

OIL CONSERVATION DIVISION

P.O. Box 2088  
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MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

|                                                                                                                           |                   |                                 |                                 |                                    |                                                 |                                             |                            |                                |  |
|---------------------------------------------------------------------------------------------------------------------------|-------------------|---------------------------------|---------------------------------|------------------------------------|-------------------------------------------------|---------------------------------------------|----------------------------|--------------------------------|--|
| Operator<br><i>Santa Fe Energy</i>                                                                                        |                   |                                 |                                 |                                    | Lease or Unit Name<br><i>Pontiac '7' st Com</i> |                                             |                            |                                |  |
| Type Test<br><input checked="" type="checkbox"/> Initial <input type="checkbox"/> Annual <input type="checkbox"/> Special |                   |                                 |                                 |                                    | Test Date<br><i>11-17-97</i>                    |                                             | Well No.<br><i>1</i>       |                                |  |
| Completion Date                                                                                                           |                   | Total Depth                     |                                 | Plug Back TD<br><i>9690</i>        |                                                 | Elevation<br><i>10112</i>                   |                            | Unit Ltr. - Sec. - TWP - Rge.  |  |
| Csg. Size<br><i>7"</i>                                                                                                    | Wt.<br><i>26</i>  | d<br><i>6.276</i>               | Set At<br><i>9800</i>           | Perforations:<br>From: <i>9570</i> |                                                 | Country<br><i>Eddy</i>                      |                            | Pool<br><i>Cemetery Morrow</i> |  |
| Tbg. Size<br><i>2 3/8</i>                                                                                                 | Wt.<br><i>6.5</i> | d<br><i>1.995</i>               | Set At<br><i>9374</i>           | Perforations:<br>From:             |                                                 | To: <i>DEC 1997</i>                         |                            | Formation<br><i>Morrow</i>     |  |
| Type Well - Single - Bradenhead - G.G. or G.O. Multiple<br><i>Single</i>                                                  |                   |                                 |                                 |                                    | Packer Set At<br><i>9374</i>                    |                                             | Connection<br><i>Sales</i> |                                |  |
| Producing Thru<br><i>Tbg</i>                                                                                              |                   | Reservoir Temp. °F<br><i>60</i> |                                 | Mean Annual Temp. °F<br><i>60</i>  |                                                 | Baro. Press - P <sub>a</sub><br><i>13.2</i> |                            | Meter Run<br><i>2.067</i>      |  |
| L<br><i>9374</i>                                                                                                          | H<br><i>9374</i>  | Gg<br><i>.589</i>               | % CO <sub>2</sub><br><i>.81</i> | % N <sub>2</sub><br><i>.27</i>     | % H <sub>2</sub> S<br><i>N/A</i>                | Prover<br><i>0</i>                          | Taps<br><i>F/G</i>         |                                |  |

| FLOW DATA |                      |              |                 |                      |             | TUBING DATA     |            | CASING DATA     |          | Duration of Flow |
|-----------|----------------------|--------------|-----------------|----------------------|-------------|-----------------|------------|-----------------|----------|------------------|
| NO.       | Prover Line Size     | 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        |                      |              |                 |                      |             | <i>2513.2</i>   | <i>60°</i> | <i>PKR</i>      |          |                  |
| 1.        | <i>2.067 X 1.375</i> |              | <i>185</i>      | <i>2"</i>            | <i>100°</i> | <i>2351.2</i>   | <i>60°</i> |                 |          | <i>60 min</i>    |
| 2.        | <i>2.067 X 1.375</i> |              | <i>185</i>      | <i>4.5"</i>          | <i>95°</i>  | <i>2255.2</i>   | <i>60°</i> |                 |          | <i>60 min</i>    |
| 3.        | <i>2.067 X 1.375</i> |              | <i>185</i>      | <i>10"</i>           | <i>92°</i>  | <i>2098.2</i>   | <i>60°</i> |                 |          | <i>60 min</i>    |
| 4.        | <i>2.067 X 1.375</i> |              | <i>185</i>      | <i>19.0"</i>         | <i>90°</i>  | <i>1833.2</i>   | <i>60°</i> |                 |          | <i>60 min</i>    |
| 5.        |                      |              |                 |                      |             |                 |            |                 |          |                  |

| RATE OF FLOW CALCULATIONS |                       |                  |                         |                       |                    |                                         |                      |
|---------------------------|-----------------------|------------------|-------------------------|-----------------------|--------------------|-----------------------------------------|----------------------|
| NO.                       | COEFFICIENT (24 HOUR) | $\sqrt{h_w P_m}$ | Pressure P <sub>m</sub> | Flow Temp. Factor Ft. | Gravity Factor Fg. | Super Compress. Factor, F <sub>pv</sub> | Rate of Flow Q, Mcfd |
| 1.                        | <i>10.20</i>          | <i>19.90</i>     | <i>198.2</i>            | <i>.9636</i>          | <i>1.303</i>       | <i>1.033</i>                            | <i>263</i>           |
| 2.                        | <i>10.20</i>          | <i>29.86</i>     | <i>198.2</i>            | <i>.9680</i>          | <i>1.303</i>       | <i>1.034</i>                            | <i>397</i>           |
| 3.                        | <i>10.20</i>          | <i>44.51</i>     | <i>198.2</i>            | <i>.9706</i>          | <i>1.303</i>       | <i>1.034</i>                            | <i>593</i>           |
| 4.                        | <i>10.20</i>          | <i>61.36</i>     | <i>198.2</i>            | <i>.9723</i>          | <i>1.303</i>       | <i>1.034</i>                            | <i>819</i>           |
| 5.                        |                       |                  |                         |                       |                    |                                         |                      |

| NO. | P <sub>r</sub> | Temp. °R   | T <sub>r</sub> | Z           | Gas Liquid Hydrocarbon Ratio | Super Compress. Factor, F <sub>pv</sub> | Rate of Flow Q, Mcfd |
|-----|----------------|------------|----------------|-------------|------------------------------|-----------------------------------------|----------------------|
| 1.  | <i>.82</i>     | <i>560</i> | <i>1.59</i>    | <i>.937</i> | <i>N/A</i>                   | <i>1.033</i>                            | <i>263</i>           |
| 2.  | <i>.82</i>     | <i>555</i> | <i>1.58</i>    | <i>.936</i> | <i>N/A</i>                   | <i>1.034</i>                            | <i>397</i>           |
| 3.  | <i>.81</i>     | <i>553</i> | <i>1.57</i>    | <i>.936</i> | <i>N/A</i>                   | <i>1.034</i>                            | <i>593</i>           |
| 4.  | <i>.81</i>     | <i>550</i> | <i>1.56</i>    | <i>.935</i> | <i>N/A</i>                   | <i>1.034</i>                            | <i>819</i>           |
| 5.  |                |            |                |             |                              |                                         |                      |

| NO. | P <sub>i</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) $\frac{P_c^2}{P_c^2 - P_w^2} =$ | 2) $\left[ \frac{P_c^2}{P_c^2 - P_w^2} \right]^n =$ |
|-----|-----------------------------|----------------|-----------------------------|-----------------------------------------------------------|------------------------------------|-----------------------------------------------------|
| 1.  |                             | <i>2333.8</i>  | <i>5446.6</i>               | <i>1029.4</i>                                             | <i>2.05</i>                        | <i>2.05</i>                                         |
| 2.  |                             | <i>2198.5</i>  | <i>4833.4</i>               | <i>1642.6</i>                                             |                                    |                                                     |
| 3.  |                             | <i>2061.7</i>  | <i>4250.6</i>               | <i>2225.4</i>                                             |                                    |                                                     |
| 4.  |                             | <i>1825.3</i>  | <i>3331.7</i>               | <i>3144.3</i>                                             |                                    |                                                     |
| 5.  |                             |                |                             |                                                           |                                    |                                                     |

Absolute Open Flow *1679* Mcfd @ 15.025 Angle of Slope  $\Theta$  *45°* Slope, n *1.000*

Remarks: *\*Calculated from known bottom hole pressures.*  
*\*No liquid made during test.*

Approved By Division \_\_\_\_\_ Conducted By: *Pro Well Testing* Calculated By: *M.B.* Checked By: *B.M.*