

N. A. I. CO OIL CONSERVATION COMMISSION
MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Form C-122
Revised 9-1-65

Type Test ☒ Initial ☐ Annual ☐ Special					Test Date 9-13-67		
Company Amerada Petroleum Corp.			Connection Phillips Petroleum Company				
Pool South Osudo			Formation Morrow		Unit		
Completion Date 5-25-67		Total Depth 12,610		Plug Back TD 12,486	Elevation 3615' DF		
Farm or Lease Name State WE"K"					Well No. 1		
Csg. Size 7"	Wt. 26#	d 6.276	Set At 11,370	Perforations: From 12,004 To 12,077			
5" Liner	17.93#	d 4.276	1197-12,605				
Tbg. Size	Wt.	d	Set At	Perforations: From Open To Ended			
2-3/8"	4.6#	1.995	11,740	Unit Sec. Twp. Rge. F 15 21-S 35-E			
Type Well - Single - Bradenhead - G.G. or G.O. Multiple Gas-Gas Dual				Packer Set At 11,740'			
Producing Thru Tbg.		Reservoir Temp. °F 160 @ 12,004		Mean Annual Temp. °F 60			
				Baro. Press. - P _a 13.2			
L	H	G _g HP 0.666 LP 0.932	% CO ₂ 0.60	% N ₂ 0.30	% H ₂ S 0.78		
				Prover	Meter Run S 4"		
				Taps Flange			
FLOW DATA							
NO.	Prover Line Size	X	Orifice Size	Press. p.s.i.g.	Diff. h _w	Temp. °F	
SI							
1	HP 4.026 x 2.500				7.1 x 2.2	66	
	LP 4.026 x 1.000					66	
2	HP 4.026 x 2.500				1.5 x 4.0	66	
	LP 4.026 x 1.000					66	
See Points 3 & 4 on Page 2.							
TUBING DATA							
				Press. p.s.i.g.	Temp. °F		
				5125			
				4500			
				3680			
CASING DATA							
				Press. p.s.i.g.	Temp. °F		
				Packer			
				Packer			
Duration of Flow							
						24 hr.	
						3/4 hr.	
						1 hr.	
See Points 3 & 4 on Page 2.							
RATE OF FLOW CALCULATIONS							
NO.	Coefficient (24 Hour)	$\sqrt{h_w P_m}$	Pressure P _m	Flow Temp. Factor Ft.	Gravity Factor F _g	Super Compress. Factor, F _{pv}	Rate of Flow Q, Mcfd
1	HP 103.208	16.50	562.50	0.9943	1.225	1.058	2,195
	LP 2.377	28.80	25.92	0.9943	1.036	1.000	71 2,266
2	HP 103.208	30.00	562.50	0.9943	1.225	1.058	3,990
	LP 2.377	43.20	25.92	0.9943	1.036	1.000	106 4,096
See Points 3 & 4 on Page 2							
NO.	P _r	Temp. °R	T _r	Z	Gas Liquid Hydrocarbon Ratio 14.06 Mcf/bbl.		
1	HP 0.84	526	1.40	0.894	A.P.I. Gravity of Liquid Hydrocarbons 51.0 Deg.		
	LP 0.04	526	1.13	1.000	Specific Gravity Separator Gas 0.666 XXXXXXXXXX		
2	HP 0.84	526	1.40	0.894	Specific Gravity Flowing Fluid XXXXXX 0.874		
	LP 0.04	526	1.13	1.000	Critical Pressure HP: 670, LP: 663 P.S.I.A. 670 & 663 P.S.I.A.		
					Critical Temperature HP: 376, LP: 466 R 376 & 466 R		
See Points 3 & 4 on Page 2							
P _c 5138 P _c ² 26,399							
NO.	P _i ²	P _w	P _w ²	P _c ² - P _w ²	(1) $\frac{P_c^2}{P_c^2 - P_w^2} = 2.227$		
1	20,367	4548	20,684	5,715	(2) $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 2.044$		
2	13,638	3814	14,547	11,852			
3	11,785	3567	12,723	13,676			
4	6,724	2875	8,266	18,133			
					AOF = Q $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 8,372$		
Absolute Open Flow 8,372 Mcfd @ 15.025 Angle of Slope 48° 15' Slope, n 0.893							
Remarks:							
Approved By Commission: Conducted By: J. Utterback Calculated By: K.A. Wagner Checked By:							

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Tbg. Size 2-3/8"	Wt. 4.6#	d 1.995	Set At 11,740	Perforations: From Open To Ended		County Lea	
Type Well - Single - Bradenhead - G.G. or G.O. Multiple Gas-Gas Dual				Packer Set At 11,740		State New Mexico	
Producing Thru Tbg.		Reservoir Temp. °F 160 @ 12,004		Mean Annual Temp. °F 60		Baro. Press. - P _a 13.2	
L	H	HP 0.666 LP 0.932	% CO ₂ 0.30 0.60	% N ₂ 0.78 0.17	% H ₂ S None	Prover	Meter Run 4"
						Taps Flange	

FLOW DATA						TUBING DATA		CASING DATA		Duration of Flow	
NO.	Prover Line Size	X	Orifice Size	Press. p.s.i.g.	Diff. hw	Temp. °F	Press. p.s.i.g.	Temp. °F	Press. p.s.i.g.		Temp. °F
3	HP 4.026 x 2.500				2.5 x 4.1	64	3420				3/4 hr.
	LP 4.026 x 1.000					64					
4	HP 4.026 x 2.500				2.8 x 5.9	61	2580				1 hr.
	LP 4.026 x 1.000					61					

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 Q, Mcfd
3	HP 103.208	33.00	562.50	0.9962	1.225	1.059	4402
	LP 2.377	45.26	26.65	0.9962	1.036	1.000	111 4513
4	HP 103.208	46.02	608.40	0.9990	1.225	1.064	6184
	LP 2.377	67.90	24.50	0.9990	1.036	1.000	167 6,351

NO.	P _t	Temp. °R	T _f	Z	Gas Liquid Hydrocarbon Ratio	A.P.I. Gravity of Liquid Hydrocarbons	Specific Gravity Separator Gas	Specific Gravity Flowing Fluid	Critical Pressure P.S.I.A.	Critical Temperature °R
3	HP 0.84	524	1.39	0.891	14.06 Mcf/bbl.	51.0 Deg.	XXXXXXX	XXXXXX		
	LP 0.04	524	1.12	1.000						
4	HP 0.91	521	1.39	0.883						
	LP 0.04	521	1.12	1.000						

NO.	P _t ²	P _w ²	P _w ²	P _c ² - P _w ²

$$(1) \frac{P_c^2}{P_c^2 - P_w^2} = \text{_____}$$

$$(2) \left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = \text{_____}$$

$$AOF = Q \left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = \text{_____}$$

Absolute Open Flow _____ Mcfd @ 15.025	Angle of Slope θ _____	Slope, n _____
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Remarks: _____			
Approved By Commission:	Conducted By: J. Utterback	Calculated By: K.A. Wagner	Checked By:

COMPANY: Amerada Petroleum Corporation

WELL: State WE"K" No. 1

LOCATION: F, 15-21S-35E

COUNTY: Lea

DATE: 9-13-67

MORROW SAND

