

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-542 / IPI-212

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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 [Signature] SR Regulatory Advisor 7/30/13
 Print or Type Name Signature Title Date

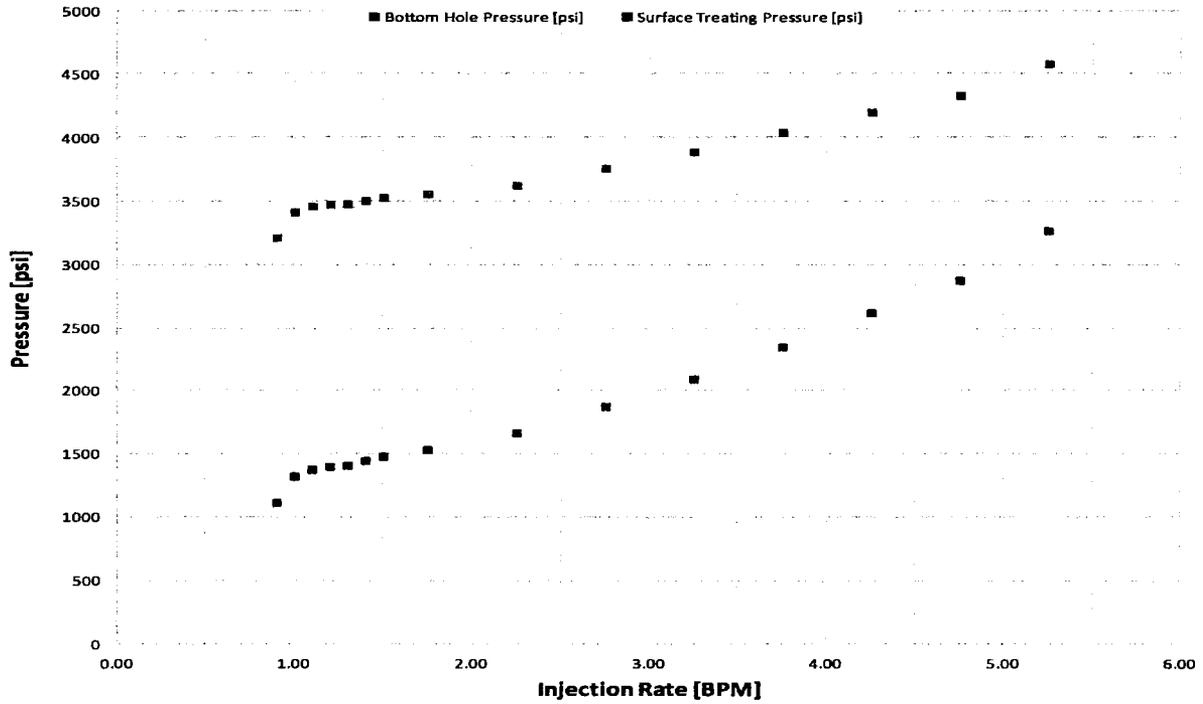
OXY USA Inc. - 16699
 SDS 11 Federal # 1
 30-015-27627

SWD-542

david.stewart@oxy.com
 e-mail Address 432-685-5717

SOS 11 FEDERAL #1 (SWD-542)

A clear FPP was inconclusive even after plotting the step rate test results again. Please feel free to call if you want to discuss this one further.



Rate [bbls/min]	Tubing Head Pressure [psi]
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0.90	1117
1.00	1324
1.10	1378
1.20	1400
1.30	1410
1.40	1446
1.50	1482
1.75	1533
2.25	1665
2.75	1875
3.25	2094
3.75	2350
4.25	2623
4.75	2880
5.25	3270

Prior SRT/IPI-272
- 0.69/648

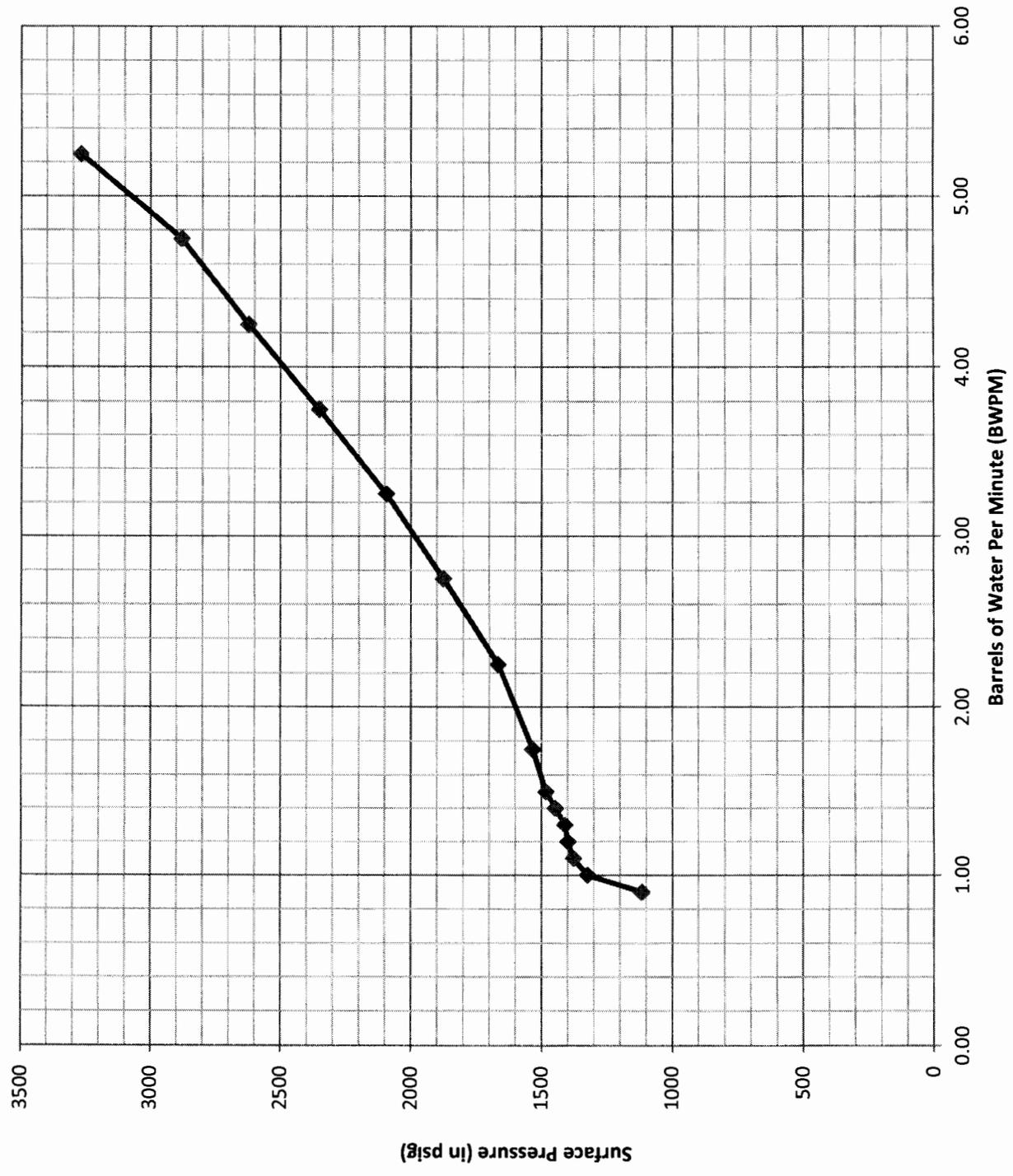
- 1.23/739

- 1.76/997

- 3.2/2252 - Maximum pressure for SRT, No frack observed / 2200 permitted

- No frac parting

SDS 11 Federal #1: Surface Pressure vs. Injection Rate



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 3170 psi for the following approved SWD permit. The justification will be presented herein.

Well Name: SDS 11 Federal 1
 API#: 30-015-27627
 2090 FNL 1980 FWL SENW(F) Sec 11 T24S R31E
 Administrative Order SWD-542 12/20/93 – IPI-272 10/24/06 – 2200#

The SWD well is completed in the Bell Canyon (4510–4822') with 2.875" composite lined tubing (2.25" ID) set at a depth of 4381'. See Figure 1 below:

Well Name	SDS 11 SWD
API	3001527627
Location	Sec 11 T24S R31E
KB	11'

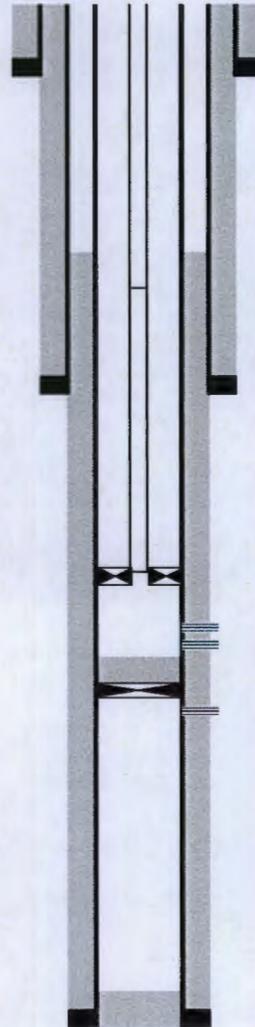
Hole size	14-3/4"
Surface casing	11-3/4" 42#
Set @	418'
Cement	485 sx

Hole size	11"
Intermediate Casing	8-5/8" 32#
Set @	4450'
Cement	1773 sx

Hole size	7-7/8"
Production Casing	5-1/2" 15.5# & 17#
Set @	8440'
Cement	974 sx
TOC	4000'

Tubing String	
Tubing, 2-7/8" & Packer	set @ 4381'

CIBP SET @ 4923'



2200 psi / 4510 ft = 0.487 psi/ft
 3170 psi / 4510 ft = 0.701 psi/ft

Bell Canyon

3170
~~2200~~
 3170

4510' - 4640' - 4 SPF (520 holes)
 4672' - 4822' 1 SPF (250 holes)

4962' - 5212' [153 holes]

PBTD: 8350'

TD: 8440'

Figure 1: SDS 11 Federal #1 SWD Well Schematic.

On 7/11/2013 a planned step rate test was performed on the SDS 11 Federal #1 SWD well 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]
1296	0.90	14 - 15 min	1117
1440	1.00	29 - 15 min	1324
1584	1.10	45	1378
1728	1.20	63	1400
1872	1.30	83	1410
2016	1.40	104 - 15 min	1446
2160	1.50	126	1482
2520	1.75	152	1533
3240	2.25	186	1665
3960	2.75	227	1875
4680	3.25	276 -	2094
5400	3.75	332	2350
6120	4.25	396	2623
6840	4.75	467	2880
7560	5.25	536	3270

Table 1: SDS 11 Federal #1 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. It is important to note that the previous step rate test (dated October 2006) did not achieve the formation parting pressure with a maximum injection surface tubing pressure of 2252 psi.

The calculated flowing bottom-hole pressure during the test was found to have never exceeded 4582 psi with a corresponding surface treating pressure of 3270 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 3170 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.

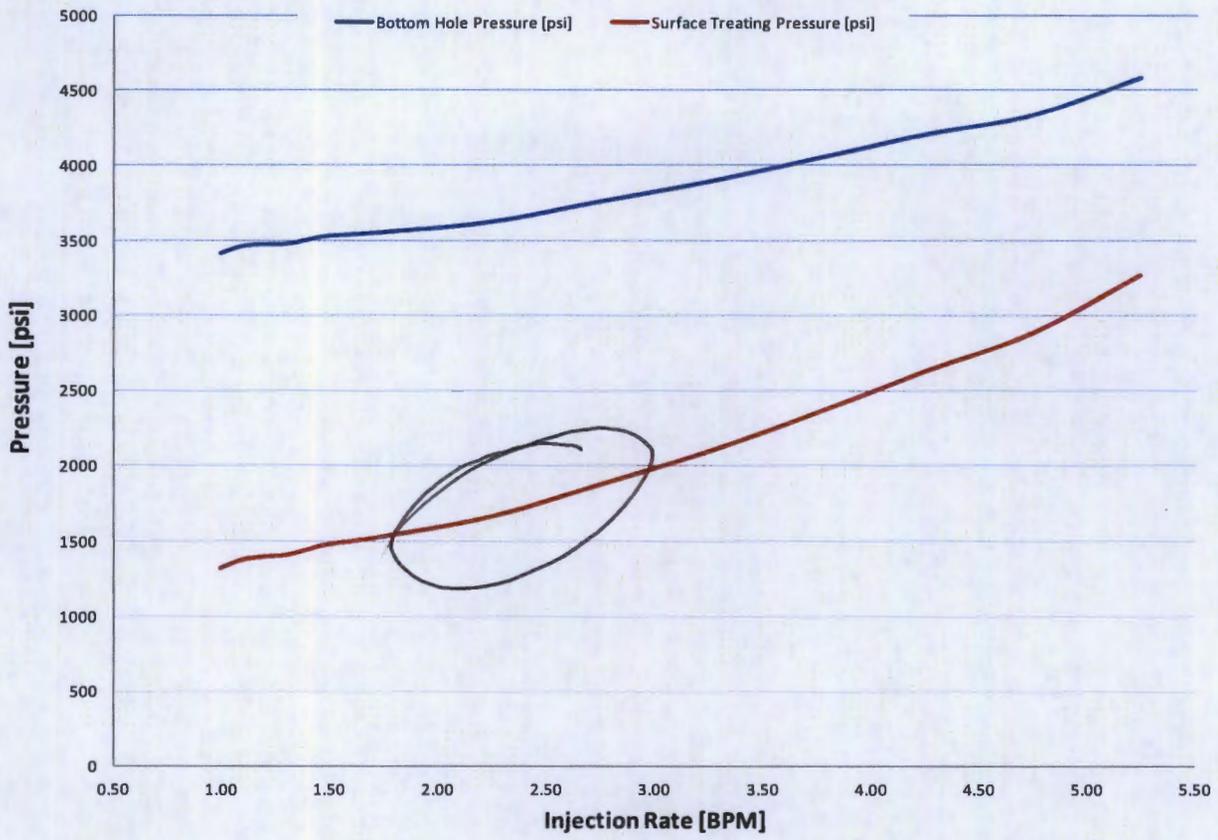


Figure 2: Surface Treating Pressure & Calculated Bottom Hole Pressure versus injection rate.

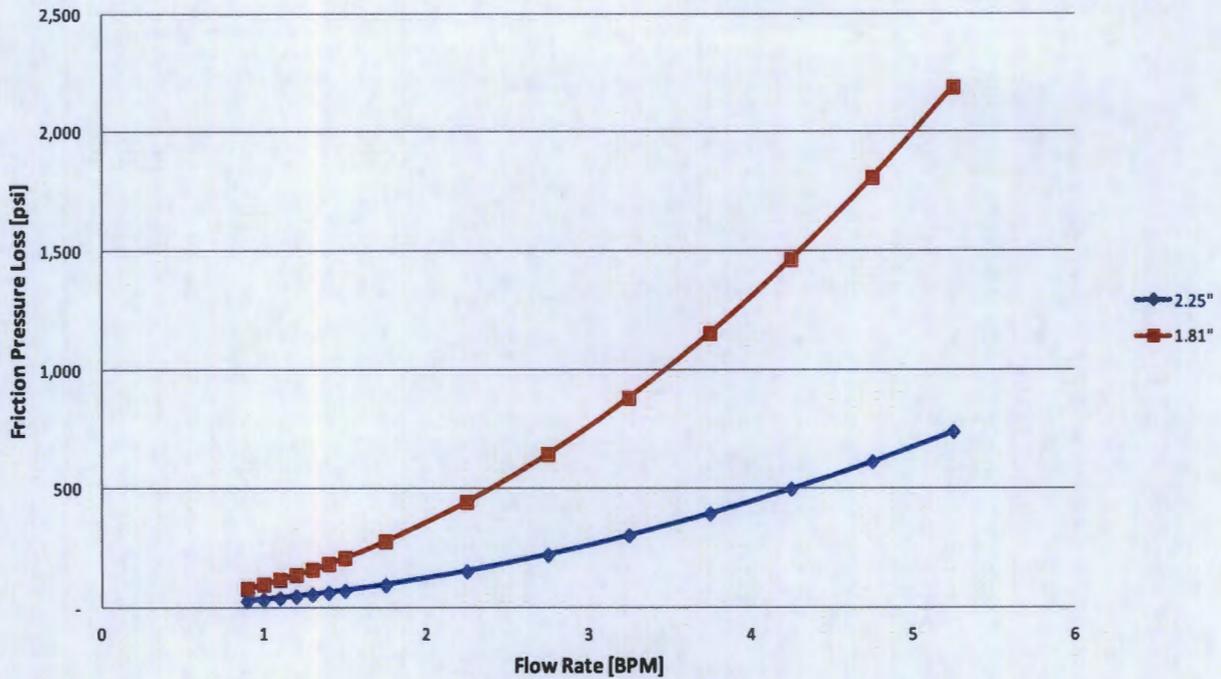


Figure 3: Frictional Pressure Loss comparison in a tubing ID of 2.25" versus 1.81" set at a depth of 4381 feet.

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



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-542

APPLICATION OF MERIT ENERGY COMPANY FOR SALT WATER DISPOSAL, EDDY COUNTY, NEW MEXICO.

**ADMINISTRATIVE ORDER
OF THE OIL CONSERVATION DIVISION**

Under the provisions of Rule 701(B), Merit Energy Company made application to the New Mexico Oil Conservation Division on November 23, 1993, for permission to complete for salt water disposal its SDS Federal "11" Well No. 1 located 2090 feet from the North line and 1980 feet from the West line (Unit F) of Section 11, Township 24 South, Range 31 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, Merit Energy Company is hereby authorized to complete its SDS Federal "11" Well No. 1 located 2090 feet from the North line and 1980 West feet from the West line (Unit F) of Section 11, Township 24 South, Range 31 East, NMPM, Eddy County, New Mexico, in such manner as to permit the injection of salt water for disposal purposes into the Bell Canyon formation at approximately 4508 feet to 5498 through 2 7/8-inch plastic-lined tubing set in a packer located at approximately 4408 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 902 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 formation. 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-542

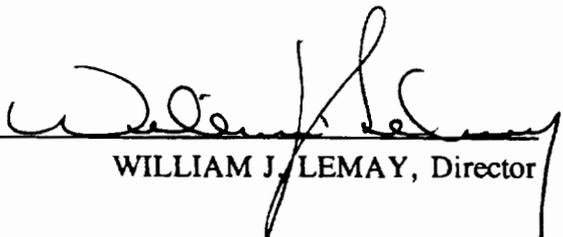
Merit Energy Company

December 20, 1993

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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 20th day of December, 1993.


WILLIAM J. LEMAY, Director

WJL/BES/amg

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



NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

BILL RICHARDSON
Governor
Joanna Prukop
Cabinet Secretary

Mark E. Fesmire, P.E.
Director
Oil Conservation Division

October 24, 2006

Division Order No. IPI-272

Pogo Producing Company
P.O. Box 10340
Midland, Texas 79702-7340

Attention: Mr. Barrett L. Smith

**RE: Injection Pressure Increase
SDS "11" Federal Well No. 1
Eddy County, New Mexico**

Dear Mr. Smith:

Reference is made to your request received by the Division on October 19, 2006, to increase the surface injection pressure on the SDS "11" Federal Well No. 1. This request is based on a step rate test conducted on the well on October 6, 2006. The results of the step rate test show that an increase in the surface injection pressure for this well is justified and will not result in the fracturing of the injection formation and confining strata.

You are therefore authorized to increase the surface injection pressure on the following well:

WELL NAME & NUMBER	MAXIMUM SURFACE INJECTION PRESSURE
SDS "11" Federal Well No. 1 API No. 30-015-27627 Unit F, Section 11, T-24 South, R-31 East, NMPM, Eddy County, New Mexico	2,200 PSIG

The Division Director may rescind this injection pressure increase if it becomes apparent that the injected fluid is not being confined to the injection zone or is endangering any fresh water aquifers.

Administrative Order No. IPI-272
Pogo Producing Company
October 24, 2006
Page 2

Sincerely,



Mark E. Fesmire, P.E.
Division Director

cc: Oil Conservation Division - Artesia
File: SWD-542