Railroad Commission of Texas

OIL AND GAS DIVISION

AUSTIN, TEXAS

September 30, 1968

MEMORANDUM TO THE COMMISSION: Docket No. 6-58,819

IN RE: Application of Harvey Unit Operating Committee for Secondary Recovery in the EAST TEXAS FIELD, Rusk County

DATE OF HEARING: September 20, 1968

APPEARANCES: Homer Key, R. A. Ewing and W. H. Scott, Jr. for applicant

This memorandum pertains to the proposed secondary recovery by water injection in the proposed unit area. Mr. Peden has prepared a memorandum pertaining to the unitization agreement.

The subject area is located near the eastern edge of the East Texas Field, and includes portions of the Clark and Grace Surveys, south of Kilgore, Texas. The unit area includes 46 leases and 911 acres, 845 of which are considered to be productive of oil. The unit area and the proposed injection wells are shown on the map which is applicant's Exhibit No. 2.

The applicant proposes to initiate secondary recovery by injection of brackish water through four wells which are identified on Exhibits 2 and 3. Injection will be through tubing in these four wells, and the injection interval ranges from 3500' to 3583'. The unit includes 75 wells, four of which will be converted for water injection purposes.

The East Texas Field was discovered in 1930, and the original productive area was 130,444 acres. This unit, with 845 productive acres, is less than one percent of the original field area. The original reservoir pressure was 1620 psi, and the applicant's engineer testified that the current pressure in the unit area is approximately 100 psi. This is considerably less than the average pressure in the area immediately west of the unit.

The maximum gross oil sand thickness in the field is 125'; the average gross oil sand thickness is 51'; and the average net oil sand thickness is 39'. The average sand thickness in this unit area is 3.3'.

The current average production of these 75 wells is only 1.8 barrels per well per day. The cumulative production of this unit area is 586,000 barrels of oil, which is only 18% of the original oil in place. Applicant's engineer testified that approximately 713,000 barrels of additional oil will be recovered as a direct result of the proposed water injection.

The injection fluid will be brackish water obtained from Wilcox Sands in the interval from 580' to 920'. Applicant's engineer testified that this water is not suitable for human consumption. The city of Kilgore obtains its fresh water supply from 11 wells completed in Carrizo Sands at an average depth of 300'. The applicant has consulted with the Texas Water Development Board, and has calculated that the volume of water in place under this unit is 668,000,000 barrels; and the total injection volume is estimated to be 4,568,000 barrels in 8 years. This is only 0.7% of the inplace water without consideration of the high recharge rates in this area. It is necessary to use this brackish water instead of brine because the shallowest salt water reservoir under this unit is the 5,800' Rodessa Zone, and its reliability as a water source is unknown; and sufficient Woodbine salt water production is two or three miles west of this unit, and that salt water is dedicated to repressuring of the main Woodbine reservoir in the East Texas Field.

Based on the evidence in this case, the writer recommends approval of the proposed secondary recovery project and injection of brackish water through the four proposed water injection wells. The Texas Water Development Board and all operators in the East Texas Field were notified of this hearing, the the application was not protested.

Respectfully submitted,

Mac L. Coker

Mac L. Coker, Director
Technical Hearings

MLC:bk

RECOMMENDATION APPROVED: RECOMMENDATION DENIED:

Chief Engineer

Chairman

Commissioner

Commissioner

DCA 9-30-68 EFFECTIVE