


COMPUTERIZED DATA ANALYSIS

MAY 26, 1978

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. RESERVOIR PARAMETERS WERE CALCULATED BY THE HORNER METHOD.

1. FLOW RATE: A FLOW RATE OF 13,200 MCF/DAY OF GAS WAS NOTED DURING THIS TEST.
2. RESERVOIR PRESSURE: MECHANICAL STABILIZATION OF THE INITIAL SHUT-IN PRESSURE BUILD-UP INDICATES A MAXIMUM RESERVOIR PRESSURE OF 4048 P.S.I.G. AT RECORDER DEPTH. MECHANICAL STABILIZATION OF THE FINAL SHUT-IN PRESSURE BUILD-UP INDICATES A MAXIMUM RESERVOIR PRESSURE OF 4055 P.S.I.G. AT RECORDER DEPTH. THE DIFFERENCE BETWEEN THE INITIAL AND FINAL SHUT-IN PRESSURE OF +7 P.S.I.G. IS INSIGNIFICANT.
3. PERMEABILITY: THE CALCULATED TRANSMISSIBILITY FACTOR OF 151.478 MD.-FT/CP. INDICATES AN AVERAGE EFFECTIVE PERMEABILITY TO GAS OF 53.6 MD. FOR THE REPORTED 65 FOOT NET INTERVAL. THE CALCULATIONS WERE BASED ON A SLOPE OF 10 P.S.I./LOG CYCLE OBTAINED FROM THE FINAL SHUT-IN BUILD-UP PLOT. IT WAS ASSUMED FOR THESE CALCULATIONS: (A) GAS GRAVITY 0.70 (B) VISCOSITY 0.23 CP. (C) AND GAS DEVIATION FACTOR 0.89. THESE FIGURES WERE OBTAINED FROM THE AVAILABLE TECHNICAL LITERATURE.
4. WELL BORE DAMAGE: THE CALCULATED DAMAGE RATIO OF 2.88 INDICATES THAT WELL BORE DAMAGE IS PRESENT AT THE TIME AND CONDITIONS OF THIS TEST. THIS DAMAGE MAY BE PSEUDO DAMAGE CAUSED BY TURBULANT GAS FLOW.
5. RADIUS OF INVESTIGATION: THE CALCULATED RADIUS OF INVESTIGATION OF THIS TEST IS 591 FEET BASED ON AN ASSUMED POROSITY OF 12%, COMPRESSIBILITY OF 1.7×10^{-4} , 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 THE PRESENCE OF WELL BORE DAMAGE.


KENT ARCENEAUX
RESERVOIR EVALUATION
DEPARTMENT

ATLANTIC RICHFIELD COMPANY
STATE DV #1; EDDY COUNTY, NEW MEXICO
TEST #3; 10710' TO 10785'
LOCATION: 1880' FSL & 1980' FEL. SEC. 25, T17S, R28E
FIELD REPORT # 06006 D

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