WATER FLOODING VALUATIONS RESERVOIR STUDIES

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WICHITA FALLS, TEXAS
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PLEASE DELIVER THE FOLLOWING PAGES TO:

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FROM:

Name: MIKE KINCAID

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Number of Pages including cover sheet: 3

Should completion not be made, please contact:
Cheryl (817) 723-2166

Remarks: BEN - AS PER OUR TELEPHONE CONVERSATION TODAY, ATTACHED IS A LETTER CONCERNING THE PRESSURE LIMITATION FOR OUR SALADAR UNIT. THIS IS IN CONNECTION WITH OUR WATER INJECTION APPLICATION FOR THE SALADAR UNIT NO. 12.

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76307

August 14, 1978

Barber Oil Company, Inc.
P. O. Box 1658
Carlsbad, New Mexico 88220

Attn: Mr. Robert S. Light

Re: Pressure Limitation
Saladar Unit
Eddy County, New Mexico

Dear Mr. Light:

Reference is made to Mr. George H. Hunker, Jr.'s letter of August 3, 1978 which contained additional information required in the New Mexico Oil Conservation Division Cases 6238 and 6226. Also contained with Mr. Hunker's letter was a memorandum from the Oil Conservation Commission dated August 24, 1977 and referred to as Memo No. 3-77.

As engineer on this project, I must object to the Oil Conservation Commission ruling in their memorandum which in effect places a pressure limitation on the injection program planned for use in the Saladar Unit. In the memorandum it is indicated that "no surface injection pressure greater than 0.2 psi per foot of depth to the top of the injection zone will be permitted unless there is strong evidence that the strata confining injection fluid has a fractured gradient which would support a higher pressure. In effect, this limitation places an approximate 130 psi surface pressure limitation on the Saladar Unit project since the top of the injection zone is at a depth of 660'. Information available in the area not only support the use of additional pressure, but also virtually guarantees that without additional pressure a successful flooding of the Saladar Unit cannot be accomplished.

For the past 25 years, Stephens Engineering has supplied Neil H. Wills and/or Barber Oil Company with consulting engineering

in one of the first water flood programs initiated in New Mexico. This program was initiated in 1953 in the Russell Pool located approximately two miles northeast of the Saladar Unit. Initially, pressures were held to a minimum of approximately 400 psi in this 800' depth project. Later, it became apparent that greater pressures and therefore greater injection rates could be sustained without creating channeling conditions, therefore the pressure was gradually raised to a 700 psi surface pressure reading. Even with this .875 psi per foot of depth gradient, the Barber Oil Company, Russell Pool project has dated approximately 25 years and has several additional years of commercial production still available. Based on this information, it is apparent that if the Oil Conservation Commission continues to restrict injection in the vicinity of the Saladar Unit to the 0.2 psi per foot of depth, it will require a tremendous number of years to completely water flood the zone planned for flooding, if a successful project could be sustained and held in a commercial range at all.

Based on the past performance of the Russell Pool, which is flooding a similar zone as is planned to be flooded in the Saladar Unit, it is strongly recommended that Barber Oil Company request an exemption to the 0.2 psi per foot of depth ruling and request that the Oil Conservation Commission allow use of a 0.875 psi per foot of depth restriction instead. Again, it must be emphasized that with a lower than planned pressure, not only will a large amount of time be necessary to successfully flood and obtain the oil available from the Saladar Unit, but a large question exists as to the commercial ability of installing the project until such a pressure limitation is removed.

Should you desire any additional information concerning the necessity for a greater injection pressure, please do not hesitate to contact us.

Yours very truly,

STEPHENS ENGINEERING

Joe L. Johnson, Jr.

JLJjr/bw

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