

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-518

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[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

*Copy Mailed 7/30/13*

[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

Sp. Regulatory Advisor 7/30/13  
 Title Date

OKY USA Inc. - 16696  
Nel Federal SWD #4  
30-015-24424

SWD-518

david.stewart@oxy.com  
 e-mail Address 432-685-5217

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

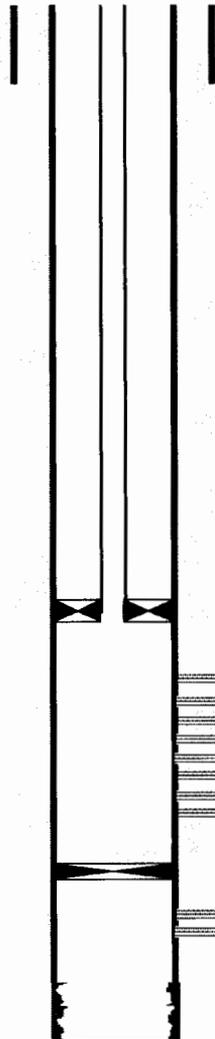
OXY USA Inc. (16696) formally requests an increase in maximum injection pressure to 1084 psi for the following approved SWD permit. The justification will be presented herein.

*NELL o- NEL*

Well Name: ~~NEL~~ Federal SWD #4  
 API#: 30-015-24424  
 1980 FNL 720 FEL SENE(H) Sec 9 T23S R28E  
 Administrative Order SWD-518 6/9/93

The SWD well is completed in the Bell Canyon and Upper Cherry Canyon (2956–3576') with 2.875" composite lined tubing (2.25" ID) set at a depth of 2924'. See Figure 1 below:

<b>Well Name</b>	Nell 0004 SWD
<b>API</b>	3001524424
<b>Location</b>	Sec 9-23S-28E
<b>Spud</b>	4/10/1983
<b>Convert to SWD</b>	12/2/1993
<b>KB</b>	14'
<b>Hole size</b>	12-1/4"
<b>Surface casing</b>	8-5/8"
<b>Set @</b>	445'
<b>Cement</b>	Surface
<b>Hole size</b>	7-7/8"
<b>Production Casing</b>	5-1/2"
<b>Set @</b>	3769'
<b>Cement</b>	Surface
<b>Tubing String</b>	
2-7/8" set @	2924'
On/Off tool. Set @	2926'
Packer. Set @	2932'
<b>PBTD</b>	3589
<b>TD</b>	4135



*1084 psi = 0.366  
 2956 ft  
 Delawire  
 - Bell & Upper Cherry*

Figure 1: NEL Federal SWD No. 4 SWD Well Schematic.

On 7/17/2013 a planned step rate test was performed on the NEL Federal SWD No. 4 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]
576	0.40	10	833
720	0.50	17	916
864	0.60	26	963
1008	0.70	35	1007
1152	0.80	45	1042
1296	0.90	60	1099
1440	1.00	76	1134
1584	1.10	92	1164
1728	1.20	109	1190
2160	1.50	133	1245
2520	1.75	158	1276
2880	2.00	189	1326
3240	2.25	222	1366
3960	2.75	247	1444

Table 1: NEL Federal SWD No. 4 Step Rate test data.

The formation parting pressure was determined to be 2394 psi during the step-rate test (See Figure 2.) The corresponding surface treating pressure when the formation parted was 1134 psi. The requested increase to 1084 psi surface injection pressure represents an equivalent bottom-hole pressure well below the formation parting pressure. A conservative approach was taken in regards to injection rates in order to eliminate the possibility of fracture propagation into a non-disposal zone, thus the step rate test was terminated once it was apparent that the formation parted.

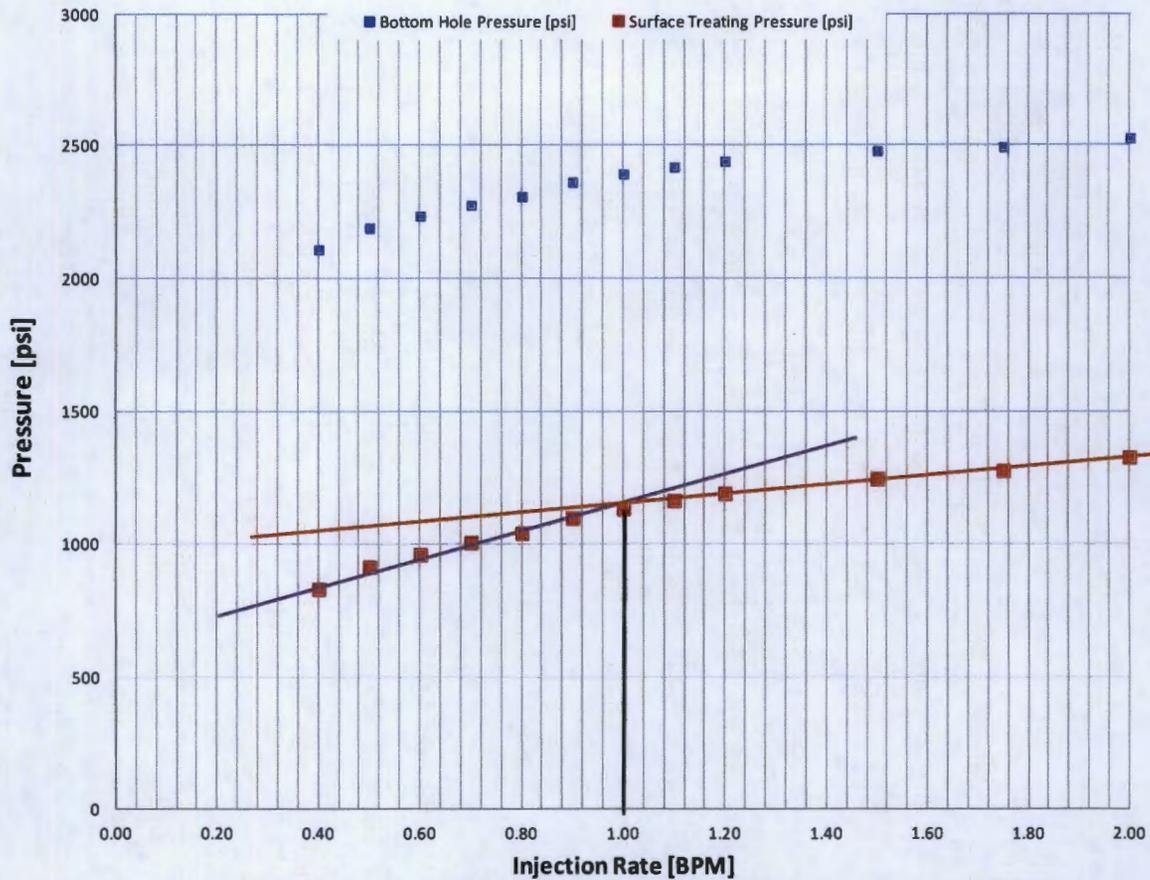


Figure 2: Surface Treating Pressure & Calculated Bottom Hole Pressure versus injection rate.

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](mailto:joseph_evans@oxy.com)

cc: NMOCD-Artesia, BLM-Carlsbad



STATE OF NEW MEXICO  
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION



BRUCE KING  
GOVERNOR

ANITA LOCKWOOD  
CABINET SECRETARY

POST OFFICE BOX 2088  
STATE LAND OFFICE BUILDING  
SANTA FE NEW MEXICO 87504  
(505) 827-5800

*ADMINISTRATIVE ORDER SWD-518*

***APPLICATION OF POGO PRODUCING COMPANY FOR SALT WATER DISPOSAL,  
EDDY COUNTY, NEW MEXICO.***

**ADMINISTRATIVE ORDER  
OF THE OIL CONSERVATION DIVISION**

Under the provisions of Rule 701(B), Pogo Producing Company made application to the New Mexico Oil Conservation Division on May 11, 1993, for permission to complete for salt water disposal its NEL Federal Well No. 4 located 1980 feet from the North line and 720 feet from the East line (Unit H) of Section 9, Township 23 South, Range 28 East, NMPM, Eddy County, New Mexico.

**THE DIVISION DIRECTOR FINDS THAT:**

- (1) The application has been duly filed under the provisions of Rule 701(B) of the Division Rules and Regulations;
- (2) Satisfactory information has been provided that all offset operators and surface owners have been duly notified;
- (3) The applicant has presented satisfactory evidence that all requirements prescribed in Rule 701 will be met; and
- (4) No objections have been received within the waiting period prescribed by said rule.

**IT IS THEREFORE ORDERED THAT:**

The applicant herein, Pogo Producing Company is hereby authorized to complete its NEL Federal Well No. 4 located 1980 feet from the North line and 720 feet from the East line (Unit H) of Section 9, Township 23 South, Range 28 East, NMPM, Eddy County, New Mexico, in such manner as to permit the injection of salt water for disposal purposes into the Bell Canyon and Upper Cherry Canyon formations at approximately 2652 feet to 3576 feet through 2 7/8-inch plastic-lined tubing set in a packer located at approximately 2560 feet.

**IT IS FURTHER ORDERED THAT:**

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

Prior to commencing injection operations into the well, the casing shall be pressure tested from the surface to the packer setting depth to assure the integrity of said casing.

The casing-tubing annulus shall be loaded with an inert fluid and equipped with a pressure gauge at the surface or left open to the atmosphere to facilitate detection of leakage in the casing, tubing, or packer.

The injection well or system shall be equipped with a pressure limiting device which will limit the wellhead pressure on the injection well to no more than 530 psi.

The Director of the Division may authorize an increase in injection pressure upon a proper showing by the operator of said well that such higher pressure will not result in migration of the injected fluid from the Bell Canyon and Upper Cherry Canyon formations. Such proper showing shall consist of a valid step-rate test run in accordance with and acceptable to this office.

The operator shall notify the supervisor of the Artesia district office of the Division of the date and time of the installation of disposal equipment and of the mechanical integrity test so that the same may be inspected and witnessed.

The operator shall immediately notify the supervisor of the Artesia district office of the Division of the failure of the tubing, casing, or packer in said well and shall take such steps as may be timely and necessary to correct such failure or leakage.

**PROVIDED FURTHER THAT,** jurisdiction of this cause is hereby retained by the Division for the entry of such further order or orders as may be deemed necessary or convenient for the prevention of waste and/or protection of correlative rights; upon failure of the operator to conduct operations in a manner which will ensure the protection of fresh water or in a manner inconsistent with the requirements set forth in this order, the Division may, after notice and hearing, terminate the injection authority granted herein.

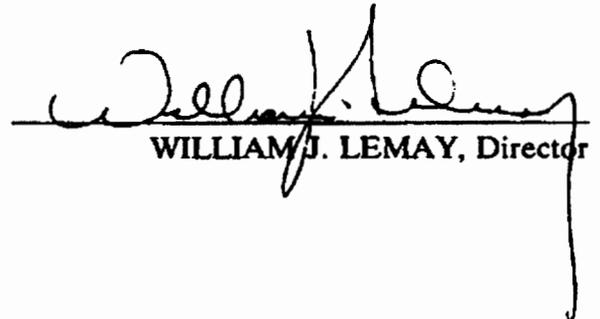
The operator shall submit monthly reports of the disposal operations in accordance with Rule Nos. 706 and 1120 of the Division Rules and Regulations.

*Administrative Order SWD-518*  
*Pogo Producing Company*  
*June 9, 1993*  
*Page 3*

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The injection 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 by the operator, may grant an extension thereof for good cause shown.

Approved at Santa Fe, New Mexico, on this 9th day of June, 1993.

  
WILLIAM J. LEMAY, Director

WJL/BES/amg

xc: Oil Conservation Division - Artesia  
US Bureau of Land Management - Carlsbad