

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 Tupasito Bkta 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. 22 Twp. 26N Rge. 4W Pay Zone: From 3300 To 3376  
Casing: OD 8 WT. 11.5 Set At 2473 Tubing: OD 1 1/2 WT. 2.3 T. Perf. 3300  
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 8-4-57  
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 (    ) <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 621 psig + 12 = 633 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)    =    psia (h)  
P<sub>t</sub> = (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<sub>c</sub> = (j) or (k) whichever well flowed through    = 954 psia (l)  
Flowing Temp. (Meter Run)    °F + 460    =    °Abs (m)  
P<sub>d</sub> = 1/2 P<sub>c</sub> = 1/2 (l)    = 477 psia (n)

FLOW RATE CALCULATION

$$Q = \frac{530}{(\text{integrated})} \times \left( \frac{\frac{V(c)}{V(d)} = \frac{  }{  } = \frac{  }{  }}{  } \right)^* = \frac{  }{  } \text{ MCF/da}$$

DELIVERABILITY CALCULATION

$$D = Q \frac{530}{  } \left[ \frac{P_c^2 - P_d^2}{P_c^2 - P_w^2} = \frac{633.567}{424.422} \right]^n \frac{1.2303}{  } = \frac{721}{  } \text{ MCF/da.}$$

SUMMARY

P<sub>c</sub> = 954 psia Company Northwest Production Corp.  
Q = 530 Mcf/day By Ray Phillips RAY PHILLIPS  
P<sub>w</sub> = 632.5 psia Title Asst. Mgr., Prod. Ops.  
P<sub>d</sub> = 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 <sup>-S</sup> )	(F <sub>c</sub> Q) <sup>2</sup>	(F <sub>c</sub> Q) <sup>2</sup> (1-e <sup>-S</sup> ) R <sup>2</sup>	P <sub>t</sub> <sup>2</sup> (Column i)	P <sub>t</sub> <sup>2</sup> + R <sup>2</sup>	P <sub>w</sub>
2106	0.142	176.003	27.905	400.669	428.574	632.5



NM OCC-3  
Truby-1  
Peppin-1  
File-1

NEW MEXICO OIL CONSERVATION COMMISSION

Form C-122

Revised 12-1-55

MULTI-POINT BACK PRESSURE TEST FOR GAS WELLS

Pool Tapacito FC 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 1 1/4 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 1714141 (Choke) 1414111 Type Taps \_\_\_\_\_

No.	Flow Data					Tubing Data		Casing Data		Duration of Flow Hr.
	(Prover) (Line) Size	(Choke) ( <u>011114</u> ) Size	Press. psig	Diff. h <sub>w</sub>	Temp. °F.	Press. psig	Temp. °F.	Press. psig	Temp. °F.	
SI						<u>942</u>		<u>1014</u>		<u>81</u>
1.										
2.		<u>3/4</u>				<u>125</u>	<u>46</u>	<u>851</u>		<u>3 hr</u>
3.										
4.										
5.										

FLOW CALCULATIONS

No.	Coefficient (24-Hour)	$\sqrt{h_{wpf}}$	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.							
2.							
3.	<u>14.1605</u>		<u>137</u>	<u>1.0137</u>	<u>.9608</u>	<u>1.013</u>	<u>1,914</u>
4.							
5.							

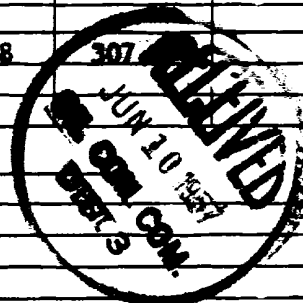
PRESSURE CALCULATIONS

Gas Liquid Hydrocarbon Ratio \_\_\_\_\_ cf/bbl.  
Gravity of Liquid Hydrocarbons \_\_\_\_\_ deg.  
F<sub>c</sub> \_\_\_\_\_ (1-e<sup>-s</sup>)  
Specific Gravity Separator Gas \_\_\_\_\_  
Specific Gravity Flowing Fluid \_\_\_\_\_  
P<sub>c</sub> 1026 P<sub>c</sub> 1052.7

No.	$\frac{P_w}{P_t}$ (psia)	$P_t^2$	F <sub>c</sub> Q	(F <sub>c</sub> Q) <sup>2</sup>	$\frac{(F_c Q)^2}{(1-e^{-s})}$	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>	$\frac{P_w}{P_c}$
1.									
2.									
3.						<u>744.8</u>	<u>307.4</u>		<u>3.62</u>
4.									
5.									

Absolute Potential: 3.443 MCFPD; n .85/2.843  
COMPANY Pacific Northwest Pipeline Corp.  
ADDRESS 495 W. Broadway, Farmington, N.M.  
AGENT and TITLE G. B. 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 OK on tubing WORKING PRESSURES FROM Casing

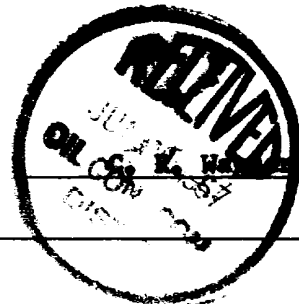
TIME		PRESSURE	Q (MCFD) 15.025 PSIA & 60°F	WELLHEAD WORKING PRESSURE (PSIG)	TEMP
HOURS	MINUTES				
	34.5				
	41.5	141		920	45
	50	147		912	47
1	0	133		905	47
	12	135		897	46
	26.5	135		888	46
	44	134		880	46
2	5	133		861	46
	30	128		856	46
3	0	125		851	46

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

REMARKS: Unloaded slug of H<sub>2</sub>O 1st min. Light fog of H<sub>2</sub>O throughout test.  
Check choke for freezing. OK.

TESTED BY: \_\_\_\_\_

WITNESS: \_\_\_\_\_





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