

JOHNSTON-MACCO

Schlumberger

COMPUTERIZED DATA ANALYSIS

MARCH 28, 1984

GENTLEMEN:

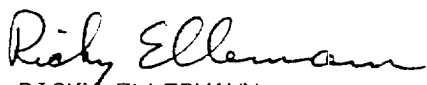
THE FOLLOWING IS AN ANALYSIS OF THE DRILL STEM TEST ON THE ABC FORMATION OF STATE "30" #1. A FLOW RATE OF 98.3 BOPD WAS CALCULATED FROM THE PRESSURE DIFFERENTIAL OF THE LAST MINUTES OF THE FINAL FLOWING PERIOD. AN AVERAGE TEST FLOW RATE OF 266 BOPD WAS FOUND FOR THE TOTAL FLOW TIME.

THIS SYSTEM BEHAVES AS A HOMOGENEOUS RESERVOIR WITH WELLBORE STORAGE AND SKIN. A PERMEABILITY - THICKNESS PRODUCT (KH) OF 993 MD.-FT. WAS FOUND FOR THE REPORTED 29 FOOT NET INTERVAL, GIVING A PERMEABILITY (K) OF 34 MD. A DAMAGE RATIO OF 19 WAS CALCULATED INDICATING THAT WELLBORE DAMAGE IS PRESENT AT THE TIME AND CONDITIONS OF THIS TEST. A VALUE FOR SKIN OF +121 WAS FOUND.

A RESERVOIR PRESSURE OF 2340 PSIA WAS FOUND FROM THE EXTRAPOLATION OF THE INITIAL AND FINAL SHUT-IN PERIODS.

NODAL ANALYSIS OF WELL TEST DATA WAS RUN TO SHOW THE EFFECT OF SKIN AND SHOT DENSITY ON PRODUCTION. WITH THE SKIN CALCULATED ON THE DRILL STEM TEST A PUMPING RATE OF 81.7 BOPD WAS SEEN AT PSEUDO - STEADY STATE WITH 4 SHOTS/FOOT. WITH TOTAL SKIN REMOVED A FLOWING RATE OF 81.7 BOPD WAS SEEN AT PSEUDO - STEADY STATE WITH 4 SHOTS/FOOT AT A WELLHEAD PRESSURE OF 10 PSI. EVEN IF ALL SKIN COULD BE REMOVED THE WELL WOULD ONLY FLOW AT A VERY LOW WELLHEAD PRESSURE.

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|--------------------------|---|---------------------------|
| PERMEABILITY - THICKNESS | = | 993. MD-FT |
| PERMEABILITY | = | 34. MD |
| DAMAGE RATIO | = | 19. |
| SKIN | = | +121. |
| VISCOSITY | = | .672 CP |
| TOTAL COMPRESSIBILITY | = | 1.68E ⁻⁵ 1/PSI |
| FORMATION VOLUME FACTOR | = | 1.32 BBL/STB |
| POROSITY | = | 10% |
| RESERVOIR PRESSURE | = | 2340. PSIA |



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MIDLAND RESERVOIR
EVALUATION DEPARTMENT

PIONEER PRODUCTION CORPORATION
STATE "30" #1

TEST #1' 9056' TO 9136'
LEA COUNTY, NEW MEXICO

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.