Form C-122-A
Revised April 20, 1955

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 Tapacito Ext Formation Pictured Cliffs County Rio Arriba

Purchasing Pipeline Pacific Northwest Pipeline Corporation Date Test Filed 8-16-57

Operator Northwest Production Corp. Lease "C" Well No. 4-20

Unit L Sec. 20 Twp. 26N Rge. 4W Pay Zone: From 3290 To 3376

Casing: OD 5 WT. 11.5 Set At 3478 Tubing: OD 1½ WT. 2.3 T. Perf. 3269

Produced Through: Casing ^ Tubing X Gas Gravity: Measured .625 Estimated

Date of Flow Test: From 7-24-57 To 8-1-57 * Date S.I.P. Measured 8-6-57

Meter Run Size Orifice Size 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 621	psig + 12 =	633	psia	(g)
Square root chart average reading ( )^2 x sp. const.	=		psia	(g)
Corrected seven day avge. meter press. (p_f) (g) + (e)	=		psia	(h)
P_t = (h) + (f)	=	633	psia	(i)
Wellhead casing shut-in pressure (Dwt) 1014	psig + 12 =	1026	psia	(j)
Wellhead tubing shut-in pressure (Dwt) 942	psig + 12 =	954	psia	(k)
P_c = (j) or (k) whichever well flowed through	=	954	psia	(l)
Flowing Temp. (Meter Run) °F + 460	=		°Abs	(m)
P_d = ½ P_c = ½ (l)	=	477	psia	(n)

FLOW RATE CALCULATION

Q = 530 (integrated) X $\left(\frac{\sqrt{(c)}}{\sqrt{(d)}} = \quad = \quad\right)^*$ = MCF/da

DELIVERABILITY CALCULATION

$D = Q \left[\frac{P_c^2 - P_d^2}{P_c^2 - P_w^2} = \frac{683,567}{484,432}\right]^n$ 1.2283 = 721 MCF/da.

SUMMARY

P_c =	954 psia	Company	Northwest Production Corp.
Q =	530 Mcf/day	By	Ray Phillips RAY PHILLIPS
P_w =	652.5 psia	Title	Asst Mgr. Prod Opr
P_d =	477 psia	Witnessed by	
D =	721 Mcf/day	Company	

* This is date of completion test.

* Meter error correction factor

REMARKS OR FRICTION CALCULATIONS

GL	$(1-e^{-s})$	$(F_cQ)^2$	$\frac{(F_cQ)^2 (1-e^{-s})}{R^2}$	P_t^2 (Column i)	$P_t^2 + R^2$	P_w
2106	0.142	176,003	25,006	400,689	[illegible]	652.5

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NEW MEXICO OIL CONSERVATION COMMISSION

Form C-122
Revised 12-1-55

MULTI-POINT BACK PRESSURE TEST FOR GAS WELLS

Pool **Tapacito PC Extn** Formation **Pictured Cliffs** County **Rio Arriba**

Initial **X** Annual _____ Special _____ Date of Test **6-6-57**

Company **Northwest Production Corp.** Lease **"C"** Well No. **4-29**

Unit **L** Sec. **29** Twp. **26N** Rge. **4W** Purchaser **Not connected**

Casing **5** Wt. **11.5** I.D. _____ Set at **3478** Perf. **3350** To **3376**

Tubing **1½** Wt. **2.3** I.D. _____ Set at **3373** Perf. _____ To _____

Gas Pay: From **3350** To **3376** L _____ xG **.650** -GL _____ Bar.Press. **12**

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

Date of Completion: **5-30-57** Packer _____ Reservoir Temp. _____

OBSERVED DATA

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

No.	Flow Data (Prover) (Line) Size	Flow Data (Choke) (Orifice) Size	Flow Data Press. psig	Flow Data Diff. h_w	Flow Data Temp. °F.	Tubing Data Press. psig	Tubing Data Temp. °F.	Casing Data Press. psig	Casing Data Temp. °F.	Duration of Flow Hr.
SI						**942**		**1014**		**SI**
1.										
2.		**3/4**				**125**	**46**	**851**		**3 hr**
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.							
2.							
3.	**14.1605**		**137**	**1.0137**	**.9608**	**1.013**	**1,914**
4.							
5.							

PRESSURE CALCULATIONS

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

Specific Gravity Separator Gas _____
Specific Gravity Flowing Fluid _____
P_c **1026** P_c^2 **1052.7**

No.	P_w P_t (psia)	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.									
2.									
3.						**744.8**	**307**		**3.42**
4.									
5.									

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Absolute Potential: **5,445** MCFPD; n **.85/2.843**
COMPANY **Pacific Northwest Pipeline Corp.**
ADDRESS **405½ W. Broadway, Farmington, N.M.**
AGENT and TITLE **C. E. Wagner, Well Test Engineer**
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. 4-29

DATE OF TEST 6-6-57

SHUT IN PRESSURE (PSIG): TUBING 942 CASING 1014 S. I. PERIOD 7 DAYS

SIZE BLOW NIPPLE 3/4"

FLOW THROUGH CK on tubing WORKING PRESSURES FROM Casing

TIME HOURS	TIME MINUTES	PRESSURE	Q (MCFD) 15.025 PSIA & 60°F	WELLHEAD WORKING PRESSURE (PSIG)	TEMP
	34.5				
	41.5	141		920	45
	50	147		912	47
1	0	133		905	47
	12	135		897	46
	26.5	135		888	46
	44	134		880	46
2	5	133		861	46
	30	128		856	46
3	0	125		851	46

START AT: 3:15 pm END TEST AT 6:15 pm

REMARKS: Unloaded slug of H_2O 1st min. Light fog of H_2O throughout test. Check choke for freezing. OK.

TESTED BY:

WITNESS:

OIL CONSERVATION COMMISSION

AZTEC DISTRICT OFFICE

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