

## COMPUTERIZED DATA ANALYSIS

APRIL 16, 1975

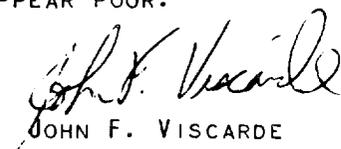
GENTLEMEN:

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 BUT ADEQUATE SHUT-IN BUILD-UPS DID NOT OCCUR FOR RELIABLE QUANTITATIVE ANALYSIS USING THE HORNER METHOD. AFTERFLOW WAS STILL IN EFFECT ON THE INITIAL AND FINAL SHUT-IN BUILD-UPS TO THE EXTENT THAT THE PLOTS ARE CONSIDERED UNRELIABLE FOR ANALYSIS. THE MC KINLEY AFTERFLOW METHOD WAS USED TO CALCULATE RESERVOIR PARAMETERS.

1. FLOW RATE: A FLOW RATE OF 299 BBL/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 3230 P.S.I.G. AT RECORDER DEPTH. EXTRAPOLATION OF THE INITIAL WAS NOT POSSIBLE DUE TO THE DOMINANCE OF AFTERFLOW. ADDITIONAL SHUT-IN TIME WOULD BE NEEDED TO OBTAIN A MORE REALISTIC RESERVOIR PRESSURE.
3. PERMEABILITY: THE CALCULATED TRANSMISSIBILITY FACTOR OF 553.4 MD.-FT./CP. INDICATES AN AVERAGE EFFECTIVE PERMEABILITY TO OIL OF 43.0 MD. FOR THE REPORTED 9 FOOT TEST INTERVAL. THE CALCULATIONS WERE BASED ON THE INDICATED TRANSMISSIBILITY OBTAINED FROM THE MC KINLEY PLOT. IT WAS ASSUMED FOR THESE CALCULATIONS: (A) THE 41.8°API AT 60°F. OIL CONTAINED 393 CU. FT./BBL. OF ORIGINAL DISSOLVED GAS (B) VISCOSITY .70 CP., (C) FORMATION VOLUME FACTOR 1.21 BBL/BBL. THESE FIGURES WERE OBTAINED FROM THE AVAILABLE TECHNICAL LITERATURE.
4. WELL BORE DAMAGE: THE BUILD-UP INDICATES A VERY STIMULATED CONDITION WHICH WOULD REFLECT A NEGATIVE DAMAGE FIGURE.
5. RADIUS OF INVESTIGATION: THE CALCULATED RADIUS OF INVESTIGATION OF THIS TEST IS 400 FEET BASED ON AN ASSUMED POROSITY OF 10%, COMPRESSIBILITY OF  $9.0 \times 10^{-6}$ , AND OTHER ASSUMPTIONS MADE IN NUMBER 3 ABOVE.
6. GENERAL COMMENTS: THE FORMATION EXHIBITS THE CHARACTERISTICS OF RELATIVELY HIGH PERMEABILITY EFFECTIVE TO THE RESERVOIR FLUID AND INDICATES A STIMULATED WELL BORE.

THIS CONDITION WOULD CAUSE A SUSTAINED RATE TO BE MUCH LOWER THAN THE DRILL STEM TEST WOULD REPORT. A FRACTURED ZONE CONTAINING LOW MATRIX PERMEABILITY WOULD APPEAR TO BE PRESENT. THE MC KINLEY METHOD SHOWS THAT A FLOW RATE OF 7 BBL./DAY OF OIL WOULD BE A MORE REALISTIC VALUE. THE FEASIBILITY OF A COMMERCIAL ZONE WOULD THEREFORE APPEAR POOR.

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 JULIA CULP #1; LEA COUNTY, NEW MEXICO  
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 SEC.34-T15S-R35E

  
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FIELD REPORT #07274 C