

Pipe Test		☒ Initial ☐ Annual ☐ Special		Test Date 9-4-79			
Company Grace Petroleum Corporation			Connection Natural Gas Pipe Line of America				
Pool Lea Penn Gas Field			Formation Morrow			Unit	
Completion Date 9-4-79		Total Depth 14495		Plug Back TD 14053		Elevation 3649 G.L.	
Casing Size 7"		WT. 32.29		Set At 14169		Perforations: From 12972 To 13208	
Casing Size 2 7/8"		WT. 6.5#		Set At 12800		Perforations: From To	
Type Well - Single - Freedom - G.C. or G.O. Multiple Single				Packer Set At 12800'		Form or Lease Name Whitten Federal	
Producing Thru Tubing		Reservoir Temp. °F P 187		Mean Annual Temp. °F		Eoro. Press. - P _d 13.2	
L 13090		H 13090		Cg .700		% CO ₂ 0.23	
				% N ₂ 0.60		% H ₂ S 0	
				Prover		Meter Run 3"	
						Taps Flange	

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
SI							2299	70	Packer		65 Days
1.	3		1"	784	64.4	91	2012	75	Packer		1 Hour
2.	3		2"	800	8.5	91	1800	75	Packer		1 Hour
3.	3		2"	810	21.2	90	1660	76	Packer		1 Hour
4.	3		2"	820	39.0	89	1535	77	Packer		1 Hour
5.											

RATE OF FLOW CALCULATIONS							
NO.	Coefficient (24 Hour)	$\sqrt{h_w P_m}$	Pressure P _m	Flow Temp. Factor F _t	Gravity Factor F _g	Super Compress. Factor, F _{sp}	Rate of Flow Q, Mgd
1	4.801	226.58	797.2	.9715	1.195	0.794	1003
2	21.90	83.14	813.2	.9715	1.195	0.857	1812
3	21.90	132.11	823.2	.9723	1.195	0.852	2864
4	21.90	180.26	833.2	.9732	1.195	0.846	3884
5							

NO.	P _r	Temp. °R	T _r	Z	Gas Liquid Hydrocarbon Ratio	Ref. At.
					29	
1.					A.P.I. Gravity of Liquid Hydrocarbons	54.0 Deg.
2.					Specific Gravity Separator Gas	.700
3.					Specific Gravity Flowing Fluid	.700
4.					Critical Pressure	668 P.S.I.A.
5.					Critical Temperature	392 R

P _c 2312.2 P _c ² 5346			
NO.	P _i ²	P _w	P _w ²
1		2322.4	5393
2		2152.4	4632
3		2005.5	4022
4		1888.6	3567
5			

$(1) \frac{P_c^2}{P_c^2 - P_w^2} = 3.00505$		$(2) \left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 2.66185$	
$AOF = Q \left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 10338$			

Absolute Open Flow 10338		Mold @ 15.025		Angle of Slope @ 48.3		Slope, n .889	
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Remarks: *Friction caused flowing surface pressure to exceed shut in surface pressure.

Approved By Commission:	Conducted By: Leon Arnett	Calculated By: H. L. Hagler	Checked By: Leon Arnett
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