

HENRY ENGINEERING

INTER-OFFICE MEMO  
October 14, 1986

To: James F. Groce  
From: Mark B. Merritt  
Re: Pressure Buildup No. 2 - 10/2/86  
Consolidated State No. 3  
Lea County, New Mexico

BEFORE EXAMINER CATANACH  
OIL CONSERVATION DIVISION

Fisher EXHIBIT NO. 2

CASE NO. 9036

Attached is an analysis of the Pressure Buildup No. 2 on the Consolidated State No. 3. The permeability is estimated to be 99.7 Md from 14 feet of net pay with a -3.0 skin. There is a boundary indicated at 836 feet. The p\* reservoir pressure was 2364 psig at mid-perf, which is 461 psi below the original DST pressure of 2825 psig. The well was flowing at a four day average rate of 502 BOPD with 207 psi drawdown. Cumulative production was 12,417 barrels of oil.

The analysis was based on the digital strain pressure gauge. The pressures from the Amerada type gauge, which was run in tandem, were plotted up for comparison and are also attached. The improved resolution of the digital gauge is shown by comparison.

A material balance was calculated based on this pressure data and the Strawn reservoir fluid study from the Consolidated State No. 2. It is estimated the Consolidated State No. 3 is draining from a reservoir with 245,000 barrels of original oil in place (OOIP). This corresponds to an 87 acre drainage area with an average net pay of 14', 6% porosity and 25.7% water saturation.

A similar material balance was calculated for Exxon's State "EX" No. 2 using a reservoir pressure of 3535 psig after the "EX" No. 2 had produced for six weeks. This pressure was from conversation with an Exxon engineer. It was assumed the "EX" No. 2 was in communication with the Consolidated State No. 3 by the 14' of net pay. The "EX" No. 2 has an additional 49' of net pay. The OOIP affected by the "EX" No. 2 is estimated to be 4.1 million barrels, which corresponds to an estimated volumetric reservoir size of 272 acres.

The recoverable reserves for the Consolidated State No. 3 were estimated to be 104,000 barrels or 43% based on a cumulative GOR of 2000 and an abandonment pressure of 500 psi. The cumulative GOR is based on the current cumulative GOR for the combined production from the Consolidated State No. 2 and the Warren No. 2. An alternate case of 3000:1 GOR was assumed and resulted in recoverable reserves of 68,000 barrels or 28% recovery.

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