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North Vacuum Abo Unit

Daily Injection Rate and Pressure Readings

NVAU	136W		156W		213W		Total Inj
Date	Bwpd	Psig	Bwpd	Psig	Bwpd	Psig	Bwpd
1/1/98	166	3200	100	2100			266
1/2/98	173	3225	100	2125			273
1/3/98	207	3450	180	2225			387
1/4/98	202	3460	176	2560			378
1/5/98	200	3500	170	2600			370
1/6/98	195	3600	225	2800	105	2250	525
1/7/98	333	3825	325	3150	260	2800	918
1/10/98	350	4000	295	3550	105	3100	750
1/11/98	337	4025	227	3400	205	3326	769
1/12/98	323	4025	225	3400	195	3400	743
1/13/98	315	4025	235	3450	185	3450	735
1/14/98	310	4050	233	3450	182	3500	725
1/15/98	293	4050	230	3500	175	3500	698
1/16/98	294	4050	225	3525	174	3600	693
1/17/98	288	4050	235	3600	186	3700	709
1/18/98	285	4050	255	3650	241	3800	781
1/19/98	280	4050	285	3750	242	3850	807
1/20/98	275	4050	277	3775	262	3925	814
1/21/98	305	4100	290	3800	285	4000	880
1/23/98	265	4050	270	4000	225	4000	760
1/24/98	246	4000	267	3950	223	4000	736
1/25/98	244	4000	257	4000	209	4000	710
1/26/98	244	4000	257	4000	190	4050	691
1/27/98	263	4050	279	4000	181	4050	723
1/28/98	258	4050	295	4050	200	4100	753
1/29/98	235	4000	265	4000	173	4100	673
1/30/98	248	4025	292	4000	182	4100	722
1/31/98	245	4050	287	3950	188	4100	720
2/1/98	245	4050	285	3950	186	4100	716
2/2/98	242	4050	285	3975	188	4125	715
2/3/98	243	4050	297	4000	200	4125	740
2/4/98	240	4050	292	4000	205	4125	737
2/5/98	238	4050	360	3900	281	4125	879
2/6/98	251	4050	398	3900	304	4125	953
2/7/98	235	4050	280	4000	261	4150	776
2/8/98	233	4050	300	4000	230	4150	763
2/9/98	236	4025	300	4000	268	4150	804

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION



BRUCE KING
GOVERNOR



POST OFFICE BOX 2086
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87504
(505) 327-5800

April 14, 1992

Mobil Exploration & Producing U.S. Inc.
P.O. Box 633
Midland, Texas 79702-0633

Attention: Judy Dixon

*RE: Injection Pressure Increase
North Vacuum Abo Unit
Pressure Maintenance Project
Lea County, New Mexico*

Dear Ms. Dixon:

Reference is made to your request dated April 6, 1992, to increase the surface injection pressure on twelve wells within the North Vacuum Abo Unit Pressure Maintenance Project. This request is based on step rate tests conducted on these wells during February, 1992. The results of the tests have been reviewed by my staff and we feel an increase in injection pressure on these wells is justified at this time.

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

<u>WELL AND LOCATION</u>	<u>MAXIMUM INJECTION SURFACE PRESSURE</u>
NVAU No. 95 Unit P, Section 26	4040 PSIG
NVAU No. 98 Unit J, Section 26	4140 PSIG
NVAU No. 112 Unit D, Section 25	4170 PSIG

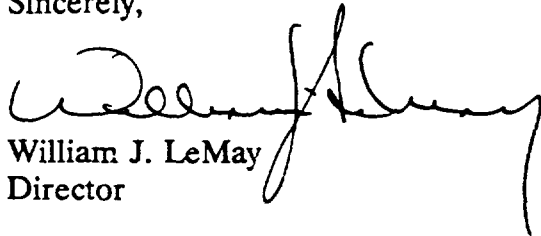
<u>WELL AND LOCATION</u>	<u>MAXIMUM INJECTION SURFACE PRESSURE</u>
NVAU No. 116 Unit L, Section 24	4245 PSIG
NVAU No. 136 Unit D, Section 26	4050 PSIG
NVAU No. 138 Unit I, Section 26	4365 PSIG
NVAU No. 143 Unit B, Section 27	4280 PSIG
NVAU No. 149 Unit J, Section 27	4215 PSIG
NVAU No. 152 Unit B, Section 13	4035 PSIG
NVAU No. 156 Unit J, Section 23	4200 PSIG
NVAU, No. 206 Unit D, Section 19	3100 PSIG
NVAU No. 211 Unit J, Section 24	4270 PSIG

All in Township 17 South, Range 34 East, NMPM
Lea County, New Mexico.

Mobil Exploration & Producing U.S. Inc.
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April 20, 1992

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

Sincerely,



William J. LeMay
Director

WJL/DC/jc

cc: Oil Conservation Division - Hobbs
File: PMX-138
PMX-140
WFX-557
D. Catanach
R. Brown



Water Analysis Report by Baker Petrolite

MOBIL E & P, INCORPORATED

NORTH VACUUM ABO UNIT
CENTRAL WATER STATION
INJECTION PUMP DISCHARGE

Account Manager
JERRY MUTSCHLER

Summary			Analysis of Sample 19805 @ 25°C					
Sampling Date	2/4/98	Anions	mg/l	meq/l	Cations	mg/l	meq/l	
Analysis Date	2/10/98	Chloride	75.0	2.12	Sodium	128	5.57	
Analyst	CHRIS BRASHER	Bicarbonate	207	3.39	Magnesium	1.50	0.12	
		Carbonate	0.00	0.00	Calcium	9.00	0.45	
TDS (mg/l or g/m ³)	455.753	Sulfate	33.0	0.69	Strontium	0.05	0.00	
Specific Gravity (g/cm ³ or tonne/m ³)	1.000	Phosphate	N/A	N/A	Barium	0.50	0.01	
Anion/Cation Ratio	1.00	Borate	N/A	N/A	Iron	0.10	0.00	
		Silicate	N/A	N/A	Potassium	1.50	0.04	
Carbon Dioxide	0 PPM				Aluminum	N/A	N/A	
Sample Condition		Hydrogen Sulfide		0 PPM	Chromium	N/A	N/A	
					Copper	N/A	N/A	
		pH at time of sampling		7.15	Lead	N/A	N/A	
		pH at time of analysis			Manganese	N/A	N/A	
		pH used in Calculations		7.15	Nickel	N/A	N/A	

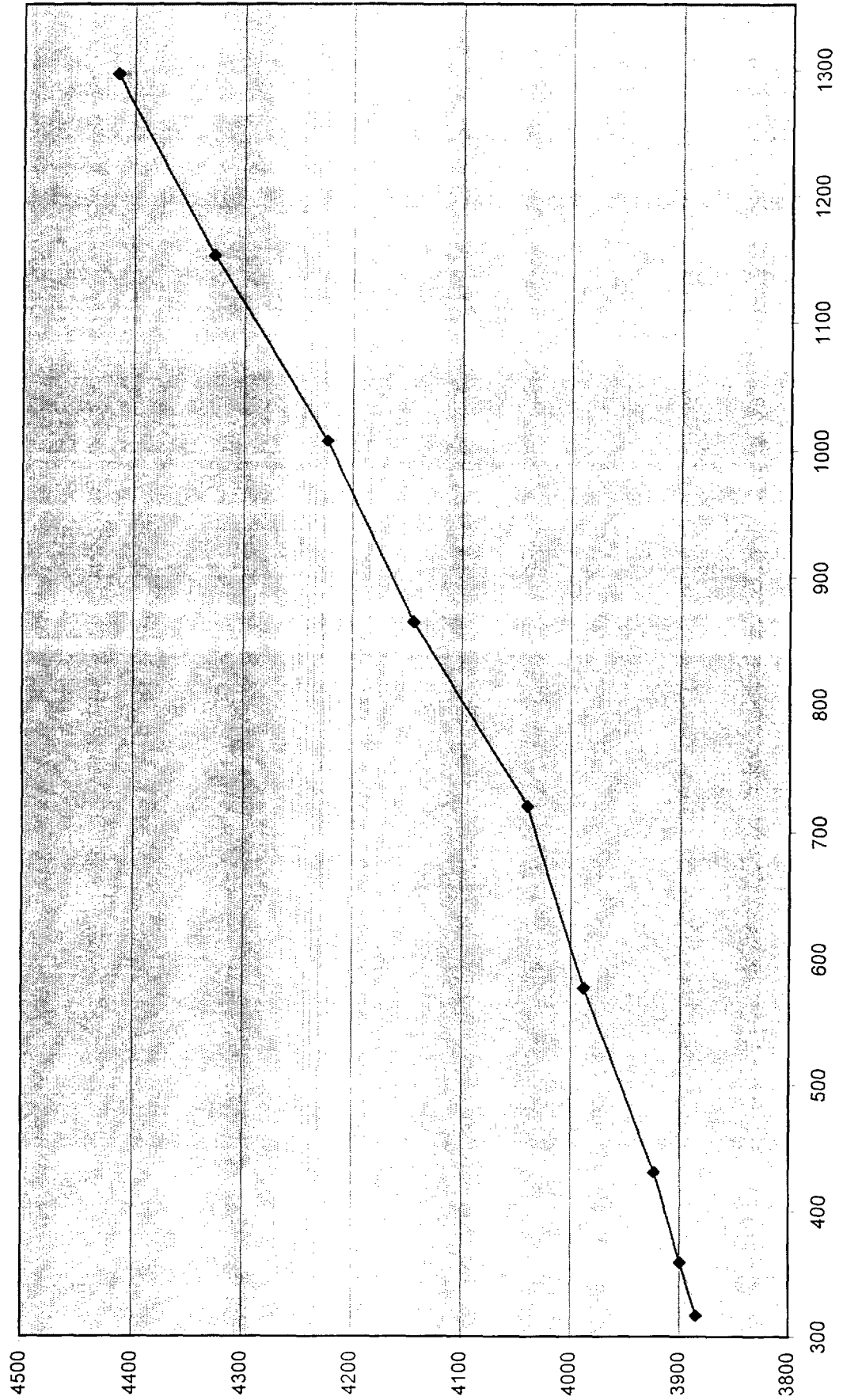
Conditions		Values Calculated at the Given Conditions - Amounts of Scale in lb/1000bbl							
Temp.	Gauge Press.	Calcite CaCO ₃	Gypsum CaSO ₄ · 2H ₂ O	Anhydrite CaSO ₄	Celestite SrSO ₄	Barite BaSO ₄	CO ₂ Press.		
°F	psi	Index Amount	Index Amount	Index Amount	Index Amount	Index Amount	Index Amount	psi	
80	0	1.02	2.85	2.92	3.39	0.70	0.24	0.22	
100	0	0.88	2.84	2.84	3.36	0.57	0.22	0.28	
120	0	0.72	2.82	2.74	3.31	0.46	0.20	0.35	
140	0	0.56	2.79	2.62	3.26	0.39	0.17	0.43	

Note 1: When assessing the severity of the scale problem, both the saturation index (SI) and amount of scale must be considered

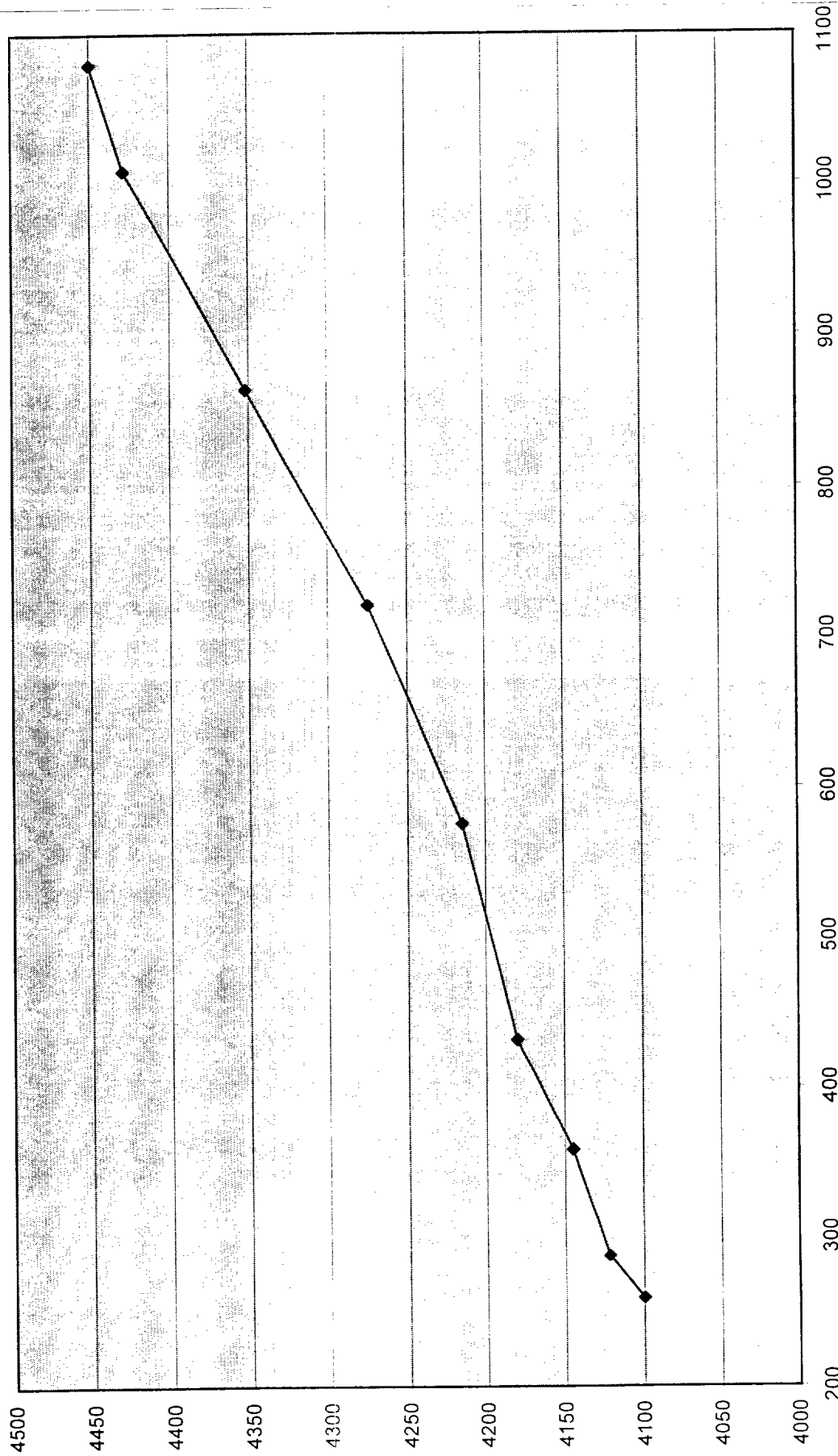
Note 2: Precipitation of each scale is considered separately. Total scale will be less than the sum of the amounts of the five scales

Note 3: The reported CO₂ pressure is in fact the CO₂ fugacity calculated from the water analysis. It may differ from the true CO₂ partial pressure

NVAU 136



NVAU 156



NVAU 213

