

## MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

RECEIVED

JUN 25 1987

|                                                                                                                                                                                 |                             |                                       |                                        |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|---------------------------------------|----------------------------------------|
| Type Test<br><input checked="" type="checkbox"/> Initial <input type="checkbox"/> Annual <input type="checkbox"/> Special                                                       |                             | Test Date<br>5/20/87                  |                                        |
| Company<br>MCKAY OIL CORPORATION                                                                                                                                                |                             | Connection<br>Air                     |                                        |
| Pool<br>West Pecos Slope                                                                                                                                                        |                             | Formation<br>Abo                      |                                        |
| Completion Date<br>5/20/87                                                                                                                                                      |                             | Total Depth<br>3400                   |                                        |
| Plug Back TD<br>3045                                                                                                                                                            |                             | Elevation<br>4325                     |                                        |
| Farm or Lease Name<br>Lookout Federal                                                                                                                                           |                             |                                       |                                        |
| Csq. Size<br>4.5                                                                                                                                                                | Wt.<br>9.5                  | Set At<br>3120                        | Perforations:<br>From 2861.5 To 2905.5 |
| Thq. Size<br>2-3/8                                                                                                                                                              | Wt.<br>4.7                  | Set At<br>2811                        | Perforations:<br>From --- To ---       |
| Type Well - Single - Bradenhead - G.C. or G.O. Multiple<br>Single                                                                                                               |                             | Packer Set At<br>None                 |                                        |
| Producing Thru<br>Tubing                                                                                                                                                        |                             | Reservoir Temp. °F<br>92.2883         |                                        |
| Mean Annual Temp. °F<br>60                                                                                                                                                      |                             | Baro. Press. - P <sub>a</sub><br>13.2 |                                        |
| State<br>New Mexico                                                                                                                                                             |                             |                                       |                                        |
| L<br>2883                                                                                                                                                                       | H<br>2883                   | G <sub>g</sub><br>.628                | % CO <sub>2</sub><br>0.215             |
| % N <sub>2</sub><br>5.487                                                                                                                                                       | % H <sub>2</sub> S<br>0     | Prover<br>2.00                        | Meter Run<br>---                       |
| Taps<br>---                                                                                                                                                                     |                             |                                       |                                        |
| FLOW DATA                                                                                                                                                                       |                             |                                       |                                        |
| NO.                                                                                                                                                                             | Prover<br>Line<br>Size      | X                                     | Orifice<br>Size                        |
| SI                                                                                                                                                                              |                             |                                       |                                        |
| 1.                                                                                                                                                                              | 2.000                       | .250                                  | 102                                    |
| 2.                                                                                                                                                                              | 2.000                       | .375                                  | 10                                     |
| 3.                                                                                                                                                                              | 2.000                       | .500                                  | 4                                      |
| 4.                                                                                                                                                                              | 2.000                       | .625                                  | 1                                      |
| 5.                                                                                                                                                                              |                             |                                       |                                        |
| TUBING DATA                                                                                                                                                                     |                             |                                       |                                        |
| NO.                                                                                                                                                                             | Press.<br>p.s.i.g.          | Temp.<br>°F                           | Press.<br>p.s.i.g.                     |
| SI                                                                                                                                                                              |                             |                                       |                                        |
| 1.                                                                                                                                                                              | 647                         | 49.2                                  | 112                                    |
| 2.                                                                                                                                                                              | 25                          | 50.8                                  | 207                                    |
| 3.                                                                                                                                                                              | 0                           | 51.0                                  | 187                                    |
| 4.                                                                                                                                                                              | 0                           | 54.0                                  | 208                                    |
| 5.                                                                                                                                                                              |                             |                                       |                                        |
| CASING DATA                                                                                                                                                                     |                             |                                       |                                        |
| NO.                                                                                                                                                                             | Press.<br>p.s.i.g.          | Temp.<br>°F                           | Press.<br>p.s.i.g.                     |
| SI                                                                                                                                                                              |                             |                                       |                                        |
| 1.                                                                                                                                                                              | 647                         | 49.2                                  | 310                                    |
| 2.                                                                                                                                                                              | 25                          | 50.8                                  | 207                                    |
| 3.                                                                                                                                                                              | 0                           | 51.0                                  | 187                                    |
| 4.                                                                                                                                                                              | 0                           | 54.0                                  | 208                                    |
| 5.                                                                                                                                                                              |                             |                                       |                                        |
| RATE OF FLOW CALCULATIONS                                                                                                                                                       |                             |                                       |                                        |
| NO.                                                                                                                                                                             | Coefficient<br>(24 Hour)    | $\sqrt{h_w P_m}$                      | Pressure<br>P <sub>m</sub>             |
| 1                                                                                                                                                                               | 1.087                       | --                                    | 115.2                                  |
| 2                                                                                                                                                                               | 2.378                       | --                                    | 23.2                                   |
| 3                                                                                                                                                                               | 4.279                       | --                                    | 17.2                                   |
| 4                                                                                                                                                                               | 6.473                       | --                                    | 14.2                                   |
| 5                                                                                                                                                                               |                             |                                       |                                        |
| Flow Temp.<br>Factor<br>F <sub>t</sub>                                                                                                                                          |                             |                                       |                                        |
| 1                                                                                                                                                                               | 1.0107                      |                                       |                                        |
| 2                                                                                                                                                                               | 1.0088                      |                                       |                                        |
| 3                                                                                                                                                                               | 1.0088                      |                                       |                                        |
| 4                                                                                                                                                                               | 1.0058                      |                                       |                                        |
| 5                                                                                                                                                                               |                             |                                       |                                        |
| Gravity<br>Factor<br>F <sub>g</sub>                                                                                                                                             |                             |                                       |                                        |
| 1                                                                                                                                                                               | 1.262                       |                                       |                                        |
| 2                                                                                                                                                                               | 1.262                       |                                       |                                        |
| 3                                                                                                                                                                               | 1.262                       |                                       |                                        |
| 4                                                                                                                                                                               | 1.262                       |                                       |                                        |
| 5                                                                                                                                                                               |                             |                                       |                                        |
| Super<br>Compress.<br>Factor, F <sub>pv</sub>                                                                                                                                   |                             |                                       |                                        |
| 1                                                                                                                                                                               | 1.012                       |                                       |                                        |
| 2                                                                                                                                                                               | 1.005                       |                                       |                                        |
| 3                                                                                                                                                                               | 1.005                       |                                       |                                        |
| 4                                                                                                                                                                               | 1.005                       |                                       |                                        |
| 5                                                                                                                                                                               |                             |                                       |                                        |
| Rate of Flow<br>Q, Mcfd                                                                                                                                                         |                             |                                       |                                        |
| 1                                                                                                                                                                               | 162                         |                                       |                                        |
| 2                                                                                                                                                                               | 71                          |                                       |                                        |
| 3                                                                                                                                                                               | 94                          |                                       |                                        |
| 4                                                                                                                                                                               | 117                         |                                       |                                        |
| 5                                                                                                                                                                               |                             |                                       |                                        |
| NO.                                                                                                                                                                             | P <sub>r</sub>              | Temp. °R                              | T <sub>r</sub>                         |
| 1                                                                                                                                                                               | 0.17                        | 509                                   | 1.43                                   |
| 2                                                                                                                                                                               | 0.03                        | 511                                   | 1.44                                   |
| 3                                                                                                                                                                               | 0.02                        | 511                                   | 1.44                                   |
| 4                                                                                                                                                                               | 0.02                        | 514                                   | 1.44                                   |
| 5                                                                                                                                                                               |                             |                                       |                                        |
| Z                                                                                                                                                                               |                             |                                       |                                        |
| 1                                                                                                                                                                               | .977                        |                                       |                                        |
| 2                                                                                                                                                                               | .990                        |                                       |                                        |
| 3                                                                                                                                                                               | .990                        |                                       |                                        |
| 4                                                                                                                                                                               | .990                        |                                       |                                        |
| 5                                                                                                                                                                               |                             |                                       |                                        |
| Gas Liquid Hydrocarbon Ratio _____ Mcf/bbl.                                                                                                                                     |                             |                                       |                                        |
| A.P.I. Gravity of Liquid Hydrocarbons _____ Deg.                                                                                                                                |                             |                                       |                                        |
| Specific Gravity Separator Gas _____                                                                                                                                            |                             |                                       |                                        |
| Specific Gravity Flowing Fluid _____                                                                                                                                            |                             |                                       |                                        |
| Critical Pressure _____ P.S.I.A.                                                                                                                                                |                             |                                       |                                        |
| Critical Temperature _____ R                                                                                                                                                    |                             |                                       |                                        |
| P <sub>c</sub> 660.2 P <sub>c</sub> <sup>2</sup> 436                                                                                                                            |                             |                                       |                                        |
| NO.                                                                                                                                                                             | P <sub>i</sub> <sup>2</sup> | P <sub>w</sub>                        | P <sub>w</sub> <sup>2</sup>            |
| 1                                                                                                                                                                               |                             |                                       |                                        |
| 2                                                                                                                                                                               |                             |                                       |                                        |
| 3                                                                                                                                                                               |                             |                                       |                                        |
| 4                                                                                                                                                                               |                             |                                       |                                        |
| 5                                                                                                                                                                               |                             |                                       |                                        |
| (1) $\frac{P_c^2}{P_c^2 - P_w^2} =$ _____                                                                                                                                       |                             |                                       |                                        |
| (2) $\left[ \frac{P_c^2}{P_c^2 - P_w^2} \right]^n =$ _____                                                                                                                      |                             |                                       |                                        |
| AOF = Q $\left[ \frac{P_c^2}{P_c^2 - P_w^2} \right]^n =$ 111                                                                                                                    |                             |                                       |                                        |
| Absolute Open Flow _____ Mcfd @ 15.025                                                                                                                                          |                             |                                       |                                        |
| Angle of Slope @ _____                                                                                                                                                          |                             |                                       |                                        |
| Slope, n _____                                                                                                                                                                  |                             |                                       |                                        |
| Remarks: Water production is logging well off, flow diminishing on constant 48/64" choke. Based AOF on rate at average of four hours. (Water production is 8-10 bbls. per day). |                             |                                       |                                        |
| Approved By Division                                                                                                                                                            |                             | Conducted By:                         | Calculated By:                         |
|                                                                                                                                                                                 |                             | G. Richburg                           | C. Sanders                             |
|                                                                                                                                                                                 |                             |                                       | P. Stewart                             |