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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>10-19-89      |  | NOV 6-89                           |  |
| Company<br>Amoco Production Company ✓                                                                                     |  |                                  |  | Connection<br>EPNG         |  |                                    |  |
| Well<br>Mogley Canyon                                                                                                     |  |                                  |  | Formation<br>Strawn        |  | Unit<br>Mogley, C. 1               |  |
| Completion Date<br>10-2-89                                                                                                |  | Total Depth<br>10950             |  | Plug Back TD<br>10595      |  | Elevation<br>4022.2' GL            |  |
| Casing Size<br>5 1/2                                                                                                      |  | WT.<br>15.5                      |  | Set At<br>10944            |  | Perforations:<br>From 9468 To 9770 |  |
| Tbg. Size<br>2 3/8                                                                                                        |  | WT.<br>4.7                       |  | Set At<br>9362             |  | Perforations:<br>From Open To End  |  |
| Type Well - Single - Drilled - G.C. or G.O. Multiple<br>Single                                                            |  |                                  |  | Packer Set At<br>9360      |  | County<br>Eddy                     |  |
| Producing Thru<br>Tbg.                                                                                                    |  | Reservoir Temp. °F<br>169 @ 9468 |  | Mean Annual Temp. °F<br>60 |  | State<br>NM                        |  |
| L<br>9468                                                                                                                 |  | H<br>9468                        |  | Gg<br>.662                 |  | Prover<br>4.026                    |  |
|                                                                                                                           |  |                                  |  | % CO <sub>2</sub><br>.20   |  | % N <sub>2</sub><br>.77            |  |
|                                                                                                                           |  |                                  |  | % H <sub>2</sub> S<br>---  |  | Meter Run<br>4.026                 |  |
|                                                                                                                           |  |                                  |  |                            |  | Taps<br>Flg.                       |  |

  

| FLOW DATA |                  |      |              |                 |                      | TUBING DATA |                 | CASING DATA |                 | Duration of Flow |          |
|-----------|------------------|------|--------------|-----------------|----------------------|-------------|-----------------|-------------|-----------------|------------------|----------|
| NO.       | Prover Line Size | X    | Orifice Size | Press. p.s.i.g. | Diff. h <sub>w</sub> | Temp. °F    | Press. p.s.i.g. | Temp. °F    | Press. p.s.i.g. |                  | Temp. °F |
| SI        |                  |      |              |                 |                      |             | 2350            |             | Pkr.            |                  | 24 Hrs.  |
| 1.        | 4 X              | .500 |              |                 | 6.3                  | 64          | 2162            |             | Pkr.            |                  | 1 Hr.    |
| 2.        | 4 X              | .500 |              |                 | 32.5                 | 65          | 1907            |             | Pkr.            |                  | 1 Hr.    |
| 3.        | 4 X              | .500 |              |                 | 53.3                 | 68          | 1660            |             | Pkr.            |                  | 1 Hr.    |
| 4.        | 4 X              | .500 |              |                 | 72.3                 | 69          | 1430            |             | Pkr.            |                  | 1 Hr.    |
| 5.        |                  |      |              |                 |                      |             |                 |             |                 |                  |          |

  

| RATE OF FLOW CALCULATIONS |                       |                  |                         |                      |                   |                                          |                      |
|---------------------------|-----------------------|------------------|-------------------------|----------------------|-------------------|------------------------------------------|----------------------|
| NO.                       | Coefficient (24 Hour) | $\sqrt{h_w P_m}$ | Pressure P <sub>m</sub> | Flow Temp. Factor FL | Gravity Factor Fg | Super Compress. Factor, F <sub>spv</sub> | Rate of Flow Q, Mcfd |
| 1                         | 1.182                 | 56.36            | 504.2                   | .9962                | 1.229             | 1.055                                    | 86                   |
| 2                         | 1.182                 | 128.01           | 504.2                   | .9952                | 1.229             | 1.055                                    | 195                  |
| 3                         | 1.182                 | 163.93           | 504.2                   | .9924                | 1.229             | 1.051                                    | 248                  |
| 4                         | 1.182                 | 190.92           | 504.2                   | .9915                | 1.229             | 1.051                                    | 289                  |
| 5.                        |                       |                  |                         |                      |                   |                                          |                      |

  

| NO. | P <sub>t</sub> | Temp. °R | T <sub>t</sub> | Z    | Gas Liquid Hydrocarbon Ratio | A.P.I. Gravity of Liquid Hydrocarbons | Specific Gravity Separator Gas | Specific Gravity Flowing Fluid | Critical Pressure | Critical Temperature |
|-----|----------------|----------|----------------|------|------------------------------|---------------------------------------|--------------------------------|--------------------------------|-------------------|----------------------|
| 1.  | .75            | 524      | 1.39           | .899 | 63.7 @ 60°                   | .662                                  | xxxxxxx                        | 670                            | 378               |                      |
| 2.  | .75            | 525      | 1.39           | .899 |                              |                                       | xxxxxxx                        |                                |                   |                      |
| 3.  | .75            | 528      | 1.40           | .905 |                              |                                       |                                |                                |                   |                      |
| 4.  | .75            | 529      | 1.40           | .905 |                              |                                       |                                |                                |                   |                      |
| 5.  |                |          |                |      |                              |                                       |                                |                                |                   |                      |

  

| NO. | P <sub>t</sub> <sup>2</sup> | P <sub>w</sub> <sup>2</sup> | P <sub>e</sub> <sup>2</sup> | P <sub>e</sub> <sup>2</sup> - P <sub>w</sub> <sup>2</sup> |
|-----|-----------------------------|-----------------------------|-----------------------------|-----------------------------------------------------------|
| 1   | 2175.2                      | 4731.7                      | 853.0                       |                                                           |
| 2   | 1920.5                      | 3688.2                      | 1896.5                      |                                                           |
| 3   | 1623.7                      | 2801.3                      | 2783.4                      |                                                           |
| 4   | 1444.0                      | 2085.2                      | 3499.5                      |                                                           |
| 5   |                             |                             |                             |                                                           |

  

(1)  $\frac{P_e^2}{P_e^2 - P_w^2} = 1.596$

(2)  $\left[ \frac{P_e^2}{P_e^2 - P_w^2} \right]^n = 1.337$

AOF = Q  $\left[ \frac{P_e^2}{P_e^2 - P_w^2} \right]^n = .386$

Absolute Open Flow 386 Mcfd @ 15.025

Angle of Slope 58.3

Slope, n .621

Remarks: Well made 2.0 Bbls. 63.7 API Condensate during test

  

|                      |                                        |                       |                    |
|----------------------|----------------------------------------|-----------------------|--------------------|
| Approved By Division | Conducted By:<br>John West Engineering | Calculated By:<br>JBM | Checked By:<br>JBM |
|----------------------|----------------------------------------|-----------------------|--------------------|