Initial Deliverability Test

NEW MEXICO OIL CONSERVATION COMMISSION
GAS WELL TEST DATA SHEET - - SAN JUAN BASIN

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

Pool __South Blanco__ Formation __Pictured Cliffs__ County __Rio Arriba__

Purchasing Pipeline __Pacific Northwest Pipeline Corporation__ Date Test Filed __3-13-58__

Operator __Northwest Production Corp.__ Lease __"C"__ Well No. __13-32__

Unit __I__ Sec. __32__ Twp. __26N__ Rge. __4W__ Pay Zone: From __3335__ To __3372__

Casing: OD __5__ WT. __11.5__ Set At __3442__ Tubing: OD __1¼__ WT. __2.3__ T. Perf. __3353__

Produced Through: Casing _____ Tubing __X__ Gas Gravity: Measured __0.647__ Estimated _____

Date of Flow Test: From __1-31-58__ To __2-8-58__ *Date S.I.P. Measured __10-9-57__

Meter Run Size __4"__ Orifice Size __1"__ Type Chart _____ Type Taps _____

OBSERVED DATA

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 (_____)^2 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 __676__ psig + 12 = __688__ psia (g)

Square root chart average reading (_____)^2 x sp. const. _____ = __---__ psia (g)

Corrected seven day avge. meter press. (p_f) (g) + (e) = __688__ psia (h)

P_t = (h) + (f) = __688__ psia (i)

Wellhead casing shut-in pressure (Dwt) __1052__ psig + 12 = __1064__ psia (j)

Wellhead tubing shut-in pressure (Dwt) __1052__ psig + 12 = __1064__ psia (k)

P_c = (j) or (k) whichever well flowed through = __1064__ psia (l)

Flowing Temp. (Meter Run) __54__ °F + 460 = __514__ °Abs (m)

P_d = ½ P_c = ½ (l) = __532__ psia (n)

FLOW RATE CALCULATION

$Q =$ _____ X $\left(\dfrac{\sqrt{(c)}}{\sqrt{(d)}} = \text{_____} = \text{_____} \right)$ * = _____ MCF/da

(integrated)

DELIVERABILITY CALCULATION

$D = Q$ __659__ $\left[\dfrac{\left(P_c^2 - P_d^2 \right) = 849,072}{\left(P_c^2 - P_w^2 \right) = 620,320} \right]^n$ __1.3060__ = __861__ MCF/da.

(1.3688)

SUMMARY

P_c = __1064__ psia

Q = __659__ Mcf/day

P_w = __715.4__ psia

P_d = __532__ psia

D = __861__ Mcf/day

Company __Northwest Production Corp.__

By __M. B. Jones__

Title __Asst Mgr, Prod Opr__

Witnessed by _____

Company _____

* This is date of completion test.

* Meter error correction factor

REMARKS OR FRICTION CALCULATIONS

GL	$(1-e^{-S})$	$(F_cQ)2$	$\dfrac{(F_cQ)^2 \quad (1-e^{-S})}{R^2}$	$\dfrac{P_t^2}{\text{(Column i)}}$	$P_t^2 + R^2$	P_w
2169	0.146	263.237	38,432	473,344	511,776	715.4

Fc = 24.62

signature

NM OCC-6
Peppin-1
Truby-1
Fowler-1
File-1

NEW MEXICO OIL CONSERVATION COMMISSION

Form C-122

Revised 12-1-55

MULTI-POINT BACK PRESSURE TEST FOR GAS WELLS

Pool __Wildcat__ Formation __Pictured Cliffs__ County __Rio Arriba__

Initial __XX__ Annual _____ Special _____ Date of Test __10-9-57__

Company __Northwest Production Corp.__ Lease __"C"__ Well No. __13-32__

Unit __I__ Sec. __32__ Twp. __26N__ Rge. __4W__ Purchaser __Not connected__

Casing __5"__ Wt. __11.5__ I.D. _____ Set at __3441.55__ Perf. __3335__ To __3372__

Tubing __1¼"__ Wt. __2.3__ I.D. _____ Set at __3332.85__ Perf. _____ To _____

Gas Pay: From __3335__ To __3372__ L _____ xG __.650__ -GL _____ Bar.Press. _____

Producing Thru: Casing _____ Tubing __X__ Type Well __Single__

Date of Completion: __10-1-57__ Packer _____ Single-Bradenhead-G. G. or G.O. Dual
Reservoir Temp. _____

OBSERVED DATA

Tested Through (Prover) (Choke) (Meter) Type Taps _____

No.	Flow Data (Prover) (Line) Size	(Choke) (Orifice) Size	Press. psig	Diff. h_w	Temp. °F.	Tubing Data Press. psig	Temp. °F.	Casing Data Press. psig	Temp. °F.	Duration of Flow Hr.
SI						1052		1052		SI
1.		3/4" T.C.				165	54	779		3 hrs
2.										
3.										
4.										
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.	12.3650		177	1.0058	.9608	1.017	2151
2.							
3.							
4.							
5.							

PRESSURE CALCULATIONS

Gas Liquid Hydrocarbon Ratio _____ cf/bbl. Specific Gravity Separator Gas _____

Gravity of Liquid Hydrocarbons _____ deg. Specific Gravity Flowing Fluid _____

F_c _____ $(1-e^{-s})$ _____ P_c __1064__ P_c^2 __1132.096__

No.	P_w P_t (psia)	P_t^2	$F_c Q$	$(F_c Q)^2$	$(F_c Q)^2 (1-e^{-s})$	P_w^2	$P_c^2-P_w^2$	Cal. P_w	$\frac{P_w}{P_c}$
1.	791					625.681	506.415		2.236
2.									
3.									
4.									
5.									

Absolute Potential: __4,263__ MCFPD; n __.85/1.982__

COMPANY __Northwest Production Corporation__

ADDRESS __204 N. Orchard, Farmington, New Mexico__

AGENT and TITLE __L. E. Gilbert, Asst. Drlg. Engr.__

WITNESSED _____

COMPANY _____

REMARKS

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.

DRILLING DEPARTMENT

COMPANY **Northwest Production Corp.**

LEASE **"C"**   WELL NO. **13-32**

DATE OF TEST **10-9-57**

SHUT IN PRESSURE (PSIG): TUBING **1052**   CASING **1052**   S. I. PERIOD **8** DAYS

SIZE BLOW NIPPLE **2"**

FLOW THROUGH **3/4" T.C.**   **1¼" tbg**   WORKING PRESSURES FROM **Casing**

TIME HOURS	MINUTES	PRESSURE	Q (MCFD) 15.025 PSIA & 60°F	WELLHEAD WORKING PRESSURE (PSIG)	TEMP
3	--	165		779	54

START AT: **1:00 PM**   END TEST AT **4:00 PM**

REMARKS: _____

TESTED BY: **L. E. Gilbert**

WITNESS: _____