

NEW MEXICO OIL CONSERVATION COMMISSION
MULTIPOINT AND NE POINT BACK PRESSURE TEST FOR GAS WELL

Form C-122
Revised 9-1-65

Sheet 1 of 2

Type Test ☒ Initial ☐ Annual ☐ Special				Test Date 2-16-68	
Company Phillips Petroleum Company			Connection estimated to be 4-5-68 Phillips Petroleum Company		
Pool West Ranger Lake Devonian - Gas			Formation Devonian - Gas		
Completion Date 2-10-68		Total Depth 12863		Plug Back TD 12863	
Csg. Size 5-1/2		Wt. 17 & 20		Set At 12,816	
Tbg. Size 2-3/8		Wt. 4.7		Set At 12,859	
Type Well - Single - Bradenhead - G.G. or G.O. Multiple Single			Pack - Set At		County Lea
Producing Thru Tubing		Reservoir Temp. °F 143 @ 12863		Mean Annual Temp. °F 60	
L 12859		H 12859		Baro. Press. - P _a 13.2	
Gg H.P. .685		% CO ₂ 2.36		% N ₂ 3.36	
G _g		% H ₂ S .04		Prover -	
Meter Run 4"		Taps Flange		State New Mexico	

FLOW DATA						TUBING DATA		CASING DATA		Duration of Flow	
NO.	Prover Line Size	X	Orifice Size	Press. p.s.i.g.	Diff. h _w	Temp. °F	Press. p.s.i.g.	Temp. °F	Press. p.s.i.g.	Temp. °F	
1.	4.026 x 1.75			650	42.0	70	2690	73			1 hr.
2.	4.026 x 1.75			650	94.0	70	2520	72			1 hr.
3.	4.026 x 2.75			660	24.0	70	2140	76			1 hr.
4.	4.026 x 2.75			670	40.0	70	1770	76			1 hr.
5.											

RATE OF FLOW CALCULATIONS							
NO.	Coefficient (24 Hour)	$\sqrt{h_w P_m}$	Pressure P _m	Flow Temp. Factor Ft.	Gravity Factor Fg	Super Compress. Factor, Fpv	Rate of Flow H.P. O. Total
1	14.93	166.90	663.2	.9905	1.208	1.073	3200 + 187 = 3387
2	14.93	249.68	663.2	.9905	1.208	1.073	4787 + 262 = 5049
3	41.10	127.15	673.2	.9905	1.208	1.074	6715 + 375 = 7090
4	41.10	165.31	683.2	.9905	1.208	1.075	8737 + 411 = 9148
5							

NO.	P _r	Temp. °R	T _r	Z	Gas Liquid Hydrocarbon Ratio	A.P.I. Gravity of Liquid Hydrocarbons	Specific Gravity Separator Gas	Specific Gravity Flowing Fluid	Critical Pressure	Critical Temperature
1	.94	530	1.38	.869	7.24 Mcf/bbl.	57.4 Deg.	H. P. 685	1.058	699 P.S.I.A.	385 R
2	.94	530	1.38	.869						
3	.96	530	1.38	.867						
4	.97	530	1.38	.866						
5										

$P_c = 2923$ $P_c^2 = 8544$				$(1) \frac{P_c^2}{P_c^2 - P_w^2} = \frac{8544}{687} = 12.437(2) \left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 11.216$	
NO.	P _r	P _w	P _w ²	P _c ² - P _w ²	$AOF = Q \left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 37,988$
1		2803.0	7857	687	
2		2755.6	7593	951	
3		2643.2	6987	1557	
4		2568.0	6595	1949	
5					

Absolute Open Flow <u>37,988</u> Mcfd @ 15.025		Angle of Slope <u>46.2</u>		Slope, n <u>.959</u>	
Remarks: * P _w 's were calculated by Phillips computer program #1137 which is based on IOCC Manual with adjustment to conform to New Mexico specification. See Page 2					
Approved By Commission:		Conducted By: W. D. Adcock		Calculated By: D. E. Simson	
				Checked By:	

NEW MEXICO OIL CONSERVATION COMMISSION
MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Form C-122
Revised 9-1-65

Sheet 2 of 2

Type Test ☒ Initial ☐ Annual ☐ Special				Test Date 2-16-68			
Company Phillips Petroleum Company				Connection estimated to be 4-5-68 Phillips Petroleum Company			
Pool West Ranger Lake Devonian				Formation Devonian - Gas		Unit	
Completion Date		Total Depth		Plug Back TD		Elevation	
						Farm or Lease Name West Ranger Lake Unit	
Csg. Size	Wt.	d	Set At	Perforations: From To		Well No. 2	
Thq. Size	Wt.	d	Set At	Perforations: From To		Unit Sec. Twp. Rge. K 26 12 S 34 E	
Type Well - Single - Bradenhead - G.G. or G.O. Multiple				Packer Set At		County Lea	
Producing Thru		Reservoir Temp. °F @		Mean Annual Temp. °F		Baro. Press. - P _a	
						State New Mexico	
L	H	Gg L.P. 920	% CO ₂ 3.05	% N ₂ .84	% H ₂ S .15	Prover O.W.T. 2"	Meter Run Taps

FLOW DATA							TUBING DATA		CASING DATA		Duration of Flow
NO.	Prover Line Size	X	Orifice Size	Press. p.s.i.g.	Diff. h _w	Temp. °F	Press. p.s.i.g.	Temp. °F	Press. p.s.i.g.	Temp. °F	
1.	2	X	.75	19		70					
2.	2	X	.75	33		70					
3.	2	X	.75	57		70					
4.	2	X	.75	65		70					
5.											

RATE OF FLOW CALCULATIONS							
NO.	Volume Coefficient (24 Hour)	$\sqrt{h_w P_m}$	Pressure P _m	Flow Temp. Factor F _t	Gravity Factor F _g	Super Compress. Factor, F _{pv}	Rate of Flow Q, Mcfd
1	233.7			.9905	.8076	1.00	187
2	327.3			.9905	.8076	1.00	262
3	468.8			.9905	.8076	1.00	375
4	514.0			.9905	.8076	1.00	411
5							

NO.	P _r	Temp. °R	T _r	Z	Gas Liquid Hydrocarbon Ratio _____ Mcf/bbl.
1					A.P.I. Gravity of Liquid Hydrocarbons _____ Deg.
2					Specific Gravity Separator Gas _____ X X X X X X X X
3					Specific Gravity Flowing Fluid _____ X X X X X
4					Critical Pressure _____ P.S.I.A. _____ P.S.I.A.
5					Critical Temperature _____ R _____ R

NO.	P _c	P _c ²	P _w	P _w ²	P _c ² - P _w ²	(1) $\frac{P_c^2}{P_c^2 - P_w^2} =$ _____	(2) $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n =$ _____
1							
2							
3							
4							
5							

Absolute Open Flow _____ Mcfd @ 15.025				Angle of Slope θ _____		Slope, n _____	
Remarks: See Page 1							
Approved By Commission:		Conducted By: W. D. Adcock		Calculated By: D. E. Simpson		Checked By: 	