

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION



BRUCE KING
GOVERNOR

May 9, 1991

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

Blackwood & Nichols Co., Ltd.
P.O. Box 1237
Durango, CO 81302

Attention: Jim Abbey

**RE: Injection Pressure Increase
Middle Mesa SWD No. 1
San Juan County, New Mexico**

Dear Mr. Abbey:

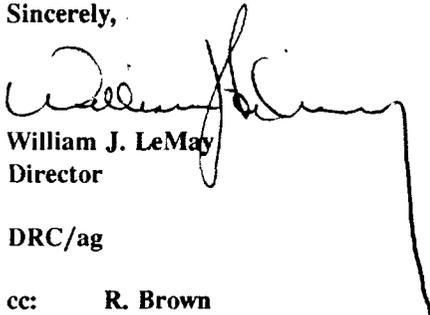
Reference is made to your request dated April 19, 1991, to increase the surface injection pressure on the Middle Mesa SWD Well No. 1. This request is based on a step rate test conducted on the well on April 18, 1991. The results of the test have been reviewed by my staff and we feel an increase in injection pressure is justified at this time.

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

WELL AND LOCATION	MAXIMUM SURFACE INJECTION PRESSURE
Middle Mesa SWD No. 1 Unit G, Section 32, Township 31 North, Range 7 West, NMPM, San Juan County, New Mexico	2150 PSIG

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

Sincerely,



William J. LeMay
Director

DRC/ag

cc: R. Brown
D. Catanach
File - SWD-365
OCD-Aztec

Dave Catanach

OIL CONSERVATION DIVISION
RECEIVED BLACKWOOD & NICHOLS CO.
A LIMITED PARTNERSHIP
'91 APR 22 AM 9 46 P.O. BOX 1237
DURANGO, COLORADO 81302-1237
(303) 247-0728

April 19, 1991

Mr. Frank Chavez
Oil Conservation Division
1000 Rio Brazos Drive
Aztec, New Mexico 87410

Re: Middle Mesa SWD #1 Surface Pressure Variance

Dear Frank:

The Middle Mesa SWD #1 Step Rate results are enclosed for your review. Blackwood & Nichols believes the pressure data supports our request for an increased surface pressure limit of 2500 psig.

Water Injection Volumes

The Middle Mesa Trunk A Gathering System currently has 21 coal wells connected. Future pipeline construction will add another 33 coal wells. As of 4-14-91, nine (9) wells were producing an average of 13.4 MMCFD and 3100 BWP. Our estimated water production for Trunk A alone may exceed 10,000 BWP when all 21 wells are turned on.

Frank Chavez
April 19, 1991
Page two

Step Rate Results

The Step Rate Test indicated no parting occurs when flowing bottom hole pressures at 8905' remain below 5464 psig. Based on this information, Blackwood & Nichols finds no reason to believe an increased surface injection pressure of 2500 psig will result in fluid contamination outside the intended Morrison-Entrada Disposal Interval.

Sincerely,



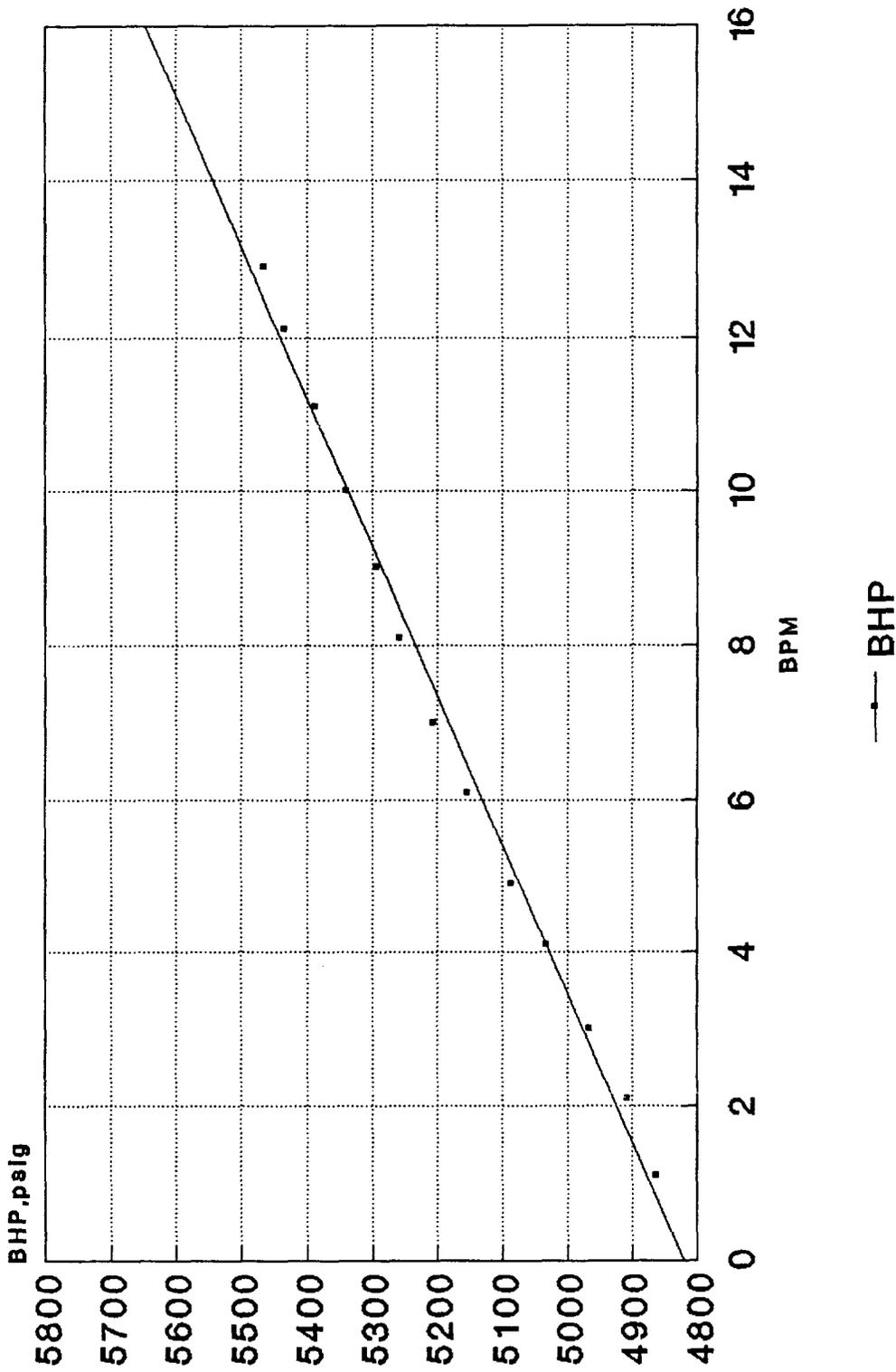
Jim Abbey
Operations Engineer
BLACKWOOD & NICHOLS CO., LTD

JKA/avd

cc: Dave Catanach - NMOCD, Santa Fe
Mack Duckworth - Devon Energy, Oklahoma City
Mark Manson - Blackwood & Nichols, Durango

MIDDLE MESA STEP-RATE TEST

April 18, 1991



Recorder depth = 8905'.
Best fit trend line.

Blackwood & Nichols
Middle Mesa step-rate test
April 18, 1991

DATA TABLE

<u>RATE</u>	<u>SURFACE</u>	<u>BHP</u>	<u>H.HEAD</u>	<u>FRICTION</u>
1.1	986	4862	3901	25
2.1	1130	4908	3901	123
3	1288	4966	3901	223
4.1	1508	5032	3901	377
4.9	1652	5086	3901	467
6.1	1947	5154	3901	694
7	2190	5205	3901	886
8.1	2500	5258	3901	1143
9	2787	5293	3901	1395
10	3150	5340	3901	1711
11.1	3530	5387	3901	2044
12.1	3940	5434	3901	2407
12.9	4280	5464	3901	2717

Recorder depth @ 8905'
Injection test down 3.5" plastic lined tubing.

April 19, 1991

STEP RATE TEST
MIDDLE MESA SWD #1

LOCATION

1650' FNL, 1480' FEL
Section 32, T31N, R7W
San Juan County, New Mexico

WELL DATA

Casing record:

<u>Casing Size</u>	<u>Depth</u>	<u>Weight</u>
20"	308'	94#, H-40
13 3/8"	3622'	68/61#, K-55
9 5/8"	Top 3390' Bottom 5783'	40#, K-55
7"	9000', PBT 8990'	26#, S-95

Tubing record:

3-1/2" Plastic Lined, J-55, 9.3#/ft set at 7982'.

Otis 7" PL packer set at 7982'.

PERFORATING RECORD

<u>Formation</u>	<u>Top Perforation</u>	<u>Bottom Perforation</u>
Upper Morrison	8064'	8260'
Lower Morrison	8300'	8460'
Bluff	8514'	8634'
Entrada	8786'	8899'