NEW MEXICO OIL CONSERVATION COMMISSION

Form C-122
Revised 12-1-55

# MULTI-POINT BACK PRESSURE TEST FOR GAS WELLS

Pool **South Blanco** Formation **Pictured Cliffs** County **Rio Arriba**

Initial **X** Annual _____ Special _____ Date of Test **8-23-65**

Company **Continental Oil Company** Lease **AXI Apache "H"** Well No. **6**

Unit **P** Sec. **1** Twp. **25N** Rge. **4W** Purchaser **Southern Union Gas Company**

Casing **4-1/2** Wt. **10.5** I.D. **4.090** Set at **3975'** Perf. **3840'** To **3882'**

Tubing **2-3/8"** Wt. **4.7** I.D. **1.995** Set at **3876'** Perf. **None** To _____

Gas Pay: From **3840** To **3882'** L **3876'** xG **0.670** -GL **2597** Bar.Press. **12**

Producing Thru: Casing **X** Tubing _____ Type Well **Single**
Single-Bradenhead-G. G. or G.O. Dual

Date of Completion: **8-12-65** Packer **None** Reservoir Temp. _____

## OBSERVED DATA

Tested Through (Prover) ~~(Choke)(Orifice)~~ Type Taps --

| No. | Flow Data (Prover) (Line) Size | (Choke) (Orifice) Size | Press. psig | Diff. $h_w$ | Temp. °F. | Tubing Data Press. psig | Tubing Data Temp. °F. | Casing Data Press. psig | Casing Data Temp. °F. | Duration of Flow Hr. |
|---|---|---|---|---|---|---|---|---|---|---|
| SI | | | | | | 993 | | 993 | | 8/264 hrs. (11 days) |
| 1. | 2" | 3/16" | 943 | | 60 | 946 | | 943 | 60° | 1 hr. |
| 2. | 2" | 5/16" | 793 | | 60 | 812 | | 793 | 60° | 1 hr. |
| 3. | 2" | 7/16" | 592 | | 60 | 614 | | 592 | 60° | 1 hr. |
| 4. | 2" | 5/8" | 320 | | 62 | 368 | | 320 | 62° | 1 hr. |
| 5. | | | | | | | | | | |

## FLOW CALCULATIONS

| No. | Coefficient (24-Hour) | $\sqrt{h_w p_f}$ | Pressure psia | Flow Temp. Factor $F_t$ | Gravity Factor $F_g$ | Compress. Factor $F_{pv}$ | Rate of Flow Q-MCFPD @ 15.025 psia |
|---|---|---|---|---|---|---|---|
| 1. | .7851 | | 955 | 1.000 | 0.9463 | 1.110 | 788 |
| 2. | 2.1577 | | 805 | 1.000 | 0.9463 | 1.093 | 1796 |
| 3. | 4.3997 | | 604 | 1.000 | 0.9463 | 1.080 | 2706 |
| 4. | 8.3555 | | 332 | 0.9981 | 0.9463 | 1.036 | 2715 |
| 5. | | | | | | | |

## PRESSURE CALCULATIONS

Gas Liquid Hydrocarbon Ratio _____ cf/bbl.
Gravity of Liquid Hydrocarbons _____ deg.
$F_c$ **Pw Measured** $(1-e^{-s})$ _____

Specific Gravity Separator Gas _____
Specific Gravity Flowing Fluid **.670**
$P_c$ **1005** $P_c^2$ **1,010,025**

| No. | $P_w$ ~~Pc(Prover)~~ | $P_t^2$ | $F_cQ$ | $(F_cQ)^2$ | $(F_cQ)^2$ $(1-e^{-s})$ | $P_w^2$ | $P_c^2-P_w^2$ | Cal. $P_w$ | $\frac{P_w}{P_c}$ |
|---|---|---|---|---|---|---|---|---|---|
| 1. | 958 | | | | | 917,764 | 92,261 | | 95.3 |
| 2. | 824 | | | | | 678,976 | 331,049 | | 82.0 |
| 3. | 626 | | | | | 391,876 | 618,149 | | 62.3 |
| 4. | 380 | | | | | 144,400 | 865,625 | | 37.8 |
| 5. | | | | | | | | | |

Absolute Potential: **3700** MCFPD; n **.66**

COMPANY **Continental Oil Company**
ADDRESS **P. O. Box 1621, Durango, Colorado**
AGENT and TITLE **R. B. Arratt, Test Engineer**
WITNESSED Fred Vass Mahre
COMPANY _____

REMARKS

RECEIVED
SEP 13 1965
OIL CON. COM.
DIST. 3

NMOCC(3) - Foreman - File

## 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.

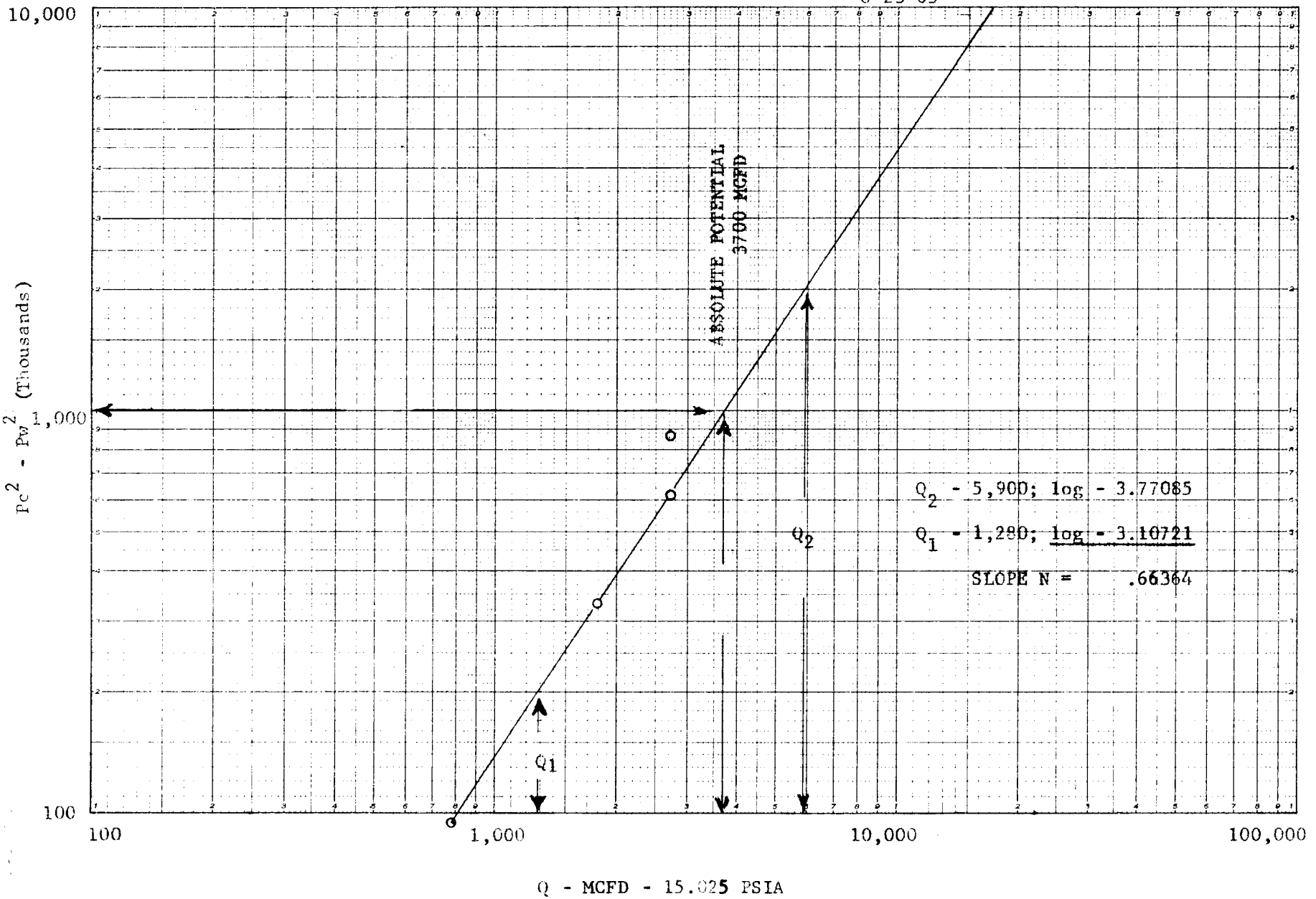
$F_t$ = Flowing temperature correction factor.

$F_{pv}$ = Supercompressability 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 $P_t$.

Continental Oil Company
AXI Apache "N" No. 6
South Blanco - Pictured Cliffs
P - 1 - 25N - 4W
Rio Arriba County
8-23-65



Form 9-330
(Rev. 5-63)

# UNITED STATES
# DEPARTMENT OF THE INTERIOR
## GEOLOGICAL SURVEY

SUBMIT IN DUPLICATE* (See other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R355.5.

# WELL COMPLETION OR RECOMPLETION REPORT AND LOG*

1a. TYPE OF WELL: OIL WELL ☐ GAS WELL ☒ DRY ☐ Other

b. TYPE OF COMPLETION: NEW WELL ☒ WORK OVER ☐ DEEP-EN ☐ PLUG BACK ☐ DIFF. RESVR. ☐ Other

2. NAME OF OPERATOR: **Continental Oil Company**

3. ADDRESS OF OPERATOR: **P. O. Box 1621, Durango, Colorado**

4. LOCATION OF WELL (*Report location clearly and in accordance with any State requirements*)*
At surface: **990' FSL, 990' FEL**
At top prod. interval reported below
At total depth

RECEIVED
SEP 28 1965
OIL CON. COM.
DIST. 3

5. LEASE DESIGNATION AND SERIAL NO.: **121**

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: **Jicarilla Apache**

7. UNIT AGREEMENT NAME:

8. FARM OR LEASE NAME: **AXI Apache "N"**

9. WELL NO.: **6**

10. FIELD AND POOL, OR WILDCAT: **So. Blanco Pictured Cliffs**

11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA: **Sec. 1, T25N, R4W-NMPM**

14. PERMIT NO. — DATE ISSUED

12. COUNTY OR PARISH: **Rio Arriba** — 13. STATE: **New Mexico**

| 15. DATE SPUDDED | 16. DATE T.D. REACHED | 17. DATE COMPL. (*Ready to prod.*) | 18. ELEVATIONS (DF, RKB, RT, GR, ETC.)* | 19. ELEV. CASINGHEAD |
|---|---|---|---|---|
| 7-28-65 | 8-1-65 | 8-12-65 | 7281' GR, 7291' DF | |

| 20. TOTAL DEPTH, MD & TVD | 21. PLUG, BACK T.D., MD & TVD | 22. IF MULTIPLE COMPL., HOW MANY* | 23. INTERVALS DRILLED BY | ROTARY TOOLS | CABLE TOOLS |
|---|---|---|---|---|---|
| 3975' | 3914' | | → | 0-3975' | |

24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)*: **3837'-3882' Pictured Cliffs**

25. WAS DIRECTIONAL SURVEY MADE: **No**

26. TYPE ELECTRIC AND OTHER LOGS RUN: **IES, Correlation**

27. WAS WELL CORED: **No**

28. CASING RECORD (*Report all strings set in well*)

| CASING SIZE | WEIGHT, LB./FT. | DEPTH SET (MD) | HOLE SIZE | CEMENTING RECORD | AMOUNT PULLED |
|---|---|---|---|---|---|
| 8 5/8" | 24# | 211' | 12 1/4" | 150 sacks regular | None |
| 4 1/2" | 10.5# | 3975' | 7 7/8" | 100 sacks cement | None |

29. LINER RECORD

| SIZE | TOP (MD) | BOTTOM (MD) | SACKS CEMENT* | SCREEN (MD) |
|---|---|---|---|---|
| | | | | |

30. TUBING RECORD

| SIZE | DEPTH SET (MD) | PACKER SET (MD) |
|---|---|---|
| 2 3/8" | 3876' | |

31. PERFORATION RECORD (*Interval, size and number*)
**3876-82' and 3840-46'**
**2 jets/foot (3 1/8" super dynajets)**

32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.

| DEPTH INTERVAL (MD) | AMOUNT AND KIND OF MATERIAL USED |
|---|---|
| 3840-3882' | 35,000# sd, 33,510 gals. water & 200# "ADOMITE AQUA" additive |

33.* PRODUCTION

| DATE FIRST PRODUCTION | PRODUCTION METHOD (*Flowing, gas lift, pumping—size and type of pump*) | WELL STATUS (*Producing or shut-in*) |
|---|---|---|
| 8-11-65 | Flowing | SI Awaiting Connection |

| DATE OF TEST | HOURS TESTED | CHOKE SIZE | PROD'N. FOR TEST PERIOD → | OIL—BBL. | GAS—MCF. | WATER—BBL. | GAS-OIL RATIO |
|---|---|---|---|---|---|---|---|
| 8-12-65 | 3 | 3/4" | | | 775 | | |

| FLOW. TUBING PRESS. | CASING PRESSURE | CALCULATED 24-HOUR RATE → | OIL—BBL. | GAS—MCF. | WATER—BBL. | OIL GRAVITY-API (CORR.) |
|---|---|---|---|---|---|---|
| 188# | 345# | | | 2324 | | |

34. DISPOSITION OF GAS (*Sold, used for fuel, vented, etc.*): **Sold to Southern Union Gas Company**

TEST WITNESSED BY: **J. M. Galovich**

35. LIST OF ATTACHMENTS

36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records

SIGNED ORIGINAL SIGNED BY, BEN W. SMITH TITLE **Assistant District Manager** DATE **9-27-65**

*(See Instructions and Spaces for Additional Data on Reverse Side)

**USGS(2) NMOCC(2) DRB JRH Humble HDH**

# INSTRUCTIONS

**General:** This form is designed for submitting a complete and correct well completion report and log on all types of lands and leases to either a Federal agency or a State agency, or both, pursuant to applicable Federal and/or State laws and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local, area, or regional procedures and practices, either are shown below or will be issued by, or may be obtained from, the local Federal and/or State office. See instructions on items 22 and 24, and 33, below regarding separate reports for separate completions.
If not filed prior to the time this summary record is submitted, copies of all currently available logs (drillers, geologists, sample and core analysis, all types electric, etc.), formation and pressure tests, and directional surveys, should be attached hereto, to the extent required by applicable Federal and/or State laws and regulations. All attachments should be listed on this form, see item 35.
**Item 4:** If there are no applicable State requirements, locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local State or Federal office for specific instructions.
**Item 18:** Indicate which elevation is used as reference (where not otherwise shown) for depth measurements given in other spaces on this form and in any attachments.
**Items 22 and 24:** If this well is completed for separate production from more than one interval zone (multiple completion), so state in item 22, and in item 24 show the producing interval, or intervals, top(s), bottom(s) and name(s) (if any) for only the interval reported in item 33. Submit a separate report (page) on this form, adequately identified, for each additional interval to be separately produced, showing the additional data pertinent to such interval.
**Item 29:** *"Sacks Cement":* Attached supplemental records for this well should show the details of any multiple stage cementing and the location of the cementing tool.
**Item 33:** Submit a separate completion report on this form for each interval to be separately produced. (See instruction for items 22 and 24 above.)

37. SUMMARY OF POROUS ZONES:
SHOW ALL IMPORTANT ZONES OF POROSITY AND CONTENTS THEREOF; CORED INTERVALS; AND ALL DRILL-STEM TESTS, INCLUDING DEPTH INTERVAL TESTED, CUSHION USED, TIME TOOL OPEN, FLOWING AND SHUT-IN PRESSURES, AND RECOVERIES

| FORMATION | TOP | BOTTOM | DESCRIPTION, CONTENTS, ETC. |
|---|---|---|---|
| Pictured Cliffs | 3837' | 3884' | Sand and Shale, Dry Gas |

38. GEOLOGIC MARKERS

| NAME | TOP | |
|---|---|---|
| | MEAS. DEPTH | TRUE VERT. DEPTH |
| Pictured Cliffs | 3837' | |

U.S. GOVERNMENT PRINTING OFFICE: 1963—O-683636