JOHNSTON TESTERS

SPECIAL DATA ANALYSIS

APRIL 25, 1969

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 AN ADEQUATE SHUT-IN BUILD-UP DID OCCUR FOR RELIABLE QUANTITATIVE ANALYSIS. AFTERFLOW WAS STILL IN EFFECT ON THE INITIAL SHUT-IN BUILD-UP TO THE EXTENT THAT THE PLOT IS CONSIDERED UNRELIABLE FOR ANALYSIS.

1. FLOW RATE: A FLOW RATE OF 527.2 BBLS/DAY OF OIL WAS NOTED DURING THIS TEST.

2. RESERVOIR PRESSURE: EXTRAPOLATION OF THE FINAL SHUT-IN PRESSURE BUILD-UP INDICATES A MAXIMUM RESERVOIR PRESSURE OF 3885 P.S.I.G. AT RECORDER DEPTH.

3. PERMEABILITY: THE CALCULATED TRANSMISSIBILITY FACTOR OF 36.87 MD.-FT./CP. INDICATES AN AVERAGE EFFECTIVE PERMEABILITY TO OIL OF 0.45 MD. FOR THE REPORTED 50 FOOT TEST INTERVAL. THE CALCULATIONS WERE BASED ON A SLOPE OF 2325 P.S.I./LOG CYCLE OBTAINED FROM THE FINAL SHUT-IN BUILD-UP PLOT. IT WAS ASSUMED FOR THESE CALCULATIONS: (A) THE 48.3° API AT 60° F. OIL CONTAINED 148 CU.FT./BBL. OF ORIGNIAL DISSOLVED GAS (B) VISCOSITY 0.55 CP., (C) FORMATION VOLUME FACTOR 1.12 BBL/BBL. THESE FIGURES WERE OBTAINED FROM THE AVAILABLE TECHNICAL LITERATURE.

4. WELL BORE DAMAGE: THE CALCULATED ESTIMATED DAMAGE RATIO OF 0.17 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 36 FEET BASED ON AN ASSUMED POROSITY OF 15%, COMPRESSIBILITY OF 10×10^{-6}, AND OTHER ASSUMPTIONS MADE IN NUMBER 3 ABOVE.

6. GENERAL COMMENTS: THE FORMATION EXHIBITS THE CHARACTERISTICS OF RELATIVELY LOW PERMEABILITY EFFECTIVE TO THE RESERVOIR FLUID AND INDICATES THE ABSENCE OF WELL BORE DAMAGE.

BASED ON DATA PRESENTED HEREIN, CHANCES FOR A FRACTICAL COMPLETION IN THIS ZONE APPEAR GOOD.

UNION OIL COMPANY OF CALIFORNIA
MIDWAY STATE #3, LEA COUNTY, NEW MEXICO
TEST #1, 11525' TO 11575'

FIELD REPORT #14026 B