

## EL PASO NATURAL GAS COMPANY

## MULTI-POINT BACK PRESSURE TEST FOR GAS WELLS

Pool Undesignated Formation Morrow County Lea  
 Initial                      Annual                      Special X Date of Test 4-16/4-20-62  
 Company El Paso Natural Gas Company Lease Mescalero Ridge Unit Well No. 1  
 Unit D Sec. 21 Twp. 19 Range 34 Purchaser Southern Union Gas Company  
 Casing 7" Wt. 32# I.D.                      Depth 13,709 Perfor. 13,328 To 13,340  
 Tubing 2 1/16" Wt. 3.25# I.D. 1.693 Depth 13,415 Perfor. None To                       
 Gas Pay: From 13,328 To 13,340 L 13,415 Mix = .780 G/L 10,464 Bar. Press. 13.2  
 Producing From: Casing                      Tubing X Type of Well G. O. Dual  
 Date of Completion: 9-27-61 Broken: 13,225

| No. | Flow Data  |   |           | Initial Data |           | Closing Data |           | Duration |
|-----|------------|---|-----------|--------------|-----------|--------------|-----------|----------|
|     | Line Size  | x | Tube Size | Press. psia  | Temp. °F. | Press. psia  | Temp. °F. |          |
| 1.  | 2" x 1.250 |   |           | 600          | 4.00      | 81           | 4060      | 72       |
| 2.  | 2" x 1.250 |   |           | 670          | 12.96     | 70           | 3600      | 24       |
| 3.  | 2" x 1.250 |   |           | 689          | 29.70     | 78           | 3064      | 24       |
| 4.  | 2" x 1.250 |   |           | 738          | 40.32     | 85           | 2135      | 24       |
| 5.  |            |   |           |              |           |              | 1563      | 24       |

| No. | Coefficient (24-Hour) | $\sqrt{P_{wf} - P_{e}}$ | Pressure psia | Flow Temp. Factor $F_{\mu}$ | Gravity Factor $F_{\rho}$ | Compress. Factor $F_{\gamma}$ | Rate of Flow cu ft per 24 hours at 14.7 psia |
|-----|-----------------------|-------------------------|---------------|-----------------------------|---------------------------|-------------------------------|----------------------------------------------|
| 1.  | 10.48                 | 49.53                   |               | .9804                       | .9393                     | 1.062                         | 507.6                                        |
| 2.  | 10.48                 | 94.10                   |               | .9905                       | .9393                     | 1.076                         | 987.2                                        |
| 3.  | 10.48                 | 144.41                  |               | .9831                       | .9393                     | 1.075                         | 1,502                                        |
| 4.  | 10.48                 | 174.03                  |               | .9768                       | .9393                     | 1.075                         | 1,799                                        |
| 5.  |                       |                         |               |                             |                           |                               |                                              |

Gas Liquid Hydrocarbon Ratio 26.6  
 Gravity of Liquid Hydrocarbons 51.8 @ 60°  
 $P_{wf}$  15.255 (1- $\mu$ ) 0.5132

Temperature  
 in °F.

Specific Gravity Separator Gas .680  
 Specific Gravity Liquid Phase .7719  
 $P_{wf}$  4073.2  $P_{e}$  16590.9

| No. | $P_{wf}$ (psia) | $P_{e}$ (psia) | $P_{wf}^2 - P_{e}^2$ | $\mu$ (cp) | $\rho$ (lb/cu ft) | $\gamma_g$ | $\gamma_l$ | $P_{wf}$ (psia) |
|-----|-----------------|----------------|----------------------|------------|-------------------|------------|------------|-----------------|
| 1.  | 3613.2          | 13055.2        | 3535.7               | 7.743      | 59.95             | 30.77      | 13086.0    | 3504.9          |
| 2.  | 3077.2          | 9496.1         | 7094.8               | 15.060     | 226.8             | 116.4      | 9612.5     | 6978.4          |
| 3.  | 2148.2          | 4614.8         | 11976.1              | 22.913     | 525.0             | 269.4      | 4884.2     | 11706.7         |
| 4.  | 1576.2          | 2484.4         | 14106.5              | 27.444     | 753.2             | 386.5      | 2870.9     | 13720.0         |
| 5.  |                 |                |                      |            |                   |            |            |                 |

Wellhead Potential: 2.050 MCF/D @ 47.5  $P_{wf}$  .916  
 Abs. Potential: 2.100 MCF/D @ 47.5  $P_{wf}$  .916

Conducted by: J. B. Murray  
 Witnessed by:                       
 Calculated by: Rayton N. Bandalak