

COMPUTERIZED DATA ANALYSIS

SEPTEMBER 5, 1972

GENTLEMEN:

THE ENCLOSED TEST APPEARS TO BE A GOOD MECHANICAL DRILL STEM TEST DURING WHICH THE TOOLS DID FUNCTION PROPERLY. THE FORMATION PRODUCED ENOUGH RESERVOIR FLUID FOR PROPER IDENTIFICATION. RESERVOIR PRESSURE DRAWDOWN WAS SUFFICIENT AND ADEQUATE SHUT-IN BUILD-UPS DID OCCUR FOR RELIABLE QUANTITATIVE ANALYSIS.

1. FLOW RATE: A FLOW RATE OF 995 BBLs/DAY OF OIL WAS USED FOR THESE CALCULATIONS. THIS RATE WAS BASED ON THE INDICATED PRESSURE CHANGE DURING THE FINAL FLOW PERIOD.
 2. RESERVOIR PRESSURE: EXTRAPOLATION OF THE INITIAL AND FINAL SHUT-IN PRESSURE BUILD-UPS INDICATES A MAXIMUM RESERVOIR PRESSURE OF 3931 P.S.I.G. AT RECORDER DEPTH.
 3. PERMEABILITY: THE CALCULATED TRANSMISSIBILITY FACTOR OF 463.6 MD.-FT./CP. INDICATES AN AVERAGE EFFECTIVE PERMEABILITY TO OIL OF 14.73 MD. FOR THE REPORTED 13 FOOT POROUS INTERVAL. THE CALCULATIONS WERE BASED ON A SLOPE OF 349 P.S.I./LOG CYCLE OBTAINED FROM THE FINAL SHUT-IN BUILD-UP PLOT. IT WAS ASSUMED FOR THESE CALCULATIONS: (A) THE 44.5° API AT 60°F. OIL CONTAINED 1643 CU.FT./BBL. OF ORIGINAL DISSOLVED GAS (B) VISCOSITY 0.22 CP., (C) FORMATION VOLUME FACTOR 1.877 BBL/BBL. THESE FIGURES WERE OBTAINED FROM THE AVAILABLE TECHNICAL LITERATURE.
 4. WELL BORE DAMAGE: THE CALCULATED ESTIMATED DAMAGE RATIO OF 0.84 INDICATES THAT NO WELL BORE DAMAGE IS PRESENT AT THE TIME AND CONDITIONS OF THIS TEST.
 5. RADIUS OF INVESTIGATION: THE CALCULATED RADIUS OF INVESTIGATION OF THIS TEST IS 244 FEET BASED ON AN ASSUMED POROSITY OF 11%, COMPRESSIBILITY OF 22.2×10^{-6} , AND OTHER ASSUMPTIONS MADE IN NUMBER 3 ABOVE.
 6. GENERAL COMMENTS: THE FORMATION EXHIBITS THE CHARACTERISTICS OF RELATIVELY GOOD PERMEABILITY EFFECTIVE TO THE RESERVOIR FLUID AND INDICATES THE ABSENCE OF WELL BORE DAMAGE.
- BASED ON THESE TEST DATA, THE CHANCES APPEAR GOOD FOR A PRACTICAL COMPLETION IN THIS ZONE.

D. A. Warren, Jr.
D. A. WARREN, JR.
INTERPRETATION AND
EVALUATION DEPARTMENT

HARDING OIL COMPANY
SHIPP #4; LEA COUNTY, NEW MEXICO
TEST #2; 11642' to 11713'

FIELD REPORT # 22260 B