

FIR. SETTING **RECEIVED****COMPUTERIZED DATA ANALYSIS**

APR 30 1979

APRIL 10, 1979

O. C. C.
ARTESIA, OFFICE

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 1700 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 1169 P.S.I.G. AT RECORDER DEPTH. EXTRAPOLATION OF THE FINAL SHUT-IN PRESSURE BUILD-UP INDICATES A MAXIMUM RESERVOIR PRESSURE OF 1138 P.S.I.G. AT RECORDER DEPTH. THE DIFFERENCE BETWEEN THE INITIAL AND FINAL SHUT-IN PRESSURE OF 31 P.S.I.G. IS SIGNIFICANT BUT IS PROBABLY DUE TO BEING A DEVELOPMENT WELL.
3. PERMEABILITY: THE CALCULATED TRANSMISSIBILITY FACTOR OF 14161 MD.-FT./CP. INDICATES AN AVERAGE EFFECTIVE PERMEABILITY TO GAS OF 7.25 MD. FOR THE REPORTED 25 FOOT TEST INTERVAL. THE CALCULATIONS WERE BASED ON A SLOPE OF 89 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 0.0128 CP. (C) AND GAS DEVIATION FACTOR 0.997. THESE FIGURES WERE OBTAINED FROM THE AVAILABLE TECHNICAL LITERATURE.
4. WELL BORE DAMAGE: THE CALCULATED DAMAGE RATIO OF 2.61 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 2.61 TIMES IF THE WELL BORE DAMAGE ALONE WERE REMOVED. THE PRESSURE DROP DUE TO DAMAGE IS ESTIMATED TO BE 553 P.S.I.
5. RADIUS OF INVESTIGATION: THE CALCULATED RADIUS OF INVESTIGATION OF THIS TEST IS 37 FEET BASED ON AN ASSUMED POROSITY OF 10%, COMPRESSIBILITY OF 1.43×10^{-3} , AND OTHER ASSUMPTIONS MADE IN NUMBER 3 ABOVE.
6. GENERAL COMMENTS: THE FORMATION EXHIBITS THE CHARACTERISTICS OF RELATIVELY GOOD PERMEABILITY EFFECTIVE TO THE RESERVOIR FLUID AND INDICATES THE PRESENCE OF WELL BORE DAMAGE. SOME LIQUID RECOVERY WAS INDICATED FROM RECORDER RUN ABOVE TOOL. (APPROXIMATELY 1.7 BBLs.)


DENNIS MYREN
RESERVOIR EVALUATION
DEPARTMENT

ATLANTIC RICHFIELD COMPANY
EMPIRE ABO #E-395; EDDY COUNTY, NEW MEXICO
TEST #1; 6011' TO 6036'
LOCATION: 75' FNL & 1820' FEL.

SEC. 35-T17S-R28E

F.R. #05899 D

In making any interpretation, our employees will give Customer the benefit of their best judgment as to the correct interpretation. Nevertheless, since all interpretations are opinions based on inferences from electrical, mechanical or other measurements, we cannot, and do not guarantee the accuracy or correctness of any interpretations, and we shall not be liable or responsible, except in the case of gross or wilful negligence on our part, for any loss, costs, damages or expenses incurred or sustained by Customer resulting from any interpretation made by any of our agents or employees.