

45F  
File

DEC 9 1982

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

|                                                                                                                           |              |                                  |                        |                                     |                    |                                                             |  |                                       |  |
|---------------------------------------------------------------------------------------------------------------------------|--------------|----------------------------------|------------------------|-------------------------------------|--------------------|-------------------------------------------------------------|--|---------------------------------------|--|
| Type Test<br><input checked="" type="checkbox"/> Initial <input type="checkbox"/> Annual <input type="checkbox"/> Special |              |                                  |                        |                                     |                    | Test Date<br>11-20-82                                       |  | O.C.D.<br>ARTESIA, CO.                |  |
| Company<br>Mesa Petroleum Co. ✓                                                                                           |              |                                  |                        |                                     |                    | Connection<br>unconnected                                   |  |                                       |  |
| Pool<br>Pecos Slope ABO                                                                                                   |              |                                  |                        |                                     |                    | Formation<br>ABO                                            |  |                                       |  |
| Completion Date<br>11-20-82                                                                                               |              | Total Depth<br>4000'             |                        | Plug Back TD<br>3927'               |                    | Elevation<br>3882'                                          |  | Farm or Lease Name<br>Crowley Fed Com |  |
| Coq. Size<br>4-1/2                                                                                                        | Wt.<br>10.5# | d                                | Set At<br>4000'        | Perforations:<br>From 3645 To 3839  |                    | Well No.<br>1                                               |  |                                       |  |
| Trq. Size<br>2-3/8                                                                                                        | Wt.<br>4.7#  | d                                | Set At<br>3520'        | Perforations:<br>From open ended To |                    | Unit    Sec.    Twp.    Rge.<br>E       8       5S      25E |  |                                       |  |
| Type Well - Single - Bradenhead - G.G. or G.O. Multiple<br>Single                                                         |              |                                  |                        |                                     |                    | Packer Set At<br>None                                       |  | County<br>Chaves                      |  |
| Producing Thru<br>Tubing                                                                                                  |              | Reservoir Temp. °F<br>102 @ 4000 |                        | Mean Annual Temp. °F<br>60          |                    | Baro. Press. - P <sub>a</sub><br>13.2                       |  | State<br>New Mexico                   |  |
| L                                                                                                                         | H            | G <sub>g</sub><br>.65            | % CO <sub>2</sub><br>1 | % N <sub>2</sub><br>1               | % H <sub>2</sub> S | Prover<br>2" Critical Flow Prover                           |  | Meter Run<br>Taps                     |  |

| FLOW DATA |                        |   |                 |                    |                         | TUBING DATA |                    | CASING DATA |                    | Duration<br>of<br>Flow |             |
|-----------|------------------------|---|-----------------|--------------------|-------------------------|-------------|--------------------|-------------|--------------------|------------------------|-------------|
| NO.       | Prover<br>Line<br>Size | X | Orifice<br>Size | Press.<br>p.s.i.g. | Diff.<br>h <sub>w</sub> | Temp.<br>°F | Press.<br>p.s.i.g. | Temp.<br>°F | Press.<br>p.s.i.g. |                        | Temp.<br>°F |
| SI        |                        |   |                 |                    |                         |             | 950                |             | 950                |                        | 72 hr. SI   |
| 1.        | 2" x 1"                |   |                 | 40                 |                         | 32          | 899                | 65          | 922                |                        | 1 hr.       |
| 2.        | 2" x 1"                |   |                 | 85                 |                         | 40          | 800                | 71          | 870                |                        | 1 hr.       |
| 3.        | 2" x 1"                |   |                 | 109                |                         | 48          | 700                | 74          | 815                |                        | 1 hr.       |
| 4.        | 2" x 1"                |   |                 | 125                |                         | 54          | 590                | 74          | 710                |                        | 1 hr.       |
| 5.        |                        |   |                 |                    |                         |             |                    |             |                    |                        |             |

| RATE OF FLOW CALCULATIONS |                          |                  |                            |                                        |                                     |                                               |                         |
|---------------------------|--------------------------|------------------|----------------------------|----------------------------------------|-------------------------------------|-----------------------------------------------|-------------------------|
| NO.                       | Coefficient<br>(24 Hour) | $\sqrt{h_w P_m}$ | Pressure<br>P <sub>m</sub> | Flow Temp.<br>Factor<br>F <sub>t</sub> | Gravity<br>Factor<br>F <sub>g</sub> | Super<br>Compress.<br>Factor, F <sub>pv</sub> | Rate of Flow<br>Q, Mcfd |
| 1                         | 17.09                    | Flow Prover      | 53                         | 1.028                                  | 1.24                                |                                               | 1155                    |
| 2                         | "                        | "                | 98                         | 1.020                                  | 1.24                                |                                               | 2118                    |
| 3                         | "                        | "                | 122                        | 1.012                                  | 1.24                                |                                               | 2616                    |
| 4                         | "                        | "                | 138                        | 1.006                                  | 1.24                                |                                               | 2941                    |
| 5                         |                          |                  |                            |                                        |                                     |                                               |                         |

|     |                |          |                |   |                                                      |
|-----|----------------|----------|----------------|---|------------------------------------------------------|
| NO. | P <sub>t</sub> | Temp. °R | T <sub>t</sub> | Z | Gas Liquid Hydrocarbon Ratio _____ Mcf/bbl.          |
| 1   |                |          |                |   | A.P.I. Gravity of Liquid Hydrocarbons _____ Deg.     |
| 2   |                |          |                |   | Specific Gravity Separator Gas _____ X X X X X X X X |
| 3   |                |          |                |   | Specific Gravity Flowing Fluid _____ X X X X X       |
| 4   |                |          |                |   | Critical Pressure _____ P.S.I.A. _____ P.S.I.A.      |
| 5   |                |          |                |   | Critical Temperature _____ R _____ R                 |

|                           |                             |                |                             |                                                           |
|---------------------------|-----------------------------|----------------|-----------------------------|-----------------------------------------------------------|
| $P_c = 963$ $P_c^2 = 927$ |                             |                |                             |                                                           |
| NO.                       | P <sub>t</sub> <sup>2</sup> | P <sub>w</sub> | P <sub>w</sub> <sup>2</sup> | P <sub>c</sub> <sup>2</sup> - P <sub>w</sub> <sup>2</sup> |
| 1                         |                             | 935            | 874                         | 53                                                        |
| 2                         |                             | 883            | 780                         | 147                                                       |
| 3                         |                             | 828            | 686                         | 241                                                       |
| 4                         |                             | 723            | 523                         | 404                                                       |
| 5                         |                             |                |                             |                                                           |

(1)  $\frac{P_c^2}{P_c^2 - P_w^2} = 2,2946$     (2)  $\left[ \frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 1.5148$

AOIF = Q  $\left[ \frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 4,500$

Post ID-2  
12-12-82  
Camp & RK

|                                               |  |                                      |                    |
|-----------------------------------------------|--|--------------------------------------|--------------------|
| Absolute Open Flow <u>4,500</u> Mcfd @ 15.025 |  | Angle of Slope $\theta$ <u>63.5°</u> | Slope, n <u>.5</u> |
|-----------------------------------------------|--|--------------------------------------|--------------------|

Remarks: Plot of P<sub>c</sub><sup>2</sup>-P<sub>w</sub><sup>2</sup> vs. Q yielded a straight line with a  $\theta$  greater than 63.5°. Drew 63.5° line through highest point.

|                      |                              |                                       |             |
|----------------------|------------------------------|---------------------------------------|-------------|
| Approved By Division | Conducted By:<br>James Craig | Calculated By:<br>E. L. Buttross, Jr. | Checked By: |
|----------------------|------------------------------|---------------------------------------|-------------|