CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS 75207

February 5, 1979

RESERVOIR FLUID DIVISION

Morris R. Antweil
Box 2010
Hobbs, New Mexico 88240

Attention: Mr. Bob Williams

Subject: Phase Determination
Landlady No. 1 Well
Wildcat
Lea County, New Mexico
Our File Number: RF. 78875

Gentlemen:

Samples of primary separator gas and liquid collected from the subject well were submitted to our laboratory in Dallas for hydrocarbon analyses and a phase determination at reservoir conditions. Presented in this report are the results of these tests.

On November 20, 1978, the well was opened to flow through a test separator operating at 395 psig and 96°F. in order to determine the producing gas-liquid ratio for the recombination and phase determination data. The flow test was terminated on December 1, 1978. During this flow period, it was observed that the average daily gas-liquid ratios varied from a low of about 3700 to a high of about 6100 during this period. The cumulative average gas-liquid ratio was calculated to be 4543 cubic feet of primary separator gas at 14.65 psia and 60°F. per barrel of stock tank liquid at 60°F. This average gas-liquid ratio is based on gross gas and liquid production figures covering a period of 220 hours during this prolonged test.

Upon receiving the samples in our laboratory, the compositions of the primary separator gas and liquid were determined. These data were then used in conjunction with the producing gas-liquid ratio to calculate the composition of the total producing well stream fluid and these data are presented on page two.

The primary separator gas and liquid products were then physically recombined to their producing gas-liquid ratio and the resulting mixture was examined in a visual cell at the reservoir temperature of 181°F. The fluid was visually examined at several pressure intervals from 6000 psig to 3500 psig and this system was found to exist in two phases at each pressure level investigated. At the original reservoir pressure of 4171 psig, the liquid