

(TO BE USED FOR FRUITLAND, PICTURED CLIFFS, MESAVERDE, & ALL DAKOTA  
EXCEPT BARKER DOME STORAGE AREA)

Operator Southern Union Gas Company Lease Quinn Well No. 2  
Unit 6 Sec. 19 Twp. 31 N Rge. 12 W Pay Zone: From 4675 To 4865  
Casing: OD 7" WT. 23# Set At 5288 Tubing: OD 2 3/8" WT. 4.7# T. Perf. 4893  
Produced Through: Casing ^ Tubing IX Gas Gravity: Measured .690 Estimated           
Date of Flow Test: From 12/24/58 To 12/1/58 \* Date S.I.P. Measured 12/8/58  
Meter Run Size 4" Orifice Size 1 3/8" Type Chart Normal Type Taps Flange

|                                                                           |                               |       |     |
|---------------------------------------------------------------------------|-------------------------------|-------|-----|
| Flowing casing pressure (Dwt) _____                                       | psig + 12 = _____             | psia  | (a) |
| Flowing tubing pressure (Dwt) _____                                       | psig + 12 = _____             | psia  | (b) |
| Flowing meter pressure (Dwt) _____                                        | psig + 12 = _____             | psia  | (c) |
| Flowing meter pressure (meter reading when Dwt. measurement taken:        |                               |       |     |
| Normal chart reading _____                                                | psig + 12 = _____             | psia  | (d) |
| Square root chart reading (_____) <sup>2</sup> x spring constant _____    | = _____                       | psia  | (d) |
| Meter error (c) - (d) or (d) - (c) _____ ±                                | = _____                       | psi   | (e) |
| Friction loss, Flowing column to meter:                                   |                               |       |     |
| (b) - (c) Flow through tubing; (a) - (c) Flow through casing _____        | = _____                       | psi   | (f) |
| Seven day average static meter pressure (from meter chart):               |                               |       |     |
| Normal chart average reading _____ <b>140</b>                             | psig + 12 = _____ <b>152</b>  | psia  | (g) |
| Square root chart average reading (_____) <sup>2</sup> x sp. const. _____ | = _____                       | psia  | (g) |
| Corrected seven day avge. meter press. (p <sub>f</sub> ) (g) + (e) _____  | = _____ <b>152</b>            | psia  | (h) |
| P <sub>t</sub> = (h) + (f) _____                                          | = _____ <b>152</b>            | psia  | (i) |
| Wellhead casing shut-in pressure (Dwt) _____ <b>1015</b>                  | psig + 12 = _____ <b>1027</b> | psia  | (j) |
| Wellhead tubing shut-in pressure (Dwt) _____ <b>1015</b>                  | psig + 12 = _____ <b>1027</b> | psia  | (k) |
| P <sub>C</sub> = (j) or (k) whichever well flowed through _____           | = _____ <b>1027</b>           | psia  | (l) |
| Flowing Temp. (Meter Run) _____ <b>62</b> °F + 460                        | = _____ <b>502</b>            | ° Abs | (m) |
| P <sub>d</sub> = ½ P <sub>C</sub> = ½ (l) _____                           | = _____ <b>513</b>            | psia  | (n) |

Q = 425 X  $\left( \frac{\text{FLOW RATE CALCULATION}}{\frac{\sqrt{(c)}}{\sqrt{(d)}} = \frac{\text{1.0000}}{\text{}} = \text{1.0000}} \right)^* = \text{425 MCF/day}$   
(integrated)

$$D = Q \cdot \frac{125}{\left[ \begin{array}{l} (P_c^2 - P_d^2) = 791,560 \\ (P_c^2 - P_w^2) = 1,008,160 \end{array} \right]} \cdot \frac{0.75}{.82188} = 349 \text{ MCF/da.}$$

$P_c =$  1027 psia  
 $Q =$  485 Mcf/day  
 $P_w =$  163 psia  
 $P_d =$  513 psia  
 $D =$  349 Mcf/day

Company Southern Union Gas Company  
By L. S. Muench *L. S. Muench*  
Title Exploration Engineer  
Witnessed by \_\_\_\_\_  
Company \_\_\_\_\_

REMARKS OR FRICTION CALCULATIONS

| GL   | $(1-e^{-S})$ | $(F_C Q)^2$ | $(F_C Q)^2 (1-e^{-S})$<br>R <sup>2</sup> | P <sub>t</sub> <sup>2</sup><br>(Column i) | P <sub>t</sub> <sup>2</sup> + R <sup>2</sup> | P <sub>w</sub> |
|------|--------------|-------------|------------------------------------------|-------------------------------------------|----------------------------------------------|----------------|
| 3376 | 0.218        | 15.967      | 3.481                                    | 23.104                                    | 26.585                                       | 163            |



