

OIL CONSERVATION DIVISION

CASE NUMBER _____

EXHIBIT

7

February 28, 2003

Mewbourne Oil Company
3901 South Broadway
Tyler, Texas 75701

Attn: Mr. Bryan Montgomery

Re: Well: Fren "8" Federal Com No. 5
Field: Shugart, North
Location: Eddy County, New Mexico
Formation: Strawn
Perforations: 10622 – 10870 ft
Test Type: Volatile Oil Depletion Study

Dear Mr. Montgomery:

The attached report contains laboratory results from a reservoir fluid study conducted to determine the type and character of the reservoir fluid. FESCO performed the study using separator gas and oil samples collected on December 4, 2002 by Caprock Labs, Inc. Caprock Labs, Inc. then sent the separator fluid samples to FESCO's PVT laboratory in Alice, Texas. The laboratory performed extended compositional analyses of the separator gas (C_{11+}) and separator oil (C_{31+}). The Appendix contains the ASTM D-86 distillation. Tables 1-A through 1-C list the compositional analyses of the separator gas, separator oil and mathematically recombined wellstream fluid through C_{7+} , C_{11+} and C_{31+} , respectively. Table 2 reports the fluid properties observed as the separator oil was flashed from separator conditions to laboratory conditions.

The separator gas and oil were recombined in a visual cell at the reported producing gas-oil ratio (GOR) of 1983 Scf/Sep Bbl GOR (2500 Scf/STB). The recombined reservoir fluid was then examined at reservoir temperature (155 °F) and at pressures ranging from 7000 to 785 psig. ***A bubble point was observed at 4583 psig and 155 °F.*** The static reservoir pressure (5500 psig) is greater than the measured bubble point pressure. Therefore, the reservoir fluid exists as undersaturated oil at reservoir conditions. Table 3 reports the pressure-volume relation of the reservoir fluid during this Constant Composition Expansion (CCE) process. Figures 1 through 4 illustrate the data reported in Table 3 versus pressure.

Table 4 provides results from four separator tests conducted to estimate optimum separator conditions and adjust solution GOR and oil formation volume factors to existing separator conditions. Optimum separator conditions occur when the solution GOR, oil formation volume factor and oil specific gravity (water = 1.000) are minimums.

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The solution GOR and oil formation volume factor did not exhibit minimums within the conditions investigated as expected. However, the oil specific gravity (water = 1.000) minimum did occur around 300 psig. Table 4 results are depicted graphically in Figures 5 through 7.

The reservoir fluid was identified as a volatile oil. Therefore, FESCO performed a Constant Volume Depletion (CVD) study on the undersaturated reservoir oil to model pressure depletion below the bubble point. A CVD study consists of a series of expansions and constant pressure displacements terminating at the original saturated reservoir (bubble point) volume. Table 5 reports the recoveries and properties of fluids produced at each depletion step. Figures 8 through 11 illustrated selected oil properties versus depletion pressure. Figures 12 through 15 illustrate selected gas properties versus depletion pressure. Table 6 provides the displaced gas volume and corresponding compositional analysis measured at each depletion pressure. Figures 16 through 19 illustrate the cumulative produced gas volume, plant liquid production, reservoir liquid volume, and CVD gas component distributions, respectively, versus pressure as reported in Table 4.

The cumulative stock tank oil and sales gas recoveries using normal-temperature single-stage separation were calculated from the produced wellstream volumes and their corresponding compositions. The plant liquid products produced during the single-stage separation were also calculated. The total plant products in the original fluid were then determined. The results are shown in Table 7. All recoveries are based on one MMscf of original reservoir fluid at the bubble point and 100 percent plant efficiency.

Thank you for this opportunity to serve Mewbourne Oil Company. Please contact me via phone, fax or email if you have any questions concerning this report.

Sincerely,

FESCO, Ltd.

Eddie Bickham, P.E.
Vice President – Tech. Devel.
Alice, Texas

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FIGURE 5
Absolute Liquid Volume Fraction vs Pressure

