SIPES, WILLIAMSON, RUNYAN & AYCOCK, INC.
CONSULTING ENGINEERS

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May 9, 1973

New Mexico Oil Conservation Commission
State Land Office Building
Santa Fe, New Mexico 87501

Gentlemen:

Subject: Case 4960, Application of
Tamarack Petroleum Company, Inc. for a
Waterflood Project, Bronco (Wolfcamp) Unit Area
Bronco (Wolfcamp) Pool, Lea County, New Mexico

The subject field is located in southeastern Lea County, New Mexico, and produces from the Wolfcamp pay at an approximate depth of 9,050 feet. The proposed unit area encompasses development in the northern part of the field in Section 2, Township 13 South, Range 38 East and in Section 35, Township 12 South, Range 38 East. Exhibit No. 1 shows the proposed unit outline. The Wolfcamp wells in the southern part of the field were not included in this unit because it is not feasible for the two areas of the field to be flooded together.

The remaining primary oil reserves were determined by extrapolation of the decline trends exhibited by the rate versus time production curves prepared for the wells in the proposed unit area. The estimated primary ultimate oil recovery for the nine wells in the proposed unit area is 1,182,849 barrels. The cumulative oil production as of March 1, 1973 was 1,020,766 barrels, leaving oil reserves of 162,083 barrels. Production for February, 1973 was 1,202 barrels of oil, 1,275 MCF of gas and 1,014 barrels of water.

A secondary to primary oil recovery ratio under waterflood operations was calculated to be approximately 0.39/1.00. The additional oil recovery under secondary recovery operations is therefore estimated to be 461,255 barrels. The total future recoverable oil from April 1, 1973, remaining primary plus incremental secondary reserves, equals 623,338 barrels.

Secondary recovery plans call for the injection of water into the Wolfcamp reservoir through three wells as depicted on Exhibit No. 1. These wells are the Texaco - Harris No. 3, the Tamarack-Lipscomb Estate "Harris" No. 1, and the Tamarack - Harris No. 1.

Exhibits No. 2, 3 and 4 are schematic diagrams showing the casing and cementing program for each of the proposed injection wells. Also shown

TAMARACK 2
4959 - 4960

primary drive: solu gas.
estimate 39% additional recovery on secondary.

are perforations, total and plugged back depths, and planned injection packer settings.

Proposed water injection rates are 1,000 barrels per well per day for a total of 3,000 barrels per day for the project. Reservoir void fillup calculations indicate that a production response should occur fifteen months after initiation of water injection.

Amerada has indicated they will furnish water from Devonian wells in Section 11, Township 13 South, Range 34 East, for use in the proposed unit. A water compatibility test was made between the Devonian and the Wolfcamp waters, as shown by Attachment No. 1, a letter from Mr. Waylan C. Martin of the Martin Water Laboratories, Monahans, Texas. The Devonian water contains hydrogen sulfide and the Wolfcamp water contains soluble iron. Mr. Martin states: "the mixing of these waters in equal quantities would result in the precipitation of essentially all of the iron and sulfide from the waters." Suitable surface facilities will be provided to eliminate this incompatibility. Surface water injection pressures are not expected to exceed 1,500 psig.

Yours very truly,

SIPES, WILLIAMSON, RUNYAN & AYCOCK, INC.

Roy C. Williamson, Jr., P. E.

/kp

attachments

WC Inc. about 1000 bbls wtr in Feb.

estimate total inj will be 3,000,000 bbls

expect surf inj pres up to 1500 psig

proj life est to be 15 yrs.