid migration from such interval is eliminated. Failure to comply with all of the conditions of this permit may result in the operator being referred to enforcement to consider assessment of administrative penalties and/or the cancellation of the permit.

APPROVED AND ISSUED ON January 24, 2020.



For Sean Avitt, Manager
Injection-Storage Permits Unit

Amendment Comments:

Well No.	API No.	Amendment Comments
1W	49533724	<ol style="list-style-type: none">1. Amends permit dated July 27, 2016.2. Adds RCRA as fluid type.3. Amends maximum daily injection volume for liquid from 20000 bbl/day.4. Amends packer setting depth from 5030 feet.

**RAILROAD COMMISSION OF TEXAS
OIL AND GAS DIVISION**

Form H-1

05/2004

APPLICATION TO INJECT FLUID INTO A RESERVOIR PRODUCTIVE OF OIL OR GAS

1. Operator name Panther Devco LLC 2. Operator P-5 No. 638496
(as shown on P-5, Organization Report)
 3. Operator Address 1001 Fannin, Suite 1500, Houston, TX 77002

4. County Winkler 5. RRC District No. 08
 6. Field Name War-Wink (Cherry Canyon) 7. Field No. 95122200
 8. Lease Name UL 21 Bighorn 9. Lease/Gas ID No. 48447

10. Check the Appropriate Boxes: New Project Amendment
 If amendment, Fluid Injection Project No. F- 20543
 Reason for Amendment: Add wells Add or change types of fluids Change pressure
 Change volume Change interval Other (explain) _____

RESERVOIR DATA FOR A NEW PROJECT

11. Name of Formation Bell Canyon, Cherry Canyon 12. Lithology Sandstone
(e.g., dolomite, limestone, sand, etc.)
 13. Type of Trap Stratigraphic 14. Type of Drive during Primary Production Solution Gas
(anticline, fault trap, stratigraphic trap, etc.)
 15. Average Pay Thickness 500 16. Lse/Unit Acreage 640.7 17. Current Bottom Hole Pressure (psig) 2350 - 3600
 18. Average Horizontal Permeability (mds) 1 - 100 mds 19. Average Porosity (%) 10.8%

INJECTION PROJECT DATA

20. No. of Injection Wells in this application 1
 21. Type of Injection Project: Waterflood Pressure Maintenance Miscible Displacement Natural Gas Storage
 Steam Thermal Recovery Disposal Other _____
 22. If disposal, are fluids from leases other than the lease identified in Item 9? Yes No
 23. Is this application for a Commercial Disposal Well? Yes No
 24. If for commercial disposal, will non-hazardous oil and gas waste other than produced water be disposed? Yes No
 25. Type(s) of Injection Fluid:
 Salt Water Brackish Water Fresh Water CO₂ N₂ Air H₂S LPG NORM
 Natural Gas Polymer Other (explain) RCRA Exempt Waste
 26. If water other than produced salt water will be injected, identify the source of each type of injection water by formation, or by aquifer and depths, or by name of surface water source:

<p align="center">CERTIFICATE</p> <p>I declare under penalties prescribed in Sec. 91.143, Texas Natural Resources Code, that I am authorized to make this report, that this report was prepared by me or under my supervision and direction, and that the data and facts stated therein are true, correct, and complete, to the best of my knowledge.</p>	<p><i>Daniel Busch</i> <u>11/21/2019</u></p>
	<p>Signature <u>Daniel Busch</u> Date</p>
	<p>Name of Person (type or print) _____</p>
	<p>Phone <u>7137706473</u> Fax _____</p>

For Office Use Only	Register No.	Amount \$
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INSTRUCTIONS FOR FORM H-1

1. **Application.** File the original Form H-1 application, including all attachments, with Assistant Director, Environmental Services, Railroad Commission of Texas, P. O. Box 12967, Capitol Station, Austin, Texas 78711. File one copy of the application and all attachments with the appropriate Railroad Commission District Office. Include with the original application a non-refundable fee of \$200, payable to the Railroad Commission of Texas. Submit an additional \$150 for each request for an exception to Statewide Rule 46(g)(3) and/or (j)(5)(B).
2. **Well Logs.** Attach the complete electric log or a similar well log for one of the proposed injection wells or for a nearby well. Attach any other logging and testing data, such as a cement bond log, available for the well that supports this application.
3.
 - (a) **For a new project,** attach a map with surveys marked showing the location and depth of all wells of public record within one-quarter (1/4) mile radius of the proposed injection well(s).
 - (b) **For an amendment to add wells to a previous authority,** attach a map with surveys marked showing the location and depth of all wells of public record within one-quarter (1/4) mile radius of the additional wells, unless such data has been submitted previously for the project.
 - (c) **Table of Wells.** For those wells in 3(a) or 3(b) that penetrate the top of the injection interval, attach a table of wells showing the dates drilled and their current status. The Commission may adjust or waive this data requirement in accordance with provisions in the "Area of Review" section of Statewide Rule 46 (Rule 46(e)).
4. **Water Letter.** Attach a letter from the Texas Commission on Environmental Quality (TCEQ) or its predecessor or successor agencies for a well within the project area stating the depth to which usable quality water occurs.
5. **Form(s) H-1A.** Attach Form H-1A showing each injection well to be used in the project. Up to TWO wells can be listed on each Form H-1A.
6. **Use of Fresh Water.** Attach Form H-7, Fresh Water Data Form, for a new injection project that includes the use of fresh water. An updated Form H-7 must be attached to Form H-1 for an expansion of a previously authorized fresh water injection project unless the fresh water is purchased from a commercial supplier, public entity, or from another operator.
7. **Plat of Leases, Notice and Hearings**
 - (a) **Plat of Leases.** Attach a plat of leases showing producing wells, injection wells, offset wells and identifying ownership of all surrounding leases within one-half (1/2) mile.
 - (b) **Notice.**
 - (1) Send or deliver a copy of the application to the owner of record of the surface tract on which the well(s) is located; each Commission-designated operator of any well located within one-half (1/2) mile of the proposed injection well(s); and the clerk of the city and county in which the well(s) is located. If this is the initial application for fluid injection authority for this reservoir, send copies of the application to all operators in the reservoir. Attach a signed statement indicating the date the copies of the application were mailed or delivered and the names and addresses of the persons to whom copies were sent.
 - (2) Attach an affidavit of publication signed by the publisher that notice of the application has been published in a newspaper of general circulation in the county where the well(s) will be located. Notice instructions and forms may be obtained from the Commission's Austin Office, the Commission's website (www.rrc.state.tx.us) or the District Offices. Attach a newspaper clipping of the published notice.
 - (c) **Protests and Hearings.** An affected person or local government may protest this application. A hearing on the application will be held if a protest is received and the applicant requests a hearing, or if the Commission determines that a hearing is in the public interest. Any such request for a public hearing shall be in writing and contain: (1) the name, mailing address and phone number of the person making the request; and (2) a brief description of how the protestant would be adversely affected by the granting of the application. If the Commission determines that a valid protest has been received, or that a hearing would be in the public interest, a hearing will be held after issuance of proper and timely notice of the hearing by the Commission. If no protest is received within fifteen (15) days of publication or receipt in Austin of the application, the application may be processed administratively.

RAILROAD COMMISSION OF TEXAS -- OIL AND GAS DIVISION

Form H-1A

INJECTION WELL DATA (attach to Form H-1)

1. Operator Name (as shown on P-5) Panther Devco LLC					2. Operator P-5 No. 638496				
3. Field Name War-Wink (Cherry Canyon)					4. Field No. 95122200				
5. Current Lease Name UL 21 Bighorn					6. Lease/Gas ID No. 48447				
7. Lease is 6.8 miles in a SW direction from Wink (center of nearest town).									
8. Well No. 1W	9. API No. 495-33724	10. UIC No. 114143	11. Total Depth 6700	12. Date Drilled 09/26/2016	13. Base of Usable Quality Water (ft) 700/750 USDW				
14. (a) Legal description of well location, including distance and direction from survey lines: 330 FNL 330 FWL, sec 30 Blk 21, University Lands, Winkler County, TX (b) Latitude and Longitude of well location, if known (optional) Lat. 31.706391 Long. -103.264595									
15. New Injection Well <input type="checkbox"/> or Injection Well Amendment <input checked="" type="checkbox"/>				Reason for Amendment: Pressure <input type="checkbox"/> Volume <input checked="" type="checkbox"/> Interval <input type="checkbox"/> Fluid Type <input checked="" type="checkbox"/>					
Other (explain) _____									
Casing	Size	Setting Depth	Hole Size	Casing Weight	Cement Class	# Sacks of Cement	Top of Cement	Top Determined by	
16. Surface	9 5/8	890	12 1/4	32.3# J55	Econocem-c	390	Surface	Circulated to surface	
17. Intermediate									
18. Long string	7	6625	8 3/4	26#	Corrosacem C/ Neeocem PLC	940	Surface	Circulated to surface	
19. Liner									
20. Tubing size 3 1/2	21. Tubing depth 4997		22. Injection tubing packer depth 4974			23. Injection interval 5080 to 6430			
24. Cement Squeeze Operations (List all)			Squeeze Interval (ft)			No. of Sacks		Top of Cement (ft)	
25. Multiple Completion? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			26. Downhole Water Separation? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			NOTE: If the answer is "Yes" to Item 25 or 26, provide a Wellbore Sketch			
27. Fluid Type Saltwater and RCRA Exempt Waste			28. Maximum daily injection volume for each fluid type (rate in bpd or mcf/d) 40000			29. Estimated average daily injection volume for each fluid type (rate in bpd or mcf/d) 15000			
30. Maximum Surface Injection Pressure: for Liquid 2540 psig for Gas _____ psig.									
8. Well No.	9. API No.	10. UIC No.	11. Total Depth	12. Date Drilled	13. Base of Usable Quality Water (ft)				
14. (a) Legal description of well location, including distance and direction from survey lines: (b) Latitude and Longitude of well location, if known (optional) Lat. _____ Long. _____									
15. New Injection Well <input type="checkbox"/> or Injection Well Amendment <input type="checkbox"/>				Reason for Amendment: Pressure <input type="checkbox"/> Volume <input type="checkbox"/> Interval <input type="checkbox"/> Fluid Type <input type="checkbox"/>					
Other (explain) _____									
Casing	Size	Setting Depth	Hole Siz	Casing Weight	Cement Class	# Sacks of Cement	Top of Cement	Top Determined by	
16. Surface									
17. Intermediate									
18. Long string									
19. Liner									
20. Tubing size	21. Tubing depth		22. Injection tubing packer depth			23. Injection interval _____ to _____			
24. Cement Squeeze Operations (List all)			Squeeze Interval (ft)			No. of Sacks		Top of Cement (ft)	
25. Multiple Completion? Yes <input type="checkbox"/> No <input type="checkbox"/>			26. Downhole Water Separation? Yes <input type="checkbox"/> No <input type="checkbox"/>			NOTE: If the answer is "Yes" to Item 25 or 26, provide a Wellbore Sketch			
27. Fluid Type			28. Maximum daily injection volume for each fluid type (rate in bpd or mcf/d)			29. Estimated average daily injection volume for each fluid type (rate in bpd or mcf/d)			
30. Maximum Surface Injection Pressure: for Liquid _____ psig for Gas _____ psig.									

FORM H-1A INSTRUCTIONS

05/2004

1. File as an attachment to Form H-1 to provide injection well data for each application for a new injection well permit or to amend an injection well permit.
2. Complete the current field name and number (Items 3 and 4) with the current field designation in Commission records.
3. Complete the current lease name and number (Items 5 and 6) with the current lease identification in Commission records for each well in the application. Use separate H-1A Forms for each lease.
4. Provide the current well number(s) for existing wells in Item 8. Provide the proposed well numbers for wells that have not yet been drilled.
5. Check in Item 15 the appropriate box for a new injection well permit or an amendment to an injection well permit. If an amendment, check the appropriate boxes for the reason(s) for the application(s) for amendment. If "other" is checked, provide a brief explanation.
6. Provide complete well construction information (Items 16 through 26), including all proposed re-completion (e.g. liner, cement squeeze, tubing, packer). Attach additional sheets if necessary. For Item 19, if the liner was not to the surface, indicate both the top and the bottom depth of the liner as the "Setting Depth."

½ Mile Radius Tabulation of Operators
 UL 21Bighorn 1W
 Oasis Petroleum Permian LLC
 Winkler County, Texas

- A. XTO ENERGY INC. (945936)
- B. XTO ENERGY INC. (945936)
- C. OASIS PETROLEUM PERMIAN LLC (617484)
- D. XTO ENERGY INC. (945936)
- E. OASIS PETROLEUM PERMIAN LLC (617484)
- F. OASIS PETROLEUM PERMIAN LLC (617484)
- G. OASIS PETROLEUM PERMIAN LLC (617484)
- H. OASIS PETROLEUM PERMIAN LLC (617484)
- I. OASIS PETROLEUM PERMIAN LLC (617484)
- J. XTO ENERGY INC. (945936)
- K. SHELL WESTERN E&P (774719)
- L. SHELL WESTERN E&P (774719)
- M. SHELL WESTERN E&P (774719)
- N. SHELL WESTERN E&P (774719)
- O. OASIS PETROLEUM PERMIAN LLC (617484)

Organization Operator Query Results

Search Criteria:										
Operator(s): 774719 - SHELL WESTERN E&P; 945936 - XTO ENERGY INC.										
Return										
2 results										
Page: 1 of 1										
Page Size: View All ▼										
Operator No.	Operator Name	Mailing Address	Mailing City	Mailing State	Mailing Zip	Organization Status	Organization Type	*TNR 91.114	Mail Hold	Phone No.
774719	SHELL WESTERN E&P	PO BOX 576	HOUSTON	TX	77001	Active	LIMITED PARTNERSHIP	No	No	(832) 337-0694
945936	XTO ENERGY INC.	ATT LAND MANAGER-LOC.115 22777 SPRINGWOODS VILLAGE PKWY	SPRING	TX	77389	Active	CORPORATION	No	No	(832) 624-4558

* Indicates whether the operator is subject to a final and unappealable Commission order or judgment. Pursuant to Tex. Nat. Res. Code §91.114, the Commission is prohibited from accepting a P-5 Organization Report filing, approving any permits, or issuing any P-4 Certificates of Compliance for an operator with an unsatisfied order/judgment of this type.

[Download](#)

[Return](#)



SERVICE LIST
RRC Form H1/H1A
Oasis Petroleum Permian LLC
UL 21 Bighorn 1W
Winkler County, Texas

COUNTY CLERK:

Winkler County Clerk
P.O. Box 1007
Kermit, TX 79745

SURFACE OWNERS:

University Lands
P.O. Box 553
Midland, Texas 79702

OPERATORS:

Shell Western E&P
PO Box 576
Houston, Texas 77001

XTO Energy Inc.
Attn Land Manager-LOC.115
22777 Springwoods Village Pkwy
Spring, Texas 77389

The above recipients were mailed copies of RRC Form H1 and H1A, front and back, via certified mail on 11/21/2019.

Daniel Busch

Daniel Busch
Oasis Petroleum Permian LLC

Search Earthquake Catalog

Search results are limited to 20,000 events. To get URL for a search, click the search button, then copy the URL from the browser address bar.

- [Help](#)
- [ANSS Comprehensive Earthquake Catalog \(ComCat\) Documentation](#)
- [Developer's Corner - bulk access to catalog, tools for obtaining specific products](#)
- [Significant Earthquakes Archive](#)

Basic Options

Magnitude

- 2.5+
- 4.5+
- Custom

Minimum

Maximum

Date & Time

- Past 7 Days
- Past 30 Days
- Custom

Start (UTC)

End (UTC)

Geographic Region

- World
- Conterminous U.S.¹
- Custom

Custom Circle

- 31.706391 Latitude
- 103.264595 Longitude
- 9.08 Radius (km)

[Draw Rectangle on Map](#)

[-] Advanced Options

Geographic Region

Decimal degree coordinates. North must be greater than South. East must be greater than West.

North	
<input type="text"/>	
West	East
<input type="text"/>	<input type="text"/>
South	
<input type="text"/>	

Circle

Center Latitude

Center Longitude

Outer Radius (km)

Depth (km)

Minimum

Maximum

Azimuthal Gap

Minimum

Maximum

Review Status

- Any
- Automatic
- Reviewed

Search Results

0 of 0 earthquakes in map area



Click for more information

There are no events in the current feed.

Didn't find what you were looking for?

- Check your [Settings](#)
- [Which earthquakes are included on the map and list?](#)
- [Felt something not shown - report it here.](#)

Caution



The current selection does not currently include any earthquakes.

Earthquakes happen around the world all the time. Change your options to view more earthquakes.

Continue

Earthquakes

Final Preliminary

- 1.5 < Magnitude <= 2.0
- 2.0 < Magnitude <= 2.5
- 2.5 < Magnitude <= 3.0
- 3.0 < Magnitude <= 3.5
- 3.5 < Magnitude <= 4
- 4 < Magnitude <= 5.5
- Magnitude > 5.5

Stations

- TexNet Permanent
- TexNet Portable
- Temporary
- Other Networks

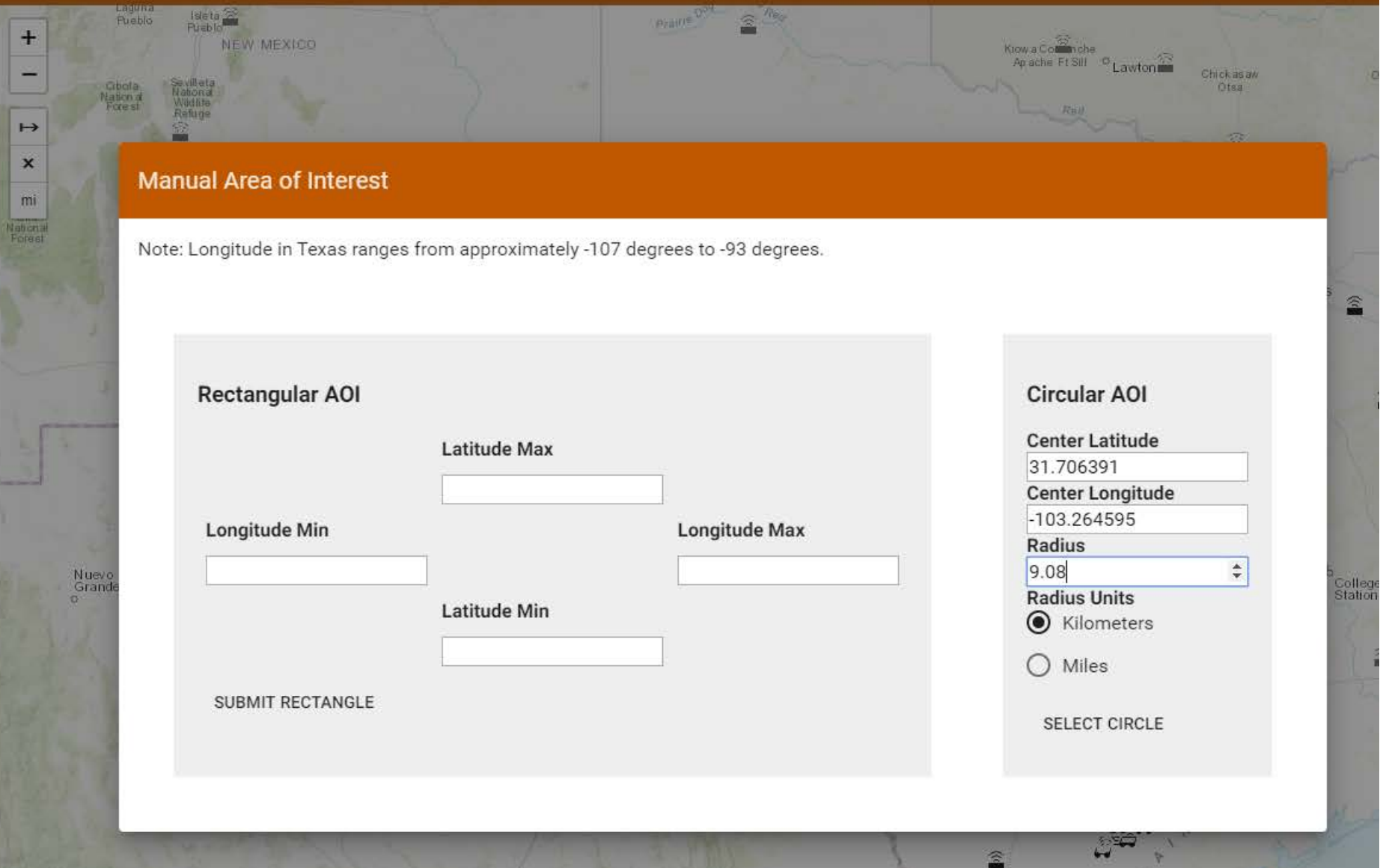
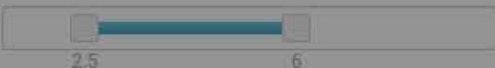
Seismic Regions



Require Focal Mechanism?



Earthquake Magnitude



Manual Area of Interest

Note: Longitude in Texas ranges from approximately -107 degrees to -93 degrees.

Rectangular AOI

Longitude Min

Latitude Max

Longitude Max

Latitude Min

SUBMIT RECTANGLE

Circular AOI

Center Latitude

Center Longitude

Radius

Radius Units

Kilometers

Miles

SELECT CIRCLE

4 < Magnitude <= 3.9

Magnitude > 5.5

Stations

- TexNet Permanent
- TexNet Portable
- Temporary
- Other Networks

Seismic Regions



Require Focal Mechanism?

Earthquake Magnitude



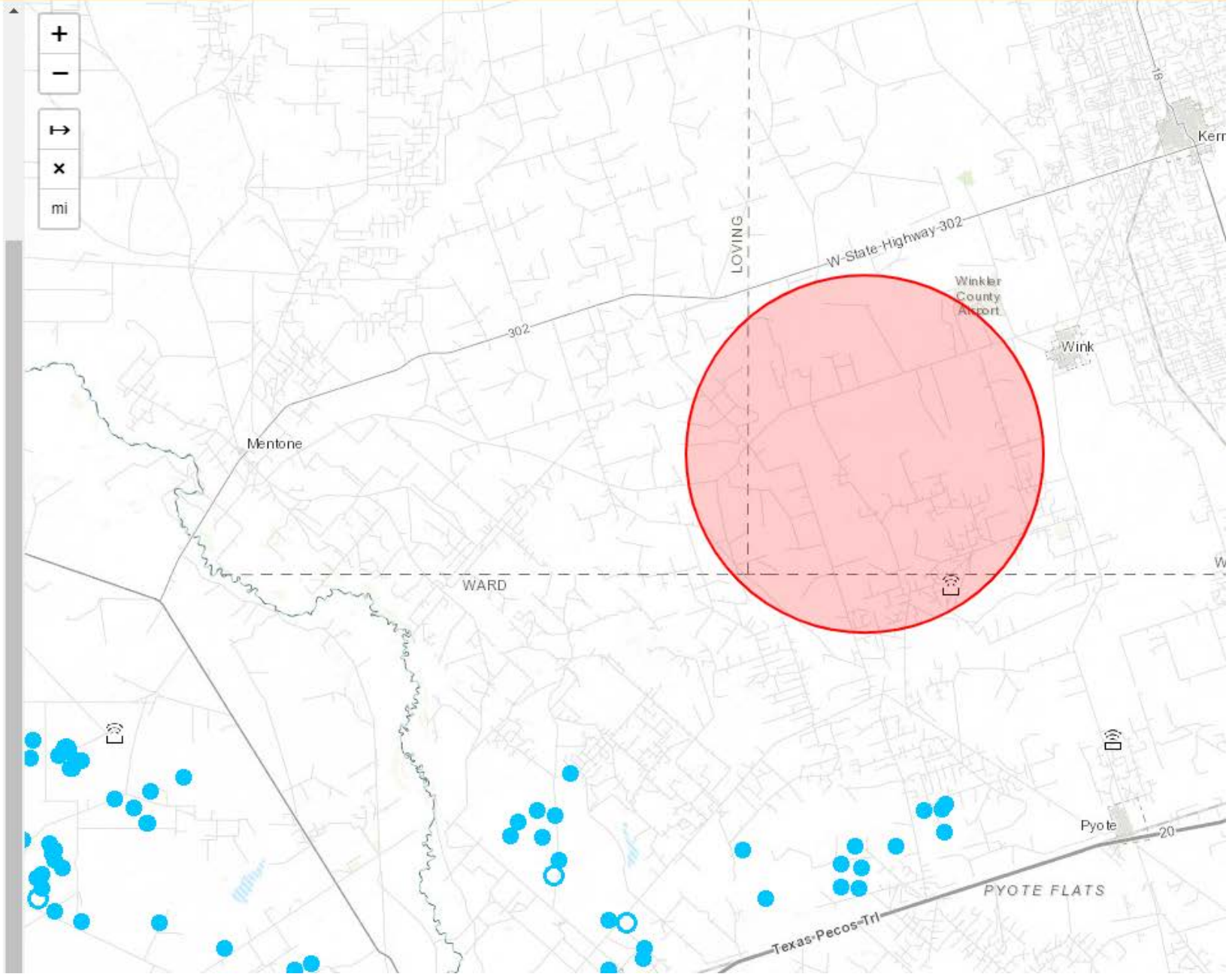
Lock Magnitude

Date Range

SELECT DATE RANGE...

Earliest Date
1/1/2017

Latest Date
11/8/2019





Oasis Petroleum Permian LLC
UL 21 Bighorn 1W
Winkler County, Texas

11/21/2019

To Whom It May Concern,

In the event the Railroad Commission has any questions regarding the proposed maximum daily injection volume for this injection well, Oasis agrees to complete an injectivity test prior to injection.

Daniel Busch

Daniel Busch
Oasis Petroleum Permian LLC