

September 25, 1978

Attachment to Form 9-331

AMOCO PRODUCTION COMPANY

EMPIRE SOUTH DEEP UNIT WELL NO. 20

1980' FNL & 2200' FEL, UNIT G, SEC. 12, T-18-S, R-28-E

EDDY COUNTY, NEW MEXICO

DST RESULTS

DST #1 10,680'-10,732' MORROW. MORROW BY CONVENTIONAL JOHNSTON TST TO EVAL SAND BREAK 10,690'-10,708'. TOOL OPEN ON 15 MIN PRE FLOW X GOOD BLOW OF AIR IMMEDIATELY 1 PSI IN 5 MIN X 1.75 PSI IN 15 MIN. R 30 MIN ISI BHP. TOOL OPEN ON 30 MIN FINAL FLW X GOOD BLOW OF AIR IMMEDIATELY 1 PSI IN 5 MIN 1.5 PSI IN 10 MIN 2.75 PSI IN 20 MIN 3 PSI IN 30 MIN NO GTS. RAN 120 MIN FSIBHP. REC 130 FT. 0.52 BBLS DRL MUD X RESISTIVITY 0.10 AT 80 DEG F X CHL 138000 MG/L IN TOP X 0.07 AT 82 DEG F X 142000 MG L IN BTM OF REC VS PIT MUD 0.13 AT 72 DEG F X CHL 138000 MGL. SAMPLE CHAMBER REC AT 50 PSI OF 0.22 CU.FT. OF GAS X NO FL. IHHP 5276 PSI. 15 MIN IFBHP 121-121 PSI. 30 MIN ISIBHP 572 PSI STILL BUILDING. 30 MIN FFBHP 108-108 PSI 120 MIN FSIBHP 1949 PSI STILL BUILDING SLIGHTLY. FHH 5218 PSI BHT 158 DEG F.

DST #2 9,561'-9719'. CANYON. CANYON BY LYNES STRADDLE PACKER TEST TO EVAL 109 POROSITY ZONE 9702'-9708'. TOOL OPEN ON 15 MIN PRE FLOW WITH WEAK BLOW OF AIR INCREASING TO STRONG BLOW OF AIR IN 4 MINS. RAN 30 MIN ISIBHP. TOOL OPEN ON 30 MIN FINAL FLOW WITH WEAK BLOW OF AIR IMMEDIATELY INCREASING TO STRONG BLOW OF AIR IN 30 MIN. NO GTS. RAN 120 MIN. FSIBHP. RECOVERED 110 FT OF DRILLING MUD WITH CHLORIDES 80,000 MGL AND RESISTIVITY 0.06 AT 80 DEG F IN TOP 81,000 MGL AND RESISTIVITY 0.07 AT 80 DEG F IN MIDDLE AND 83,000 MGL AND RESISTIVITY 0.06 AT 80 DEG F IN BOTTOM OF RECOVERY VS PIT MUD CHLORIDES 77,000 MGL AND RESISTIVITY 0.08 AT 80 DEG F. SAMPLE CHAMBER NOT AVAILABLE FOR TEST. IHH 4820 PSI. 15 MIN IFBHP 111-111 PSI. 30 MIN ISIBHP 140 PSI. 30 MIN FFBHP 84-84 PSI. 120 MIN FSI BHP 447 PSI STILL BUILDING SLIGHTLY. FHH 4768 PSI. BHT 158 DEG F.

DST #3 9,719'-9,820' . TOOLS FAILED TO OPEN. NO TEST X MISRUN

DST #4 9,767'-9,790' *STRAWN*. PSA 9719 TO 9820 TO TEST 9767 to 9790. NO PKR SEAT. ATTEMPT TO SET PKRS 9709-9810 9714-9815 9719-9820 9724-9825 9729-9830 9733-9834 9740-9841 X WOULD NOT HOLD. HOLE DIAMETER TOO LARGE OUTSIDE THIS AREA. PKRS LOOKED GOOD WHEN REC. PKRS ARE BEING CHECKED.

DST #5 9690'-9847' *STRAWN*. BY LYNES STRADDLE PKR TST TO EVAL LOG ZONE 9767-9790. TOOL OPEN ON 15 MIN PRE-FLOW X FAIR BLOW OF AIR INC TO STRONG BLOW IN 1 MIN AND REMAINING STEADY UNTIL SI. R 30 MIN ISIBHP. TOOL OPEN ON 30 MIN FINAL FLW X WEAK BLOW OF AIR INC TO STRONG BLOW IN 7 MINS AND REMAINING STEADY UNTIL SI R 120 MIN FSI BHP. REC 150 FT OF MUD IN DP X CHL 48000 MG/L X RESISTIVITY 0.08 AT 64 DEG F IN TOP 54000 MGL X OIL 0 AT 64 DEG F IN MIDDLE X 53000 MGL X 0.078 AT 64 DEG F IN BTM OF REC VS PIT MUD CHL 50000 MGL X RESISTIVITY OIL 0 AT 86 DEG F. BTM HOLE SAMPLER CONTAINED NO G X SMALL AMT OF MUD CAKE. IHH 4679 PSI. 15 MIN IF BHP 56-84 PSI. 30 MIN ISI BHP 218 PSI. 30 MIN FF BHP 84-84 PSI. 120 MIN FSI BHP 377 PSI BLDG SLOWLY. FHH 4667 PSI. BHT 152 DEG F.

DST #6 8815-8845. *CANYON*. TOOL OPEN ON 15 MIN PREFLOW WITH WEAK BLOW OF AIR THROUGHOUT FLOW. RAN 30 MIN ISI BHP. TOOL OPEN ON 30 MIN FINAL FLOW WITH WEAK BLOW OF AIR THROUGHOUT FLOW. RAN 120 MIN FSI BHP. RECOVERED 30 FT OF MUD IN DRILL PIPE WITH CHLORIDES 5800 MG/L AND RESISTIVITY 0.11 AT 62 DEG F VS PIT MUD CHLORIDES 63000 MG/L AND RESISTIVITY 0.11 AT 62 DEG F. NS OF HYDROCARBONS. BOTTOM HOLE SAMPLER CONTAINED SMALL AMOUNT OF MUD WITH CHLORIDES 42000 MG/L AND RESISTIVITY 0.13 AT 62 DEG F.