

## NEW MEXICO OIL CONSERVATION COMMISSION

Form C-122

Revised 12-1-55

## MULTI-POINT BACK PRESSURE TEST FOR GAS WELLS

Pool Barst Formation Queen County Lea  
 Initial \_\_\_\_\_ Annual \_\_\_\_\_ Special x Date of Test 12-20-58 See Notes  
1-23-58  
 Company Simclair Oil & Gas Co. Lease Alex. Rogers Well No. 2  
 Unit A Sec. 12 Twp. 22S Rge. 37E Purchaser Gulf Oil Corp.  
 Casing 5" Wt. 15# I.D. \_\_\_\_\_ Set at 6,298 Perf. 6,149 To 6,190  
6,196 To 6,232  
 Tubing 2" Wt. 4.7# I.D. \_\_\_\_\_ Set at 6,110 Perf. 6,107 To 6,110' 4 in./ft.  
 Gas Pay: From 6,149 To 6,232 L 6,107 xG Mix .799 -GL 4,879 Bar.Press. 13.2  
 Producing Thru: Casing \_\_\_\_\_ Tubing x Type Well Single  
 Single-Bradenhead-G. G. or G.O. Dual  
 Date of Completion: Oct. 1, 1957 Packer None Reservoir Temp. ?

## OBSERVED DATA

Tested Through (~~Pressure~~) (~~Choke~~) (Meter)Type Taps Flg.

| No. | Flow Data            |                        |             |                      |           | Tubing Data |           | Casing Data |           | Duration of Flow Hr. |
|-----|----------------------|------------------------|-------------|----------------------|-----------|-------------|-----------|-------------|-----------|----------------------|
|     | (Prover) (Line) Size | (Choke) (Orifice) Size | Press. psig | Diff. h <sub>w</sub> | Temp. °F. | Press. psig | Temp. °F. | Press. psig | Temp. °F. |                      |
| SI  |                      |                        |             |                      |           | 1667#       | 47°       | 1666#       | 47°       | 72                   |
| 1.  | 4                    | 1.125                  | 299#        | 36.3                 | 57        | 320#        | 60        | 377         | 52        | 24                   |
| 2.  | 4                    | 1.125                  | 690         | 12                   | 62        | 616         | 65        | 518         | 52        | 3                    |
| 3.  | 4                    | 1.125                  | 300         | 27                   | 59        | 464         | 58        | 535         | 52        | 3                    |
| 4.  | 4                    | 1.125                  | 495         | 10                   | 56        | 516         | 59        | 516         | 52        | 3                    |
| 5.  | 4                    | 1.125                  | 300         | 6                    | 54        | 622         | 57        | 632         | 52        | 3                    |

## FLOW CALCULATIONS

| No. | Coefficient (24-Hour) | $\sqrt{h_w P_f}$ | Pressure psia | Flow Temp. Factor F <sub>t</sub> | Gravity Factor F <sub>g</sub> | Compress. Factor F <sub>pv</sub> | Rate of Flow Q-MCFPD @ 15.025 psia |
|-----|-----------------------|------------------|---------------|----------------------------------|-------------------------------|----------------------------------|------------------------------------|
| 1.  | 7.786                 | 105.98           | 312.2         | 1.0029                           | .9427                         | 1.033                            | 806                                |
| 2.  | 7.786                 | 91.84            | 703.2         | .9981                            | .9427                         | 1.080                            | 727                                |
| 3.  | 7.786                 | 91.93            | 313.2         | 1.0010                           | .9427                         | 1.035                            | 699                                |
| 4.  | 7.786                 | 71.27            | 508.2         | 1.0039                           | .9427                         | 1.058                            | 556                                |
| 5.  | 7.786                 | 55.47            | 513.2         | 1.0058                           | .9427                         | 1.066                            | 437                                |

## PRESSURE CALCULATIONS

Gas Liquid Hydrocarbon Ratio 20,390 cf/bbl.  
 Gravity of Liquid Hydrocarbons 49.8 deg.  
 F<sub>c</sub> \_\_\_\_\_ (1-e<sup>-s</sup>)

Specific Gravity Separator Gas 676  
 Specific Gravity Flowing Fluid \_\_\_\_\_  
 P<sub>c</sub> 1680.2 P<sub>c</sub> 2823.1

| No. | P <sub>w</sub> P <sub>t</sub> (psia) | P <sub>t</sub> <sup>2</sup> | F <sub>c</sub> Q | (F <sub>c</sub> Q) <sup>2</sup> | (F <sub>c</sub> Q) <sup>2</sup> (1-e <sup>-s</sup> ) | P <sub>w</sub> <sup>2</sup> | P <sub>c</sub> <sup>2</sup> -P <sub>w</sub> <sup>2</sup> | Cal. P <sub>w</sub> | P <sub>w</sub> /P <sub>c</sub> |
|-----|--------------------------------------|-----------------------------|------------------|---------------------------------|------------------------------------------------------|-----------------------------|----------------------------------------------------------|---------------------|--------------------------------|
| 1.  | 390.2                                |                             |                  |                                 |                                                      | 152.3                       | 2670                                                     |                     | 23.2                           |
| 2.  | 531.2                                |                             |                  |                                 |                                                      | 282.2                       | 2541                                                     |                     | 31.6                           |
| 3.  | 548.2                                |                             |                  |                                 |                                                      | 300.5                       | 2523                                                     |                     | 32.6                           |
| 4.  | 529.2                                |                             |                  |                                 |                                                      | 280.1                       | 2543                                                     |                     | 31.5                           |
| 5.  | 645.2                                |                             |                  |                                 |                                                      | 416.3                       | 2407                                                     |                     | 38.4                           |

Absolute Potential: 910 MCFPD; n .99COMPANY Simclair O & G Co.ADDRESS Box 1470 Midland, TexasAGENT and TITLE Ray Lord Gas Analyst

WITNESSED \_\_\_\_\_

COMPANY \_\_\_\_\_

## REMARKS

First test made 12-20-57 - Points not in line. - retested 1-23-58 with a decreasing flow rate; points still not in line, therefore a 45 degree angle drawn through 24 hr. flow.

WRL

## INSTRUCTIONS

This form is to be used for reporting multi-point back pressure tests on gas wells in the State, except those on which special orders are applicable. Three copies of this form and the back pressure curve shall be filed with the Commission at Box 871, Santa Fe.

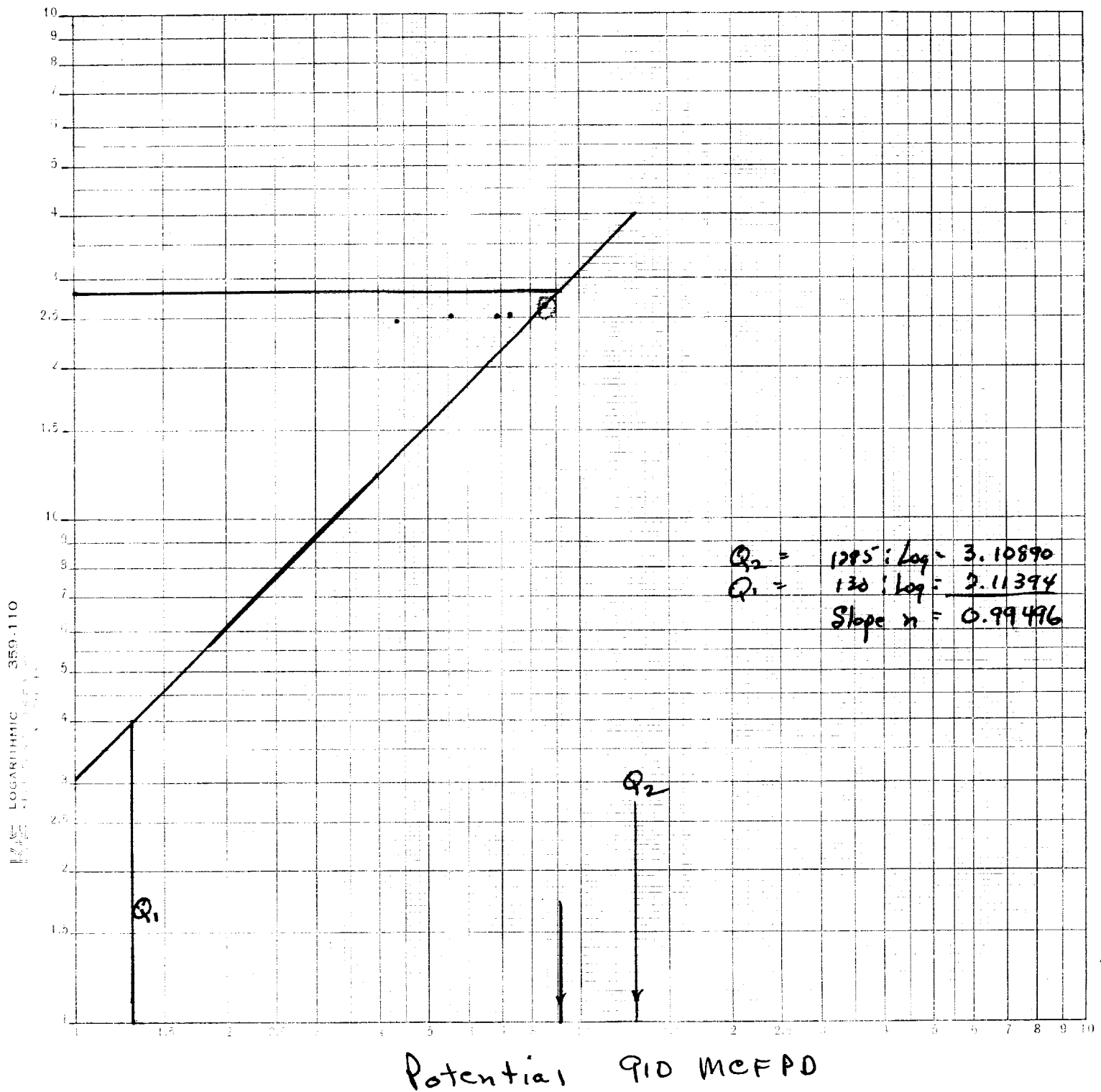
The log log paper used for plotting the back pressure curve shall be of at least three inch cycles.

## NOMENCLATURE

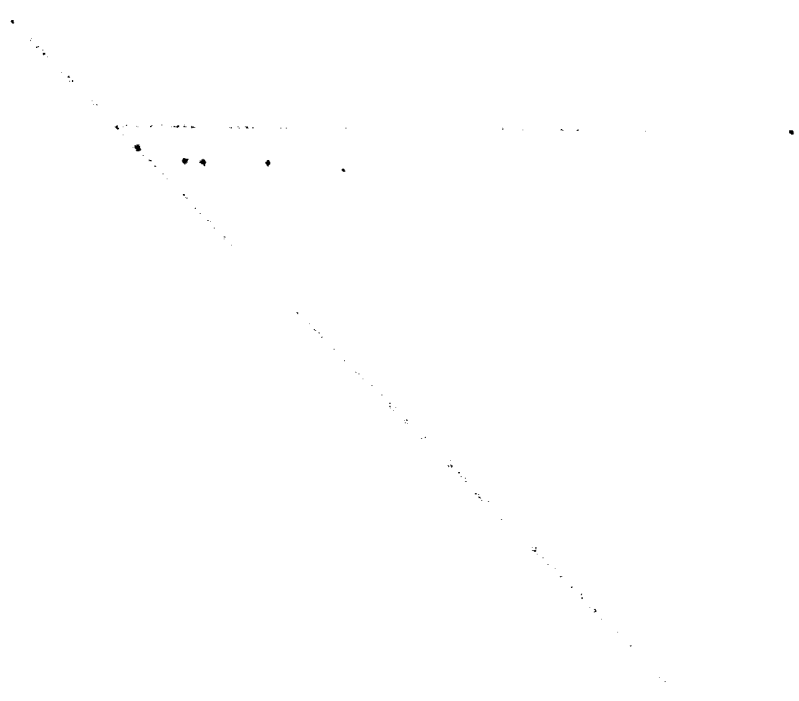
- $Q$  = Actual rate of flow at end of flow period at W. H. working pressure ( $P_w$ ).  
MCF/da. @ 15.025 psia and 60° F.
- $P_c$  = 72 hour wellhead shut-in casing (or tubing) pressure whichever is greater.  
psia
- $P_w$  = Static wellhead working pressure as determined at the end of flow period.  
(Casing if flowing thru tubing, tubing if flowing thru casing.) psia
- $P_t$  = Flowing wellhead pressure (tubing if flowing through tubing, casing if  
flowing through casing.) psia
- $P_f$  = Meter pressure, psia.
- $h_w$  = Differential meter pressure, inches water.
- $F_g$  = Gravity correction factor.
- $F_t$  = Flowing temperature correction factor.
- $F_{pv}$  = Supercompressibility factor.
- $n$  = Slope of back pressure curve.

Note: If  $P_w$  cannot be taken because of manner of completion or condition of well, then  $P_w$  must be calculated by adding the pressure drop due to friction within the flow string to  $P_t$ .

Compar - Sinclair Oil Co  
 Lease - Alex Rogers #2  
 Location - 'Q' 12-225-37E  
 County - Lea  
 Date - 1-23-58



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