Oxy PMXs

ENSURING INJECTION IN TARGET INTERVAL

This letter is in response to the question from Phillip Goetze asking, *"how we will know that the well is injecting into the proper interval, since the wells are all at various angles to the formation tops"*.

All proposed injectors will be drilled and completed in a very well-known area with abundance of logs and well top data.

The following steps will be taken to ensure injection on the target formation:

- Casing will be run using centralizers to make sure the casing offsets the drill-hole
- Wells will be fully cemented to surface per NMOCD
- Prior to perforating the injection interval, the following cased-hole logs will be run:
    - CBL to ensure good cement and zonal isolation was achieved
    - GR/SGR for correlation and top identification
    - CNL for porosity and perf interval selection
- Once the well is completed and injection started, periodic Injection Profile Logs (IPLs) will be run to ensure injectant is staying in the desired interval

I will be happy to provide any additional information if needed.

Regards,

Dmitri Pistoun
Senior Geological Advisor

**From:** Montgomery, Kelley A
**To:** Murphy, Kathleen A, EMNRD
**Cc:** Gago, Jose L
**Subject:** [EXT] RE: OXY PMXs
**Date:** Wednesday, June 9, 2021 1:37:05 PM

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Will do.

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**From:** Murphy, Kathleen A, EMNRD <KathleenA.Murphy@state.nm.us>
**Sent:** Wednesday, June 9, 2021 2:35 PM
**To:** Montgomery, Kelley A <Kelley_Montgomery@oxy.com>
**Cc:** Gago, Jose L <Jose_Gago@oxy.com>
**Subject:** [EXTERNAL] RE: OXY PMXs



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So is there someplace in previous NHU case exhibits where the water wells are discussed, and samples taken of wells in the unit, or a discussion of the wells being on city water systems? This would be similar to how you reference the geology section. I just don't know specifically where to find this and it would be useful for the review of the rest of the PMXs.

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**From:** Montgomery, Kelley A <Kelley_Montgomery@oxy.com>
**Sent:** Wednesday, June 9, 2021 1:30 PM
**To:** Murphy, Kathleen A, EMNRD <KathleenA.Murphy@state.nm.us>
**Cc:** Gago, Jose L <Jose_Gago@oxy.com>
**Subject:** [EXT] RE: OXY PMXs

Hi Kathleen,

We pulled all of the historical water wells within 1 mile on the engineering website and attached two excel files. There is a lot of overlap between the two wells as they are located near each other. The majority of these wells are within the city limits or very close and the residents are all on city water. A 2014 city ordinance (below) required all domestic water wells within the city and those residences on city water to be P&A'd. I spoke with our operations personnel and they do not know of any active water wells within 1 mile of the wells. I found two wells on the list (highlighted) that were drilled after 2014 that could potentially still be active. I can have our operations folks check on these two if necessary? Please let me know. Kelley

## Chapter 13.28 - WATER WELLS

### 13.28.010 - Restrictions upon drilling of water wells within the City limits.

A.

It shall be unlawful for any person, firm, or entity to drill, deepen, or cause to be drilled, any water well or any well capable of producing water within the City of Hobbs without written consent of the Hobbs City Commission for good and sufficient cause shown.

B.

Pursuant to the Safe Drinking Water Act (SDWA) and applicable State and Federal rules and regulations governing cross connections, cross contamination, and physical separation of conflicting water systems, all water wells located on premises or property connected to the City's water distribution system shall be properly

plugged and abandoned in accordance with New Mexico Environment Department (NMED) rules and regulations. It shall be unlawful for the owner of any premises or property connected to the City's water distribution system to allow any water well to remain in operation and not properly plugged and abandoned.

C.

Upon violation of this section, any person, firm or entity found guilty shall be punishable by fine not to exceed five hundred dollars ($500.00) per violation and the City of Hobbs may, at its discretion, seek injunctive relief in a court of competent jurisdiction against any person violating this section.

( Ord. No. 1079 , 11-3-2014)

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**From:** Murphy, Kathleen A, EMNRD <KathleenA.Murphy@state.nm.us>
**Sent:** Tuesday, June 8, 2021 10:48 AM
**To:** Montgomery, Kelley A <Kelley_Montgomery@oxy.com>
**Subject:** [EXTERNAL] RE: OXY PMXs

**WARNING - This message is from an EXTERNAL SENDER - be CAUTIOUS, particularly with links and attachments.**

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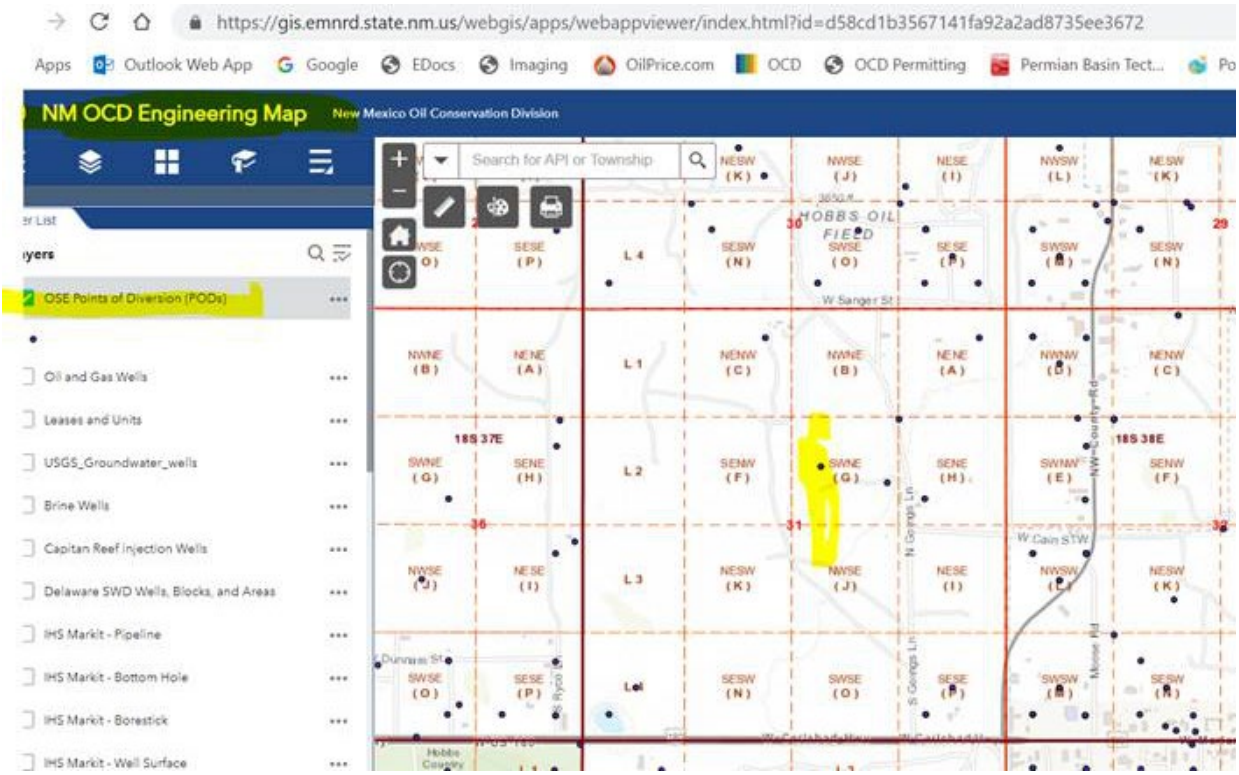
I would look at the OCD Engineering webpage and turn on the OSE PODs. I would determine how many water wells are within a mile and then determine if any are active. I thought I saw a couple that were domestic and active.

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**From:** Montgomery, Kelley A <Kelley_Montgomery@oxy.com>
**Sent:** Tuesday, June 8, 2021 9:26 AM
**To:** Murphy, Kathleen A, EMNRD <KathleenA.Murphy@state.nm.us>
**Cc:** Gago, Jose L <Jose_Gago@oxy.com>

**Subject:** [EXT] RE: OXY PMXs

Hi Kathleen,

We pulled up the GIS map and did not see any active water wells. Can you tell how you pulled up water well information?

Thank you for your help.

Kelley

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**From:** Murphy, Kathleen A, EMNRD <KathleenA.Murphy@state.nm.us>
**Sent:** Monday, June 7, 2021 4:22 PM
**To:** Montgomery, Kelley A <Kelley_Montgomery@oxy.com>
**Subject:** [EXTERNAL] RE: OXY PMXs

**WARNING - This message is from an EXTERNAL SENDER - be CAUTIOUS, particularly with links and attachments.**

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Kelly,

I am reviewing PMX 294 which are the NHU SA/G 632 and 312 wells, and applied for in October 2020.

Questions thus far:

On P 9 of the application, the 632 well will need to be edited that it is located in unit J, not B.

Also, the application states (pages 4, 8) there are no fresh water wells within a mile of the injection wells per field personnel. When I look on GIS at the OSE pods there are many wells within a mile, and several that are domestic. Please review this and advise.

Sincerely,

Kathleen Murphy

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**From:** Murphy, Kathleen A, EMNRD
**Sent:** Thursday, June 3, 2021 1:40 PM
**To:** Montgomery, Kelley A <Kelley_Montgomery@oxy.com>
**Subject:** OXY PMXs

Kelly,

I am going to start working on the OXY PMXs—there are 10 I believe. I will do the NHU 312 and 632 first—PMX-294-- as it was submitted in October of last year. Is there any preferred order of the batch that you submitted in April, I believe.

thanks

Kathleen Murphy

Petroleum Specialist- Advanced
Geologist/GIS Analyst
New Mexico Oil Conservation Division
1200 South St Francis Drive
Santa Fe, New Mexico 87505

505-365-3161

Email: kathleena.murphy@state.nm.us

** Please use email during this stressful time**

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

| API Number | Pool Code | Pool Name |
|---|---|---|
| 30-025- | 31920 | HOBBS; GRAYBURG-SAN ANDRES |

| Property Code | Property Name | Well Number |
|---|---|---|
| 19520 | NORTH HOBBS G/SA UNIT | 980 |

| OGRID No. | Operator Name | Elevation |
|---|---|---|
| 157984 | OCCIDENTAL PERMIAN LTD. | 3633.8' |

## Surface Location

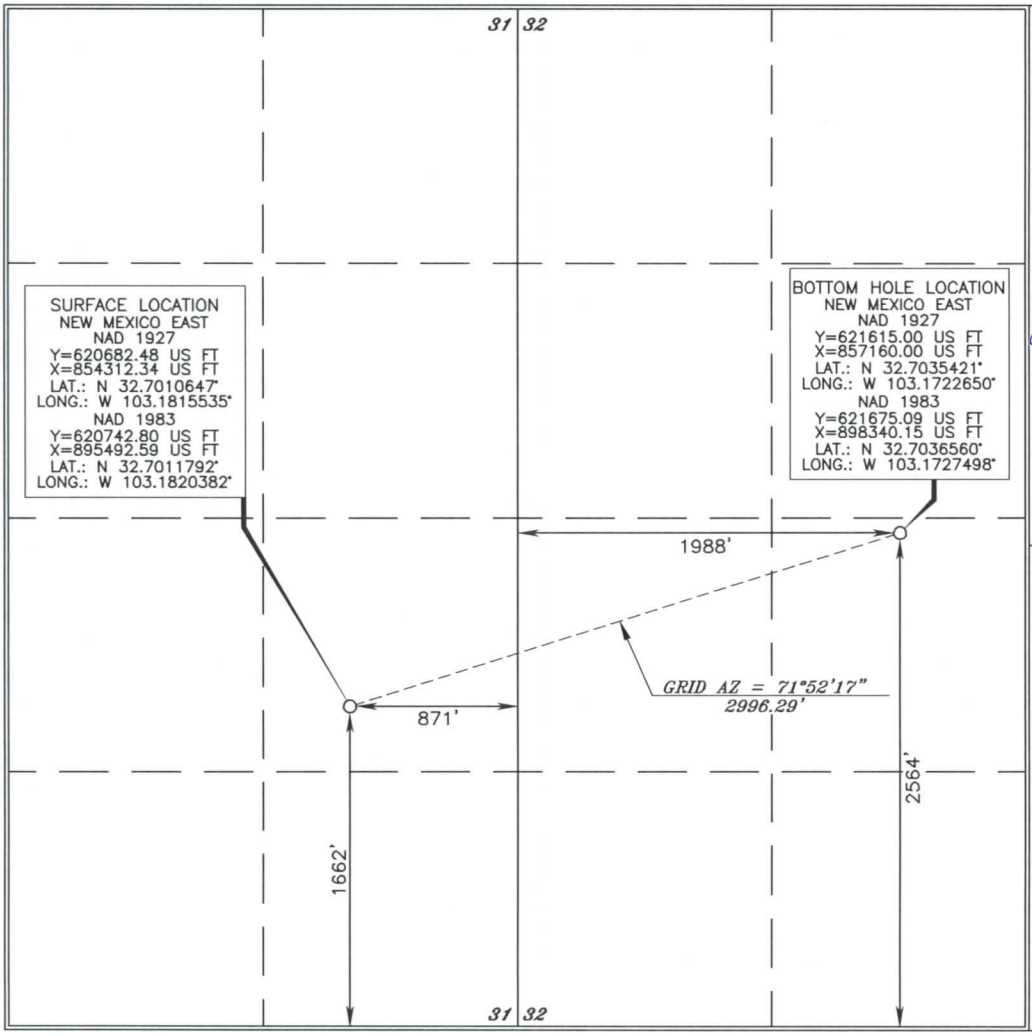
| UL or lot no. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County |
|---|---|---|---|---|---|---|---|---|---|
| I | 31 | 18 SOUTH | 38 EAST, N.M.P.M. | | 1662' | SOUTH | 871' | EAST | LEA |

## Bottom Hole Location If Different From Surface

| UL or lot no. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County |
|---|---|---|---|---|---|---|---|---|---|
| K | 32 | 18 SOUTH | 38 EAST, N.M.P.M. | | 2564' | SOUTH | 1988' | WEST | LEA |

| Dedicated Acres | Joint or Infill | Consolidation Code | 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.*




## OPERATOR CERTIFICATION

*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.*

Jose Luis Gago 01/20/2022
Signature Date

Jose L. Gago
Printed Name

jose_gago@oxy.com
E-mail Address

## SURVEYOR CERTIFICATION

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

JERRY J. ASEL NEW MEXICO 15079 REGISTERED PROFESSIONAL LAND SURVEYOR

OCTOBER 5, 2021
Date of Survey

Signature and Seal of Professional Surveyor

Jerry J. Asel 10/20/2021
Certificate Number 15079

WO# 211005WL-b (AS)

# C-108 APPLICATION FOR AUTHORIZATION TO INJECT
# ADMINISTRATIVE COMPLETENESS FORM

**Well Name:** North Hobbs G/SA No. 980

**Applicant:** OXY

**PO Number:** pKAM 2132634357

**Admin. App. No:** PMX 313

| C-108 Item | Description of Required Content | Yes | No |
|---|---|---|---|
| **I. PURPOSE** | Selection of proper application type. | ✔ | |
| **II. OPERATOR** | Name; address; contact information. | ✔ | |
| **III. WELL DATA** | Well name and number; STR location; footage location within section. | ✔ | |
| | Each casing string to be used, including size, setting depth, sacks of cement, hole size, top of cement, and basis for determining top of cement. | ✔ | |
| | Description of tubing to be used including size, lining material, and setting depth. | ✔ | |
| | Name, model, and setting depth of packer to be used, or description of other seal system or assembly to be used. | ✔ | |
| | Well diagram: Existing (if applicable). | ✔ | |
| | Well diagram: Proposed (either Applicant's template or Division's Injection Well Data Sheet). | ✔ | |
| **IV. EXISTING PROJECT** | For an expansion of existing well, Division order number authorizing existing well (if applicable). | ✔ | |
| **V. LEASE AND WELL MAP** | AOR map identifying all wells and leases within 2 mile radius of proposed well, and depicting a 1/2 mile radius circle around any another projected injection well and a 1 mile radius circle around any other projected injection well in the Devonian formation. | ✔ | |
| **VI. AOR WELLS** | Tabulation of data for all wells of public record within AOR which penetrate the proposed injection zone, including well type, construction, date drilled, location, depth, and record of completion. | ✔ | |
| | Schematic of each plugged well within AOR showing all plugging detail. | ✔ | |
| **VII. PROPOSED OPERATION** | Proposed average and maximum daily rate and volume of fluids to be injected. | ✔ | |
| | Statement that the system is open or closed. | ✔ | |
| | Proposed average and maximum injection pressure. | ✔ | |
| | Sources and analysis of injection fluid, and compatibility with receiving formation if injection fluid is not produced water. | ✔ | |
| | A chemical analysis of the disposal zone formation water if the injection is for disposal and oil or gas is not produced or cannot be produced from the formation within 1 mile of proposed well. Chemical analysis may be based on sample, existing literature, studies, or nearby well. | ✔ | |
| **VIII. GEOLOGIC DATA** | Proposed injection interval, including appropriate lithologic detail, geologic name, thickness, and depth. | ✔ | |
| | USDW of all aquifers overlying the proposed injection interval, including geologic name and depth to bottom. | ✔ | |
| | USDW of all aquifers underlying the proposed injection interval, including including the geologic name and depth to bottom. | ✔ | |

# C-108 (SWD) APPLICATION FOR AUTHORIZATION TO INJECT
# ADMINISTRATIVE COMPLETENESS FORM

**Well Name:** _____

**Applicant:** _____

**PO Number:** _____

**Admin. App. No:** _____

| C-108 Item | Description of Required Content | Yes | No |
|---|---|---|---|
| **IX. PROPOSED STIMULATION** | Description of stimulation process or statement that none will be conducted. | ✔ | |
| **X. LOGS/WELL TESTS** | Appropriate logging and test data on the proposed well or identification of well logs already filed with OCD. | ✔ | |
| **XI. FRESH WATER** | Chemical analysis of fresh water from two or more fresh water wells (if available and producing) within 1 mile of the proposed well, including location and sampling date(s). | ✔ | |
| **XII. AFFIRMATION STATEMENT** | Statement of qualified person endorsing the application, including name, title, and qualifications. | ✔ | |
| **XIII. PROOF OF NOTICE** | Identify of all "a*ffected persons*" identified on AOR map in Section V, including all affected persons within 1/2 mile radius circle around any another projected injection well and a 1 mile radius circle around any other projected injection well in the Devonian formation. | ✔ | |
| | Identification and notification of all surface owners. | ✔ | |
| | BLM and/or NMSLO notified per 19.15.2.7(A)(8)(d) NMAC. | ✔ | |
| | Notice of publication in local newspaper in county where proposed well is located with the following specific content: | ✔ | |
| | ● Name, address, phone number, and contact party for Applicant; | ✔ | |
| | ● Intended purpose of proposed injection wel, including exact location of a single well, or the section, township, and range location of multiple wells; | ✔ | |
| | ● Formation name and depth, and expected maximum injection rates and pressures; and | ✔ | |
| | ● Notation that interested parties shall file objections or requests for hearing with OCD no later than 15 days after the admin completeness determination. | ✔ | |
| **XIV. CERTIFICATION** | Signature by operator or designated agent, including date and contact information. | ✔ | |

**Review Date*:** 1/28/2022 **Reviewer:** K Murphy

✔ **Administratively COMPLETE**

☐ **Administratively INCOMPLETE**

NOTES: 6: no substantive changes in info furnished in support of R-6199-F concerning status of any well that penetrates injection interval within 1/2 mile, except as indicated, w P&A diagrams.
8: geologic data in Case 14981 Pg 43
13: P3, Pg 9-- admin approval without notice or hearing
Packer setting depth: P-H, P3 R-6199F
11: Water wells w/in 1 mile radius: See attached email chain regarding City of Hobbs water wells

* The Review Date is the date of administrative completeness determination that commences the 15 day protest period in 19.15.26.8 (C)(2) NMAC.

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

**DATE RECORD** First Rec: 11-15-21 **Admin Complete:** ✓ **or Suspended:** _____ Add. Request/Reply: _____

**ORDER TYPE:** PMX Number: 313 Order Date: _____ Legacy Permits/Orders: R-6199-F

Well No: 980 Well Name(s): North Hobbs G/SA Unit

API : 30-0 25-Pending Spud Date: new drill New or Old (EPA): ____ (*UIC Class II Primacy 03/07/1982*)

Footages 1662 FSL, 871 FEL Lot ___ or Unit I Sec 31 Tsp 18S Rge 38E County Lea

Latitude: 32.7011792 Longitude 103.1820382 Pool: Hobbs, GB-SA Pool No.: 31920

Operator: OXY OGRID: 15784 Contact: K. Montgomery Email: —

**COMPLIANCE RULE 5.9:** Total Wells: 611 Inactive: 1 **Fincl Assur:** ✓ Compl. Order? ☑ **IS 5.9 OK?** ☑ **Date:** 2-10-22

**WELL FILE REVIEWED** ☐ Current Status: new diagonal well

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

Planned Rehab Work to Well: new diagonal drill

| **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** | 13 1/2 → 9 5/8 | 1600 | | 515 | CTS |
| Planned ☐ or Existing ☐ **Interm/Prod** | | | | | |
| Planned ☑ or Existing ☐ **Interm/Prod** | 8 3/4 → 7in | 5789 | | 1000 | CTS |
| Planned ☐ or Existing ☐ **Prod/Liner** | | | | | |
| Planned ☐ or Existing ☐ **Liner** | | | | | |
| Planned ☑ or Existing ☐ **OH / PERF** | 5050 | 5789 | Inj Length | | |

| **Injection Lithostratigraphic Units:** | Depths (ft) | Injection or Confining Units | Tops |
|---|---|---|---|
| Adjacent Unit: Litho ☐ Struc ☐ Por. ☐ | | | |
| Confining Unit: Litho ☐ Struc ☐ Por. ☐ | | | |
| **Proposed Inj Interval TOP:** | See geolog case 14981 | | |
| **Proposed Inj Interval BOTTOM:** | injection interval - diagonal | | |
| Confining Unit: Litho ☐ Struc ☐ Por. ☐ | | | |
| Adjacent Unit: Litho ☐ Struc ☐ Por. ☐ | | | |

**Completion/Operation Details:**

Drilled TD _____ PBTD _____

NEW TD 5789 NEW PBTD _____

NEW Open Hole ○ NEW Perfs ◉

Tubing Size 2 7/8 in. Inter Coated? ✓

Proposed Packer Depth 5000 ft

Min. Packer Depth 4980 (100-ft limit)

Proposed Max. Surface Press. order psi

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

## AOR: Hydrologic and Geologic Information

**POTASH:** R-111-P NP *Noticed?* ☐ **BLM Sec Ord** ☐ **WIPP** ☐ *Noticed?* ☐ **Salt/Salado** T: ___ B: ___ **NW: Cliff House fm** ___

**USDW:** Aquifer(s) CBP Max Depth _____ **HYDRO AFFIRM STATEMENT By Qualified Person** ☐

**NMOSE Basin:** _____ **CAPITAN REEF:** thru ☐ adj ☐ NA ☐ **No. GW Wells in 1-Mile Radius?** _____ FW Analysis? ___

**Disposal Fluid:** Formation Source(s) SA - case 14981 Analysis? ✓ On Lease ✓ Operator Only ○ Commercial ◉

**Disposal Interval:** Inject Rate (Avg/Max BWPD): 9000 Protectable Waters? ___ Source: _____ System: Closed ☐ or Open ☐

**HC Potential:** Producing Interval? ✓ Formerly Producing? ___ Method: Logs ☑ /DST ☐ /P&A ☐ /Other _____ 2-Mi Radius Pool Map ☐

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

**Penetrating Wells: No. Active Wells** ___ No. Corrective? ___ on which well(s)? no new since order Diagrams? ___

**Penetrating Wells: No. P&A Wells** ___ No. Corrective? ___ on which well(s)? 1 new P&A well Diagrams? ✓

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

**NOTICE:** 1/2-M ☐ or ONE-M ☐ : Newspaper Date _____ **Mineral Owner*** _____ Surface Owner _____ N. Date _____

**RULE 26.7(A): Identified Tracts?** ☐ **Affected Persons*:** R-6199-F - no new notice N. Date _____

*** 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:** See admin complete for explanation - geology

**Additional COAs:** FW well, notice