

NEW MEXICO OIL CONSERVATION COMMISSION  
MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Form C-122  
Revised 9-1-65

|                                                                                                                           |                                     |                             |                                       |
|---------------------------------------------------------------------------------------------------------------------------|-------------------------------------|-----------------------------|---------------------------------------|
| Type Test<br><input checked="" type="checkbox"/> Initial <input type="checkbox"/> Annual <input type="checkbox"/> Special |                                     | Test Date<br>8/19/81        |                                       |
| Company<br>HNG OIL COMPANY                                                                                                |                                     | Connection<br>None          |                                       |
| Pool<br>East Grama Ridge                                                                                                  |                                     | Formation<br>Morrow         |                                       |
| Completion Date<br>8/13/81                                                                                                | Total Depth<br>13,296'              | Plug Back TD<br>13,211'     | Elevation<br>3641.5'                  |
| Farm or Lease Name<br>San Simon 32A State Com.                                                                            |                                     |                             | Well No.<br>1                         |
| Csg. Size<br>4-1/2"                                                                                                       | Wt.<br>15.1                         | d<br>3.826                  | Set At<br>13,294'                     |
| Perforations:<br>From 12,742' To 12,748'                                                                                  |                                     | Unit<br>N                   |                                       |
| Tbg. Size<br>2-7/8"                                                                                                       | Wt.<br>6.50                         | d<br>2.441                  | Set At<br>10,829'                     |
| Perforations:<br>Open Ended                                                                                               |                                     | Sec.<br>32                  |                                       |
| Type Well - Single - Bradenhead - G.G. or G.O. Multiple                                                                   |                                     | Twp.<br>21S                 |                                       |
| Packer Set At<br>10,800'                                                                                                  |                                     | Rge.<br>35E                 |                                       |
| Single                                                                                                                    |                                     | County<br>Lea               |                                       |
| Producing Thru<br>Tubing                                                                                                  | Reservoir Temp. °F<br>177 @ 12,745' | Mean Annual Temp. °F<br>60° | Baro. Press. - P <sub>a</sub><br>13.2 |
| State<br>New Mexico                                                                                                       |                                     | Meter Run<br>6"             |                                       |
| L<br>12745                                                                                                                | H<br>-                              | G <sub>g</sub><br>0.5998    | % CO <sub>2</sub><br>0.292            |
| % N <sub>2</sub><br>0.697                                                                                                 |                                     | % H <sub>2</sub> S<br>-     | Prover<br>F                           |

  

| 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. DWT | Temp. °F    | Press. p.s.i.g. |                  | Temp. °F   |
| SI        |                  |          |              |                 |                      |             | 5600                |             | PACKER          |                  | 139.0 hrs. |
| 1.        | 6                | 4 1/2/64 | 1.750        | 485             | 5                    | 101         | 5262                | 60          |                 |                  | 1.0 hr.    |
| 2.        | 6                | 6/64     | 1.750        | 495             | 14                   | 104         | 5065                | 60          |                 |                  | 0.5 hr.    |
| 3.        | 6                | 7 1/2/64 | 1.750        | 495             | 30                   | 100         | 4988                | 60          |                 |                  | 0.5 hr.    |
| 4.        | 6                | 9 1/2/64 | 1.750        | 450             | 51                   | 73          | 4930                | 60          |                 |                  | 1.0 hr.    |
| 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 F <sub>g</sub> | Super Compress. Factor, F <sub>pv</sub> | Rate of Flow Q, Mcfd |
| 1                         | 14.61                 | 49.91            | 498.2                   | 0.9628                | 1.291                         | 1.031                                   | 934.46               |
| 2                         | 14.61                 | 84.35            | 508.2                   | 0.9602                | 1.291                         | 1.031                                   | 1575.00              |
| 3                         | 14.61                 | 123.47           | 508.2                   | 0.9636                | 1.291                         | 1.032                                   | 2315.87              |
| 4                         | 14.61                 | 153.70           | 463.2                   | 0.9877                | 1.291                         | 1.035                                   | 2963.57              |
| 5                         |                       |                  |                         |                       |                               |                                         |                      |

  

| NO. | P <sub>r</sub> | Temp. °R | T <sub>r</sub> | Z     | Gas Liquid Hydrocarbon Ratio | Mcf/bbl. |
|-----|----------------|----------|----------------|-------|------------------------------|----------|
| 1   | 0.74           | 561      | 1.58           | 0.940 | 121.70                       |          |
| 2   | 0.75           | 564      | 1.59           | 0.940 | 47.8                         |          |
| 3   | 0.75           | 560      | 1.58           | 0.939 | 0.5998                       |          |
| 4   | 0.69           | 533      | 1.51           | 0.933 | 0.5998                       |          |
| 5   |                |          |                |       |                              |          |

  

| NO. | P <sub>r</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   | 6997.2                      | 48960.8        | 3735.2                      |                                                           |
| 2   | 6804.2                      | 46297.1        | 6398.9                      |                                                           |
| 3   | 6723.2                      | 45201.4        | 7494.6                      |                                                           |
| 4   | 6360.2                      | 40452.1        | 12243.9                     |                                                           |
| 5   |                             |                |                             |                                                           |

  

(1)  $\frac{P_c^2}{P_c^2 - P_w^2} = 14.108$

AOF = Q  $\left[ \frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 11922$

(2)  $\left[ \frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 12.758$

  

|                    |       |                |                  |        |          |       |
|--------------------|-------|----------------|------------------|--------|----------|-------|
| Absolute Open Flow | 11922 | Mcf/d @ 15.025 | Angle of Slope @ | 46° 6' | Slope, n | 0.962 |
|--------------------|-------|----------------|------------------|--------|----------|-------|

  

Remarks: Bottom hole pressure @ (-9104) 12745' used for pressure calculations  
2.0 BO in 3.0 hours - 16.0 BO/D

  

|                            |                                       |                                 |                                          |
|----------------------------|---------------------------------------|---------------------------------|------------------------------------------|
| Approved By<br>[Signature] | Conducted By<br>Jarrel Services, Inc. | Calculated By<br>Joe A. Coleman | Checked By<br>Joe A. Coleman<br>PE #2208 |
|----------------------------|---------------------------------------|---------------------------------|------------------------------------------|