



SECOND SETTING:

**COMPUTERIZED DATA ANALYSIS****RECEIVED**

APRIL 10, 1979

APR 30 1979

GENTLEMEN:

D. C. C.  
ARTEGIA, OFFICE

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 QUALITATIVE ANALYSIS. RESERVOIR PARAMETERS WERE CALCULATED BY THE HORNER METHOD.

1. FLOW RATE: A FLOW RATE OF 1162 BBL/S/DAY OF OIL WAS ESTIMATED FROM THE PRE-FLOW PRESSURES FOR THIS TEST.
2. RESERVOIR PRESSURE: MECHANICAL STABILIZATION OF THE INITIAL SHUT-IN PRESSURE BUILD-UP INDICATES A MAXIMUM RESERVOIR PRESSURE OF 1132 P.S.I.G. AT RECORDER DEPTH.
3. PERMEABILITY: THE CALCULATED TRANSMISSIBILITY FACTOR OF 14116 MD.-FT./CP. INDICATES AN AVERAGE EFFECTIVE PERMEABILITY TO OIL OF 237 MD. FOR THE REPORTED 25 FOOT TEST INTERVAL. THE CALCULATIONS WERE BASED ON A SLOPE OF 16 P.S.I./LOG CYCLE OBTAINED FROM THE INITIAL SHUT-IN BUILD-UP PLOT. IT WAS ASSUMED FOR THESE CALCULATIONS: (A) THE 45° API AT 60°F. OIL CONTAINED 300 CU.FT./BBL. OF ORIGINAL DISSOLVED GAS (B) VISCOSITY 0.42 CP., (C) FORMATION VOLUME FACTOR 1.195 BBL/BBL. THESE FIGURES WERE OBTAINED FROM THE AVAILABLE TECHNICAL LITERATURE.
4. WELL BORE DAMAGE: THE CALCULATED DAMAGE RATIO OF 5.71 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 5.71 TIMES IF THE WELL BORE DAMAGE ALONE WERE REMOVED. THE PRESSURE DROP DUE TO DAMAGE IS ESTIMATED TO BE 426 P.S.I.
5. RADIUS OF INVESTIGATION: THE CALCULATED RADIUS OF INVESTIGATION OF THIS TEST IS 295 FEET BASED ON AN ASSUMED POROSITY OF 10%, COMPRESSIBILITY OF  $11.0 \times 10^{-6}$ , 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 THE PRESENCE OF WELL BORE DAMAGE. SINCE THE WELL WAS ALLOWED TO FLOW UNTIL BOTTOM HOLE FLOWING PRESSURE REACHED BOTTOM HOLE SHUT-IN PRESSURE DURING THE SECOND FLOW, AND ALSO BECAUSE SOME LIQUID WAS RECOVERED FROM TEST NUMBER ONE, FLOW RATES FOR THIS TEST WERE ESTIMATED FROM INITIAL FLOWING PRESSURE. AND THE ANALYSIS WAS BASED ON THE INITIAL SHUT-IN BUILD-UP. FOR THESE REASONS, PARAMETERS REPORTED HERE SHOULD BE USED AS INDICATORS ONLY.

DENNIS MYREN  
RESERVOIR EVALUATION  
DEPARTMENTATLANTIC RICHFIELD COMPANY  
EMPIRE ABO #E-395; EDDY COUNTY, NEW MEXICO  
TEST #2; 6081' TO 6106'  
LOCATION: 75'FNL, 1820'FEL,  
SEC. 35-T17S-R28E

F.R. #05899, D

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