

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

Will do.

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

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

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.

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)

From: Murphy, Kathleen A, EMNRD <KathleenA.Murphy@state.nm.us>

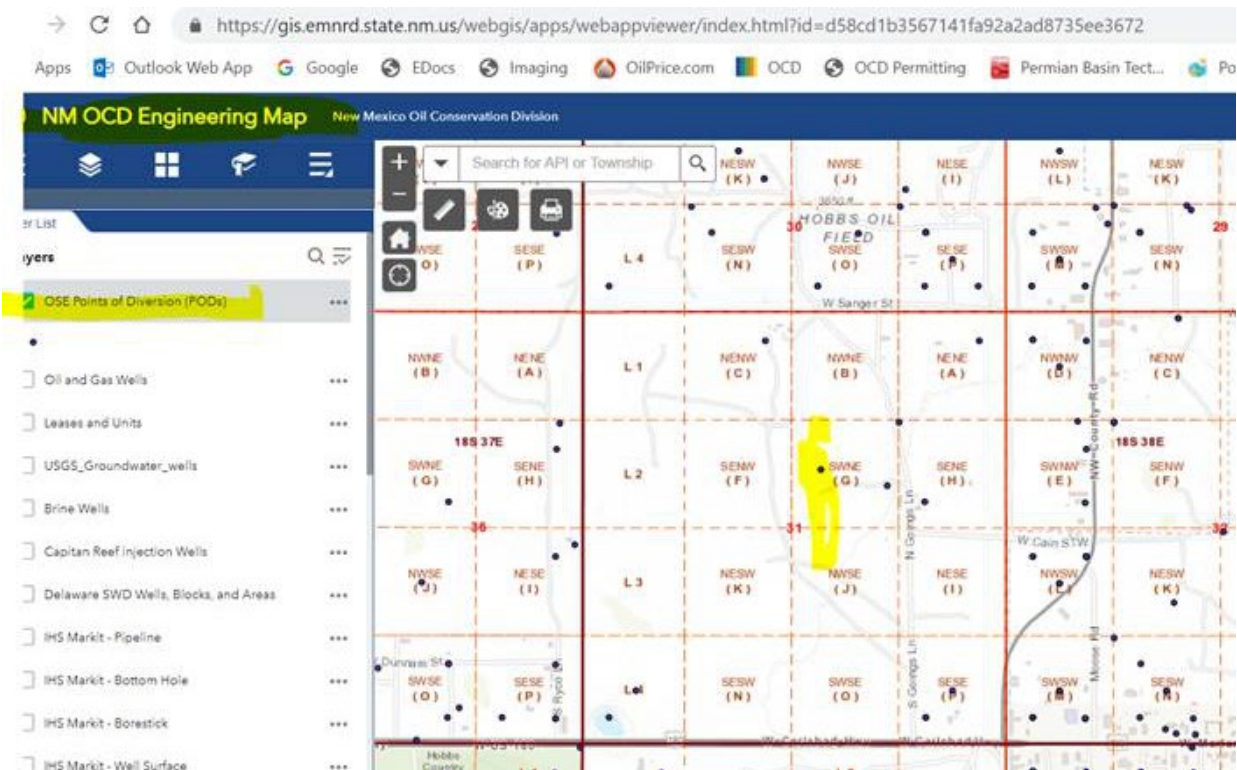
Sent: Tuesday, June 8, 2021 10:48 AM

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.

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.



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

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.

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

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 30-025-	Pool Code 31920	Pool Name HOBBS; GRAYBURG-SAN ANDRES
Property Code 19520	Property Name NORTH HOBBS G/SA UNIT	Well Number 971
OGRID No. 157984	Operator Name OCCIDENTAL PERMIAN LTD.	Elevation 3634.1'

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.		1562'	SOUTH	872'	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
M	32	18 SOUTH	38 EAST, N.M.P.M.		319'	SOUTH	172'	WEST	LEA

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

<div style="position: relative; height: 478px;"> <div style="position: absolute; top: 10px; left: 10px; border: 1px solid black; padding: 5px;"> <p>SURFACE LOCATION NEW MEXICO EAST NAD 1927 Y=620582.48 US FT X=854313.00 US FT LAT.: N 32.7007898° LONG.: W 103.1815549° NAD 1983 Y=620642.80 US FT X=895493.26 US FT LAT.: N 32.7009044° LONG.: W 103.1820396°</p> </div> <div style="position: absolute; top: 600px; left: 10px; border: 1px solid black; padding: 5px;"> <p>BOTTOM HOLE LOCATION NEW MEXICO EAST NAD 1927 Y=619350.00 US FT X=855373.00 US FT LAT.: N 32.6973710° LONG.: W 103.1781534° NAD 1983 Y=619410.24 US FT X=896553.30 US FT LAT.: N 32.6974855° LONG.: W 103.1786378°</p> </div> <div style="position: absolute; top: 150px; left: 150px;"> <p>31 32</p> <p>1562'</p> <p>872'</p> <p>GRID AZ = 139°18'11"</p> <p>1625.70'</p> <p>172'</p> <p>31 32</p> </div> </div>	<p>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><i>Jose L. Gago</i> 10/28/2021 Signature Date</p> <p>Jose L. Gago Printed Name jose_gago@oxy.com E-mail Address</p> <p>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><i>Ferry J. As...</i> Date of Survey Signature and Seal of Professional Surveyor</p> <p><i>Ferry J. As...</i> Certificate Number 15079</p> <p>WO# 211005WL-e (AS)</p>
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C-108 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
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 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 " <i>affected persons</i> " 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:		
	<ul style="list-style-type: none"> Name, address, phone number, and contact party for Applicant; 		
	<ul style="list-style-type: none"> Intended purpose of proposed injection well, including exact location of a single well, or the section, township, and range location of multiple wells; 		
	<ul style="list-style-type: none"> Formation name and depth, and expected maximum injection rates and pressures; and 		
XIV. CERTIFICATION	Signature by operator or designated agent, including date and contact information.		

Review Date*:

Reviewer:

☐ Administratively COMPLETE

☐ Administratively INCOMPLETE

NOTES:

* 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.

10-30-21

PMX-308


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

DATE RECORD: First Rec: ☒ Admin Complete: _____ or Suspended: _____ Add. Request/Reply: _____

ORDER TYPE: PMX Number: 308 Order Date: _____ Legacy Permits/Orders: R-6199-F

Well No. 971 Well Name(s): N 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 1562 FSL 872 FEL Lot _____ or Unit I Sec 31 Tsp 185 Rge 38E County Lea

Latitude: 32.7009044 Longitude 103.1820396 Pool: 31920 Hobbs: GB Pool No.: SA

Operator: Oxy OGRID: 157984 Contact: KMontg/J Gayo Email: _____

COMPLIANCE RULE 5.9: Total Wells: 606 Inactive: 0 Fincl Assur: ☒ Compl. Order? ☐ IS 5.9 OK? ☒ Date: 12-29-21

WELL FILE REVIEWED ☐ Current Status: new drill - diagonal

WELL DIAGRAMS: NEW: Proposed ☒ or RE-ENTER: Before Conv. ☒ After Conv. ☐ Logs in Imaging: _____

Planned Rehab Work to Well: new diagonal well

Well Construction Details		Sizes (in) Borehole / Pipe	Setting Depths (ft)	Cement S _x or Cf	Cement Top and Determination Method
Planned <input checked="" type="checkbox"/> or Existing <input type="checkbox"/> Surface		13 1/2 - 9 5/8	1600	515	CTS
Planned <input type="checkbox"/> or Existing <input type="checkbox"/> Interm/Prod					
Planned <input type="checkbox"/> or Existing <input type="checkbox"/> Interm/Prod		8 3/4 - 7 in	4905 MD	800	CTS
Planned <input type="checkbox"/> or Existing <input type="checkbox"/> Prod/Liner					
Planned <input type="checkbox"/> or Existing <input type="checkbox"/> Liner					
Planned <input type="checkbox"/> or Existing <input type="checkbox"/> OH / PERF		4410	4905 MD		

Injection Lithostratigraphic Units:	Depths (ft)	Injection or Confining Units	Tops
Adjacent Unit: Litho <input type="checkbox"/> Struc <input type="checkbox"/> Por. <input type="checkbox"/>			
Confining Unit: Litho <input type="checkbox"/> Struc <input type="checkbox"/> Por. <input type="checkbox"/>		See geology	
Proposed Inj Interval TOP:		Section 1	
Proposed Inj Interval BOTTOM:		also injection in	
Confining Unit: Litho <input type="checkbox"/> Struc <input type="checkbox"/> Por. <input type="checkbox"/>		for diagonal wells	
Adjacent Unit: Litho <input type="checkbox"/> Struc <input type="checkbox"/> Por. <input type="checkbox"/>			

Completion/Operation Details:	
Drilled TD _____ PBDT _____	
NEW TD 4905 MD NEW PBDT _____	
NEW Open Hole <input type="radio"/> NEW Perfs <input checked="" type="radio"/>	
Tubing Size 2 7/8 in. Inter Coated? <input type="checkbox"/>	
Proposed Packer Depth 4360 ft	
Min. Packer Depth 4310 (100-ft limit)	
Proposed Max. Surface Press. _____ psi	
Admin. Inj. Press. order (0.2 psi per ft)	

AOR: Hydrologic and Geologic Information

POTASH: R-111-P ☒ Noticed? ☐ BLM Sec Ord ☐ WIPF ☐ Noticed? ☐ Salt/Salado T: _____ B: _____ NW: Cliff House fm _____

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

NMOSE Basin: NWSH/ 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 BWPD Protectable Waters? _____ Source: _____ System: Closed ☐ or Oper ☐

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)? 1 New well Diagrams? _____

Penetrating Wells: No. P&A Wells 3 No. Corrective? _____ on which well(s)? 3 P&A 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*: _____ 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 wells, notice

12-13-21