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OF COUNSEL

TELEPHONE (505) 982-4285  
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March 26, 1991

Mr. William J. LeMay  
Oil Conservation Division  
Post Office Box 2088  
Santa Fe, New Mexico 87504

Re: Application of Avon Energy Corporation  
For Amendment of Order R-3528 and  
R-3185 to Expand the Turner "B" Lease  
Waterflood Project and to Increase  
the Injection Pressure Limitation  
Eddy County, New Mexico

Dear Mr. LeMay:

On behalf of Avon Energy Corporation, please set the enclosed application to expand the vertical limits and to increase the injection limitation pressure in the Turner "B" Lease Waterflood Project in Eddy County, New Mexico for the next available Examiner's hearing now scheduled for April 18, 1991.

The following is suggested as a possible advertisement for this case:

Application of Avon Energy Corporation for Amendment to Division Order R-3185 and R-3528 to expand the vertical limits and to increase the injection pressure limitation for the Turner "B" Lease Waterflood Project, Eddy County, New Mexico. Applicant in the above styled cause, seeks an order increasing the surface injection limitation pressure to 450 psi above the formation parting pressure as determined from step-rate tests for four (4) injection wells in the Grayburg-San Andres formation of the Grayburg-Jackson Pool within the project area being all or parts of Sections 17, 20, 29, and 30 for T17S, R31E, Eddy County, New Mexico.

Mr. William J. LeMay  
March 26, 1991  
Page 2

By copy of this letter, and enclosed application, we are notifying all interested parties that they have the right to appear at the hearing either in support of or opposition to the application. Should they desire further information they may contact the undersigned or T.M. Hatfield, BHI Energy Corporation, (713) 870-1178.

Very truly yours,

A handwritten signature in black ink, appearing to read 'W. Thomas Kellahin', written over a horizontal line.

W. Thomas Kellahin

WTK/tic  
Enclosure

cc: T. M. Hatfield  
BHI Energy Corporation  
1153 Dairy Ashford, Suite 803  
Houston, Texas 77079

Certified mail return receipt  
All parties listed on Exhibit "C"  
of application

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

IN THE MATTER OF THE APPLICATION  
OF AVON ENERGY CORPORATION FOR  
AMENDMENT OF ORDER R-3528 AND R-3185  
TO EXPAND THE TURNER "B" LEASE  
WATERFLOOD PROJECT AND TO INCREASE  
THE INJECTION PRESSURE LIMITATION  
EDDY COUNTY, NEW MEXICO.

CASE NO. 10290

A P P L I C A T I O N

COMES NOW AVON ENERGY CORPORATION, by and through its attorneys, KELLAHIN, KELLAHIN & AUBREY, and applies to the New Mexico Oil Conservation Division for an order amending Order R-3185 and R-3528 for the Turner "B" Lease Waterflood Project, Eddy County, New Mexico, ~~to increase the injection limitation pressure to 450 psi above the formation parting pressure as determined from step-rate tests for the injection wells set forth on Exhibit "A", attached hereto and to expand said project to include the Grayburg and San Andres formations plus administrative procedure for drilling additional producers/injectors or converting oil producers to injectors at standard and unorthodox locations.~~

In support thereof applicant would show:

(1) Applicant is the operator of the Turner "B" Lease Waterflood Project being the NW/4SW/4; S/2S/2 of Section 17; all of Section 20; all of Section 29; and S/2 of Section 30, T17S, R31E, Eddy County, New Mexico as shown on Exhibit "B", attached hereto.

(2) The Turner "B" Lease Waterflood Project was initially approved by the New Mexico Oil Conservation Division effective February 1, 1967 by Order R-3185 authorizing injection of water into the Grayburg-San Andres formation (including the Premier) in the Grayburg-Jackson pool by the use of the following injection wells without a surface injection pressure limitation:

Turner "B" SP Well Nos. 3, 4, 5, 8,  
11, 30, 41, 67 and 78

(3) Then, by Division Order R-3185-A entered February 19, 1972, the New Mexico Oil Conservation Commission amended the prior order and corrected some of the well locations for the injection wells previously approved.

(4) Thereafter, by Division Order R-3528 entered October 22, 1968, the New Mexico Oil Conservation Commission approved the "Expansion" of the Turner "B"

Lease Waterflood Project authorizing injection of water only into the Premier sand of the Grayburg formation in the Grayburg-Jackson Pool by the use of the following injection wells without a surface injection pressure limitation:

Turner "B" SP Well Nos. 44, 46, 47, 50  
54, 55, 61, 64, 66, 68, 56 and 76

(5) Decline curve analysis indicates that 1.0 million barrels of oil may be recovered as a result of the vertical expansion of the Turner "B" Lease Waterflood Project under Order No. R-3185.

(6) The expansion of the injection into the Grayburg and San Andres formations in addition to the Premier zone of the Grayburg formation will provide the opportunity to make the existing waterflood more efficient and recover more oil than would otherwise be recovered.

(7) Log analysis from the injection wells operated under Order No. R-3185 indicate that all injected water is being contained within the Grayburg-San Andres formation.

(8) The area has shown that under the current limitation of .2 psi/ft. maximum surface injection pressure water cannot be injected in volumes required

to meet the economic limits of conducting the expanded waterflood project, resulting in a loss of 1.0 million barrels of secondary oil.

(9) Injection conducted at 450 psi above the parting pressure of the formation will create a fracture that will not propagate outside of the vertical limits of the Grayburg-San Andres formation.

(10) The improved injectivity from increased pressure limitation will allow for the timely completion of waterflood operations in the Turner "B" lease and result in an additional 1.0 million barrels of oil being recovered from the 1989 expanded area.

(11) That a new pressure limitation of 450 psi above the formation parting pressure as determined by step-rate tests is requested for the Turner "B" lease wells operated under Order R-3185 and as tabulated on Exhibit "A", attached hereto.

(12) That attached hereto as Exhibit "C" is a list of names and addresses of all interested parties to whom applicant has sent notice of the hearing of this application in accordance with the requirements of Rule 1207(4).

(13) That approval of this application will prevent waste, protect correlative rights, and will not constitute a risk to fresh water sources.

WHEREFORE, applicant requests that this matter be set for hearing and that after notice and hearing the application be granted as requested.

Respectfully submitted:

KELLAHIN, KELLAHIN & AUBREY

By: 

W. Thomas Kellahin  
Post Office Box 2265  
Santa Fe, New Mexico 87504  
(505) 982-4285

# EXHIBIT "A"

LEASE	WELL NO.	UNIT	SECTION
Turner "B" SP	44	N	20
Turner "B" SP	46	P	20
Turner "B" SP	47	B	29
Turner "B" SP	50	D	29
Turner "B" SP	54	F	29
Turner "B" SP	55	H	29
Turner "B" SP	61	J	29
Turner "B" SP	64	L	29
Turner "B" SP	66	N	29
Turner "B" SP	68	P	29
Turner "B" SP	56	J	30
Turner "B" SP	76	P	30

## INJECTION WELLS:

Turner "B" SP Well No. 3	330'	FNL & 660'	FWL	Section 20
Turner "B" SP Well No. 4	660'	FSL & 1980'	FWL	Section 17
Turner "B" SP Well No. 5	1980'	FSL & 660'	FWL	Section 17
Turner "B" SP Well No. 8	660'	FNL & 1980'	FEL	Section 20
Turner "B" SP Well No. 11	1980'	FNL & 660'	FEL	Section 20
Turner "B" SP Well No. 30	660'	FSL & 660'	FEL	Section 17
Turner "B" SP Well No. 41	1650'	FNL & 1650'	FWL	Section 20
Turner "B" SP Well No. 67	1650'	FSL & 660'	FWL	Section 20
Turner "B" SP Well No. 78	2080'	FSL & 1980'	FEL	Section 20



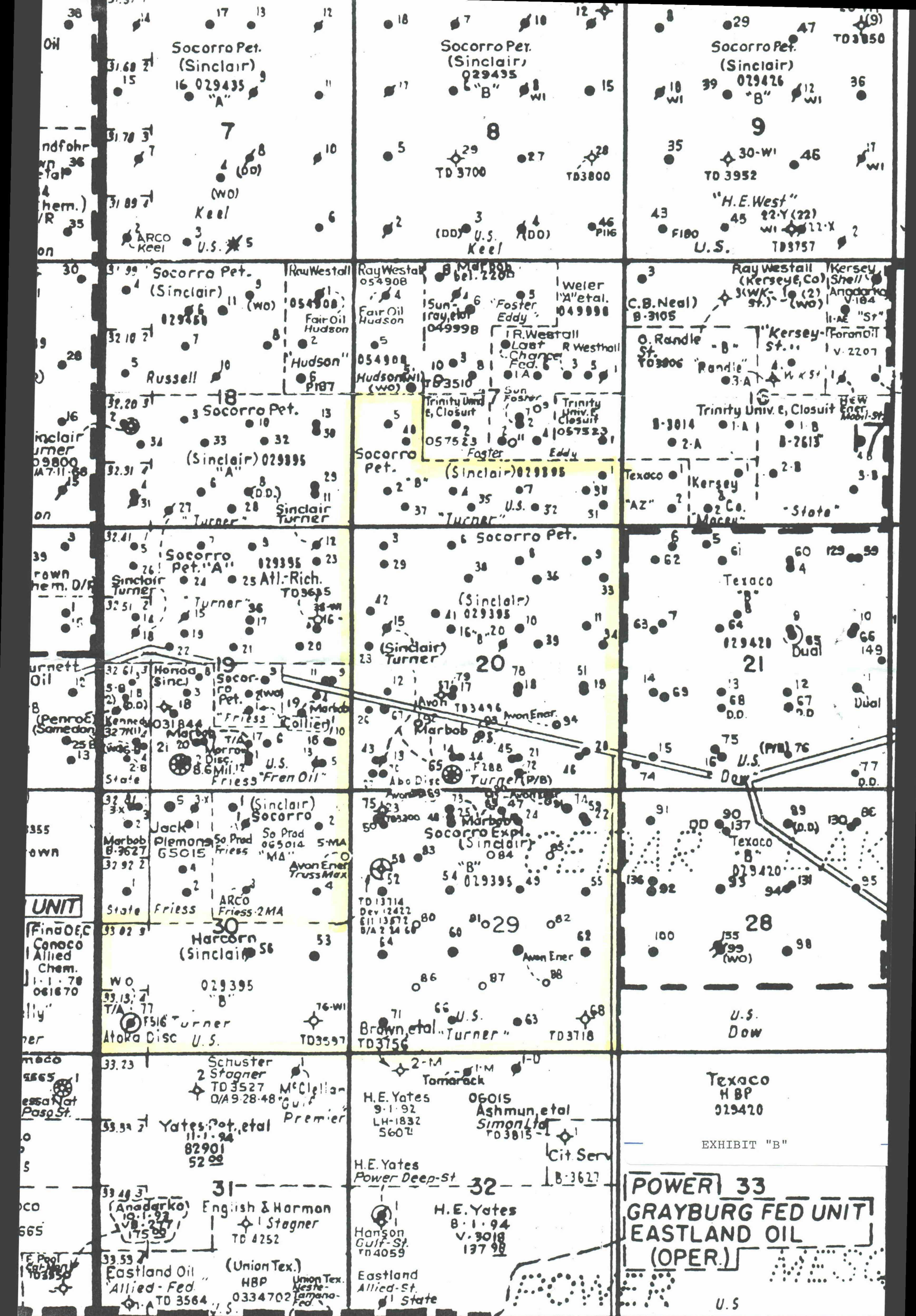




EXHIBIT "C"

Texaco, Inc.  
P.O. Box 2100  
Denver, CO 80201  
Attn: R.R. O'Dwyer

Marbob Energy Corp.  
P.O. Drawer 217  
Artesia, NM 88210

H.E. Yates  
(HEYCO)  
P.O. Box 1933  
Roswell, NM 88202-1933

Yates Petroleum  
105 South 4th Street  
Artesia, NM 88210

Socorro Petroleum Co.  
310 W. Wall, Suite 915  
Midland, TX 79701

Jack Plemons  
P.O. Box 64574  
Lubbock, TX 79464