


**COMPUTERIZED DATA ANALYSIS**

JANUARY 29, 1976

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 1425 MCF/DAY OF GAS WAS NOTED DURING THIS TEST.
2. RESERVOIR PRESSURE: EXTRAPOLATION OF THE INITIAL SHUT-IN PRESSURE BUILD-UP INDICATES A MAXIMUM RESERVOIR PRESSURE OF 3189 P.S.I.G. AT RECORDER DEPTH. MECHANICAL STABILIZATION OF THE FINAL SHUT-IN PRESSURE BUILD-UP INDICATES A MAXIMUM RESERVOIR PRESSURE OF 3175 P.S.I.G. AT RECORDER DEPTH. THE DIFFERENCE BETWEEN THE INITIAL AND FINAL SHUT-IN PRESSURE OF 14 P.S.I.G. IS INSIGNIFICANT.
3. PERMEABILITY: THE CALCULATED TRANSMISSIBILITY FACTOR OF 3825.6 MD.-FT./CP. INDICATES AN AVERAGE EFFECTIVE PERMEABILITY TO GAS OF 2.01 MD. FOR THE REPORTED 35 FOOT TEST INTERVAL. THE CALCULATIONS WERE BASED ON A SLOPE OF 373,175 P.S.I.<sup>2</sup>/LOG CYCLE OBTAINED FROM THE FINAL SHUT-IN BUILD-UP PLOT. IT WAS ASSUMED FOR THESE CALCULATIONS: (A) GAS GRAVITY 0.70 (B) VISCOSITY 0.022 CP. (C) AND GAS DEVIATION FACTOR 0.84. THESE FIGURES WERE OBTAINED FROM THE AVAILABLE TECHNICAL LITERATURE.
4. WELL BORE DAMAGE: THE CALCULATED DAMAGE RATIO OF 3.11 INDICATES THAT WELL BORE DAMAGE IS PRESENT AT THE TIME AND CONDITIONS OF THIS TEST. THIS VALUE INFERS THAT THE RATE OF PRODUCTION OBSERVED AT THE FORMATION FACE DURING THIS TEST MAY BE INCREASED 3.11 TIMES IF THE WELL BORE DAMAGE ALONE WERE REMOVED.
5. RADIUS OF INVESTIGATION: THE CALCULATED RADIUS OF INVESTIGATION OF THIS TEST IS 96 FEET BASED ON AN ASSUMED POROSITY OF 10%, COMPRESSIBILITY OF  $2.6 \times 10^{-4}$ , 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 PRESENCE OF WELL BORE DAMAGE. REMOVAL OF THIS DAMAGE BY SOME CHEMICAL TREATMENT SHOULD AID FLOW POTENTIAL. A SURVEY OF AREA WELL CONDITIONS SHOULD HELP SELECT THE BEST TYPE OF TREATMENT.

  
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DEPARTMENT

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HIGGINS TRUST INC. # 1; EDDY COUNTY, NEW MEXICO  
TEST # 1; 8995' TO 9111'  
SECTION: 13-TWP18-RGE26

FIELD REPORT # 11245 C