

DATE IN 08/04/13	SUSPENSE	ENGINEER PG	LOGGED IN 08/05/13	TYPE IPI	PPAG 1321742484
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ABOVE THIS LINE FOR DIVISION USE ONLY

NEW MEXICO OIL CONSERVATION DIVISION
 - 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

Application Acronyms:

[NSL-Non-Standard Location] [NSP-Non-Standard Proration Unit] [SD-Simultaneous Dedication]
 [DHC-Downhole Commingling] [CTB-Lease Commingling] [PLC-Pool/Lease Commingling]
 [PC-Pool Commingling] [OLS - Off-Lease Storage] [OLM-Off-Lease Measurement]
 [WFX-Waterflood Expansion] [PMX-Pressure Maintenance Expansion]
 [SWD-Salt Water Disposal] [IPI-Injection Pressure Increase]
 [EOR-Qualified Enhanced Oil Recovery Certification] [PPR-Positive Production Response]

[1] **TYPE OF APPLICATION** - Check Those Which Apply for [A]

[A] Location - Spacing Unit - Simultaneous Dedication
☐ NSL ☐ NSP ☐ SD

Check One Only for [B] or [C]

[B] Commingling - Storage - Measurement
☐ DHC ☐ CTB ☐ PLC ☐ PC ☐ OLS ☐ OLM

[C] Injection - Disposal - Pressure Increase - Enhanced Oil Recovery
☐ WFX ☐ PMX ☐ SWD ☒ IPI ☐ EOR ☐ PPR

[D] Other: Specify SWD - 1244

2013 AUG - 2 P. 13
 RECEIVED OGD

[2] **NOTIFICATION REQUIRED TO:** - Check Those Which Apply, or Does Not Apply

[A] ☐ Working, Royalty or Overriding Royalty Interest Owners
 [B] ☐ Offset Operators, Leaseholders or Surface Owner
 [C] ☐ Application is One Which Requires Published Legal Notice
 [D] ☐ Notification and/or Concurrent Approval by BLM or SLO
 U.S. Bureau of Land Management - Commissioner of Public Lands, State Land Office
 [E] ☐ For all of the above, Proof of Notification or Publication is Attached, and/or,
 [F] ☐ Waivers are Attached

[3] **SUBMIT ACCURATE AND COMPLETE INFORMATION REQUIRED TO PROCESS THE TYPE OF APPLICATION INDICATED ABOVE.**

[4] **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.

David Stewart
 Print or Type Name

[Signature]
 Signature

SR. Regulatory Advisor 7/30/13
 Title Date

OKY USA Inc - 16696
 Lost Tank 3 Federal #25
 30-015-38254

SWD-1244

david_stewart@oky.com
 e-mail Address 432-685-5717

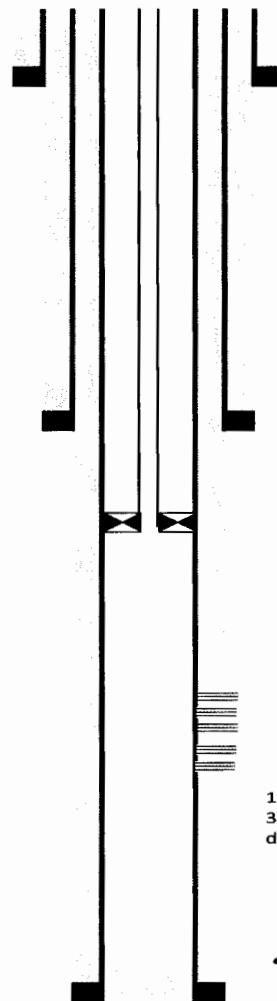
To: New Mexico Oil Conservation Division
Attn: Phillip R. Goetze, P.G.

OXY USA Inc (16696) formally requests an increase in maximum injection pressure to 3167 psi for the following approved SWD permit. The justification will be presented herein.

Well Name: Lost Tank 3 Federal 25
API#: 30-015-38254
1500 FNL 541 FEL SENE(H) Sec 3 T22S R31E
Administrative Order SWD-1244 9/3/10

The SWD well is completed in the Cherry Canyon (5380-6110') with 2.875" composite lined tubing (2.25" ID) set at a depth of 5323'. See Figure 1 below:

Well Name	Lost Tank 3-25
API	30-015-38254
Location	Sec 3 T22S R31E
Datum	3503.7' KB
Hole size	14-3/4"
Surface casing	11-3/4" 42#, H-40
Set @	680'
Cement	500 sx circulated
Hole size	10-5/8"
Intermediate Casing	8-5/8", 32#, J-55
Set @	4245'
Cement	1160 sx circulated
Hole size	7-7/8"
Intermediate Casing	5-1/2", 17#, J-55
Set @	6310'
Cement	1200 sx circulated
Tubing String	
Tubing, 2-7/8" & Packer	set @ 5323'



5380' - 5680'
5700' - 5820'
5880' - 5920'
5960' - 6110'

1 SPF w/ a total of
350 holes @ .43
diameter

PBTD: 6220'

TD: 6310'

Figure 1: Lost Tank 3 Federal 25 Well Schematic.

Requested
 $\frac{3167}{5380} = 0.588$
Cherry Canyon

Permitted

$\frac{2230}{5380} = 0.41$

On 6/21/2013 a planned step rate test was performed on the Lost Tank 3 Federal 25 to identify the formation parting pressure, thus determining a maximum allowable injection pressure. The well was back flowed for 4hrs, then shut-in for an additional 12 hrs to ensure accurate testing results. The step-rate test was then conducted at the below rates utilizing treated water and a mobile pump truck. Pump rates were maintained for 15 minutes or until we achieved a stable injection pressure. Table 1 displays the injection rate for each step along with the corresponding surface treating pressure at the well head.

Rate [bbls/day]	Rate [bbls/min]	Cumulative Volume Pumped [bbls]	Tubing Head Pressure [psi]
1800	1.25	34	1150
2160	1.50	57	1208
2520	1.75	83	1245
2880	2.00	104	1289
3240	2.25	126	1327
3600	2.50	151	1374
3960	2.75	183	1414
4320	3.00	204	1494
5040	3.50	230	1639
5760	4.00	259	1781
6480	4.50	292	1961
7200	5.00	316	2180
7920	5.50	347	2311
8640	6.00	376	2403
9360	6.50	411	2601
10080	7.00	450	2811
10800	7.50	490	3055
11520	8.00	528	3217

Table 1: Lost Tank 3 Federal 25 SWD Step Rate test data.

The formation parting pressure was not observed during the step-rate test. A conservative approach was taken in regards to injection rates in order to eliminate the possibility of fracture propagation into a non-disposal zone. Figure 3 displays the results from modeling conducted after the step rate test was completed. The modeling results identified that the pressure drop due to friction in the small diameter tubing was preventing the bottom-hole pressure from reaching the formation parting pressure.

The calculated flowing bottom-hole pressure during the test was found to have never exceeded 3559 psi with a corresponding surface treating pressure of 3217 psi. Figure 2 displays the surface treating pressure obtained during the test along with the corresponding bottom-hole pressure (calculated). The various injection rates for each interval are plotted on the horizontal axis in figure 2. The requested 3167 psi surface injection pressure represents an equivalent bottom-hole pressure well below the maximum pressure obtained during the test, thus remaining below the formation parting pressure.

figure 2 shows surface pressure at 2280 for FPP

2217

Plotted
 data
 shows
 2280 psi
 - 50
 2230 psi
 (94)

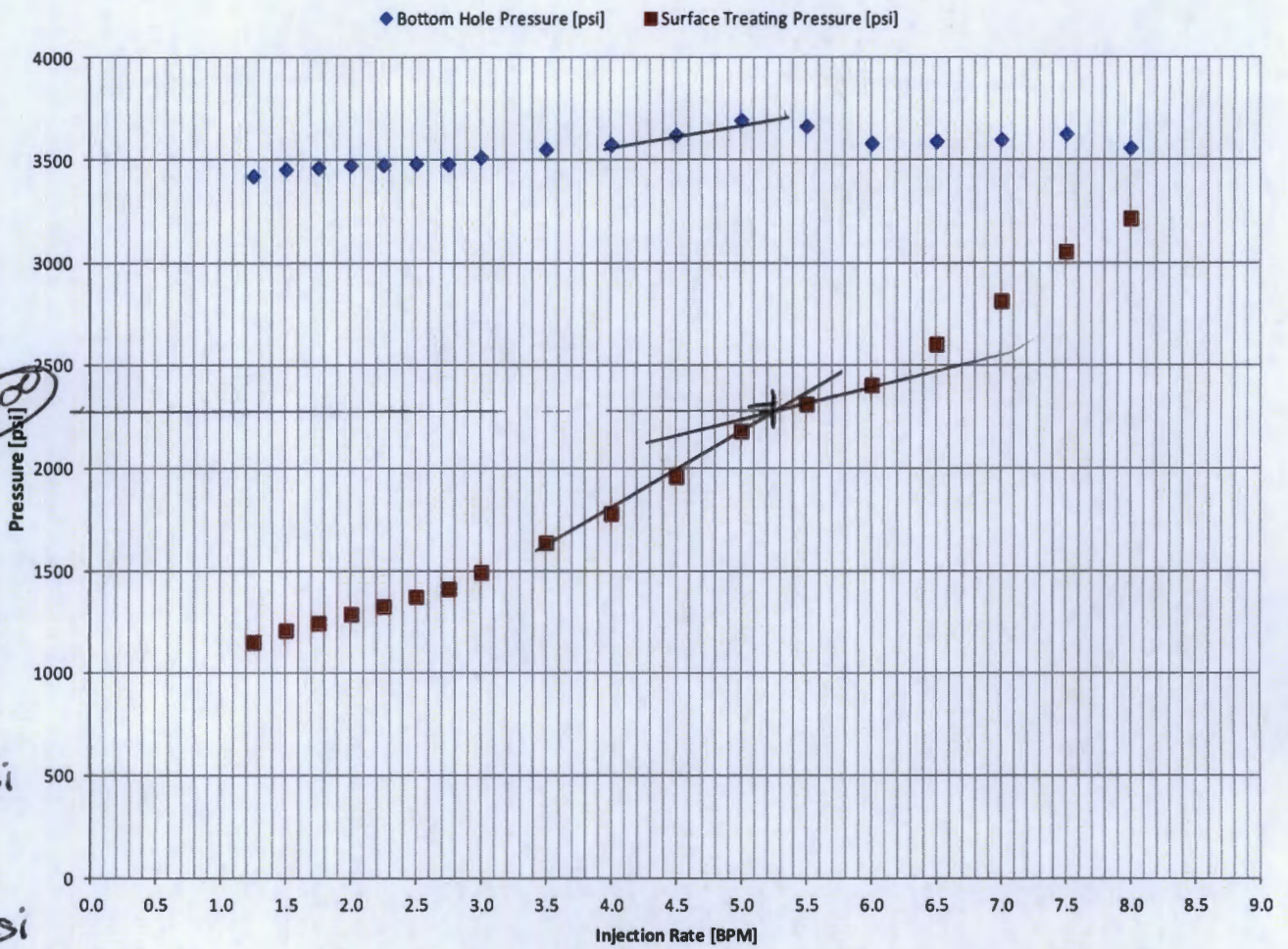


Figure 2: Surface Treating Pressure & Calculated Bottom Hole Pressure versus injection rate.

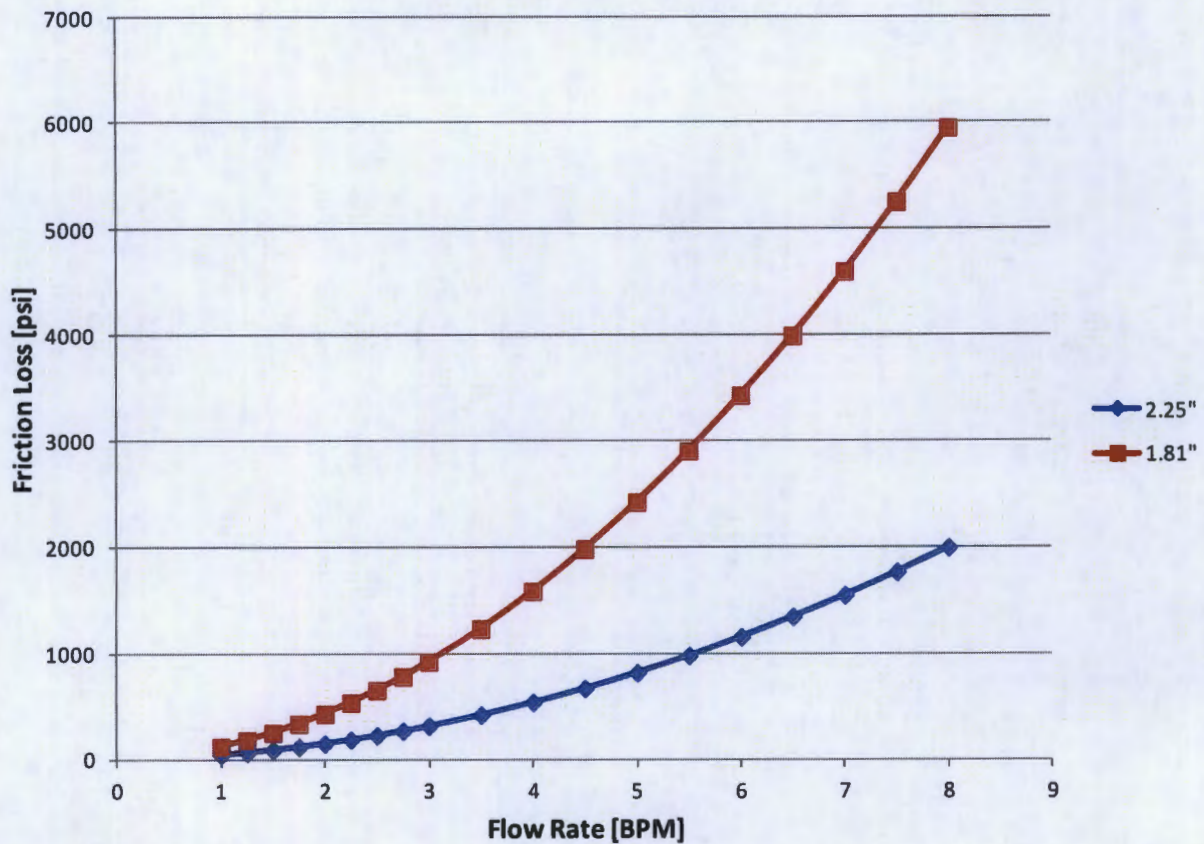


Figure 3: Frictional Pressure Loss comparison in a tubing ID of 2.25" versus 1.81" set at a depth of 5323 feet.

Please advise if any additional data is required in order to make a ruling of the proposed increase in permitted injection pressure.

Best regards

Joseph M. Evans
Production Engineer
SE New Mexico Reservoir Management Team
OXY Permian Primary Development.
Office - 713-350-4640
Cell - 713-855-0624
joseph_evans@oxy.com

cc: NMOCD-Artesia, BLM-Carlsbad



New Mexico Energy, Minerals and Natural Resources Department

Bill Richardson
Governor

Jim Noel
Cabinet Secretary

Karen W. Garcia
Deputy Cabinet Secretary

Mark Fesmire
Division Director
Oil Conservation Division



Administrative Order SWD-1244
September 3, 2010

ADMINISTRATIVE ORDER OF THE OIL CONSERVATION DIVISION

Under the provisions of Division Rule 26.8B, OXY USA, Inc. seeks an administrative order to utilize its Lost Tank 3 Federal Well No. 25 (API 30-015-NA) to be located 1500 feet from the North line and 541 feet from the East line, Unit Letter H of Section 3, Township 22 South, Range 31 East, NMPM, Eddy County, New Mexico, for produced water disposal purposes.

THE DIVISION DIRECTOR FINDS THAT:

The application has been duly filed under the provisions of Division Rule 26.8B. Satisfactory information has been provided that affected parties as defined in Rule 26.8B.(2) have been notified and no objections have been received within the prescribed waiting period. The applicant has presented satisfactory evidence that all requirements prescribed in Rule 26.8 will be met and the operator is in compliance with Division Rule 5.9.

IT IS THEREFORE ORDERED THAT:

The applicant, OXY USA, Inc., is hereby authorized to utilize its Lost Tank 3 Federal Well No. 25 (API 30-015-NA) to be located 1500 feet from the North line and 541 feet from the East line, Unit Letter H of Section 3, Township 22 South, Range 31 East, NMPM, Eddy County, New Mexico, for disposal of oil field produced water (UIC Class II only) into the Cherry Canyon member of the Delaware Mountain Group through perforations from approximately 5355 feet to 6137 feet through lined tubing and a packer set within 100 feet of the disposal interval.

IT IS FURTHER ORDERED THAT:

The operator shall take all steps necessary to ensure that the disposed water enters only the proposed disposal interval and is not permitted to escape to other formations or onto the surface.

After installing tubing, the casing-tubing annulus shall be loaded with an inert fluid and equipped with a pressure gauge or an approved leak detection device in order to determine



leakage in the casing, tubing, or packer. The casing shall be pressure tested from the surface to the packer setting depth to assure casing integrity.

The wellhead injection pressure on the well shall be limited to **no more than 1071 psi**. In addition, the disposal well or system shall be equipped with a pressure limiting device in workable condition which shall, at all times, limit surface tubing pressure to the maximum allowable pressure for this well.

The Director of the Division may authorize an increase in tubing pressure upon a proper showing by the operator of said well that such higher pressure will not result in migration of the disposed fluid from the target formation. Such proper showing shall be demonstrated by sufficient evidence including but not limited to an acceptable Step-Rate-Test.

The operator shall notify the supervisor of the Division's district office of the date and time of the installation of disposal equipment and of any mechanical integrity test so that the same may be inspected and witnessed. The operator shall provide written notice of the date of commencement of disposal to the Division's district office. The operator shall submit monthly reports of the disposal operations on Division Form C-115, in accordance with Division Rules 26.13 and 7.24.

Without limitation on the duties of the operator as provided in Division Rules 30 and 29, or otherwise, the operator shall immediately notify the Division's district office of any failure of the tubing, casing or packer in the well, or of any leakage or release of water, oil or gas from around any produced or plugged and abandoned well in the area, and shall take such measures as may be timely and necessary to correct such failure or leakage.

The injection authority granted under this order is not transferable except upon division approval. The division may require the operator to demonstrate mechanical integrity of any injection well that will be transferred prior to approving transfer of authority to inject.

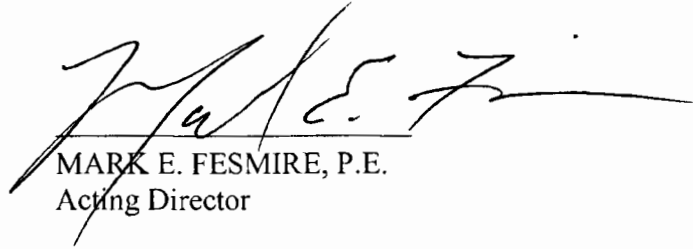
The division may revoke this injection permit after notice and hearing if the operator is in violation of 19.15.5.9 NMAC.

In accordance with Division Rule No 26.12.C., the disposal authority granted herein shall terminate one year after the effective date of this order if the operator has not commenced injection operations into the subject well, provided however, the Division, upon written request, mailed by the operator prior to the termination date, may grant an extension thereof for good cause. One year after disposal into the well has ceased, the authority to dispose will terminate *ipso facto*.

Compliance with this order does not relieve the operator of the obligation to comply with other applicable federal, state or local laws or rules, or to exercise due care for the protection of fresh water, public health and safety and the environment.

Jurisdiction is retained by the Division for the entry of such further orders as may be necessary for the prevention of waste and/or protection of correlative rights or upon failure of the

operator to conduct operations (1) to protect fresh or protectable waters or (2) consistent with the requirements in this order, whereupon the Division may, after notice and hearing, terminate the disposal authority granted herein.



MARK E. FESMIRE, P.E.
Acting Director

MEF/wvjj

cc: Oil Conservation Division – Artesia
Bureau of Land Management – Carlsbad