

NEW (ICO OIL CONSERVATION COMMISSIC
MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Form C-122
Revised 9-1-65

CORRECTED COPY

Type Test ☒ Initial ☐ Annual ☐ Special				Test Date 3-21-66	
Company Shell Oil Company			Connection Phillips Petroleum Company		
Pool Grama Ridge Morrow			Formation Morrow-Penn.		Unit Grama Ridge
Completion Date 3-21-66		Total Depth 14,603'		Plug Back TD 13,194'	Elevation 3651' DF
Firm or Lease Name "GRB" State			Well No. 1		
Cas. Size 5 7/8"	Wt. 53.5	d 8.535	Set At 11,855	Perforations: From 12,921' To 13,056'	
Tbg. Size 2 1/2"	Wt. 6.7	d 2.441	Set At 12,788	Perforations: From Open End To	
Type Well - Single - Bradenhead - G.G. or G.O. Multiple Single				Packer Set At 12,788'	
Producing Thru Tbg.		Reservoir Temp. °F 177 @ 12,800		Mean Annual Temp. °F 60	
Baro. Press. - P _a 13.2		State New Mexico			
L 12,788	H 12,788	Gg .596	% CO ₂ .40	% N ₂ 0	% H ₂ S 0
Prover 4"		Meter Run 4"		Type Flge.	

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							6037	60	Packer		168 hrs.
1.	4 x 2.750			615	10.0	167	5890	63			2 hrs.
2.	4 x 2.750			700	26.0	105	5673	70			2 hrs.
3.	4 x 2.750			810	38.0	78	5419	76			2 hrs.
4.	4 x 2.750			930	50.0	65	5075	78			2 hrs.
5.	4 x 2.750			730	26.0	74	5609	82			20 hrs.

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	41.10	79.25	628.2	.9106	1.295	1.024	3,933
2	41.10	136.2	713.2	.9594	1.295	1.043	7,254
3	41.10	176.9	823.2	.9321	1.295	1.062	9,831
4	41.10	217.2	943.2	.9952	1.295	1.078	12,402
5	41.10	139.0	743.2	.9868	1.295	1.058	7,724

NO.	P _r	Temp. °R	T _r	Z	Gas Liquid Hydrocarbon Ratio 153 Mcf/bbl.
1	.93	627	1.77	.953	A.P.I. Gravity of Liquid Hydrocarbons 48.8 API Deg.
2	1.06	565	1.60	.919	Specific Gravity Separator Gas .596 X X X X X X X X
3	1.23	538	1.52	.887	Specific Gravity Flowing Fluid X X X X X
4	1.40	525	1.48	.861	Critical Pressure 672 P.S.I.A. P.S.I.A.
5	1.11	534	1.51	.894	Critical Temperature 354 R R

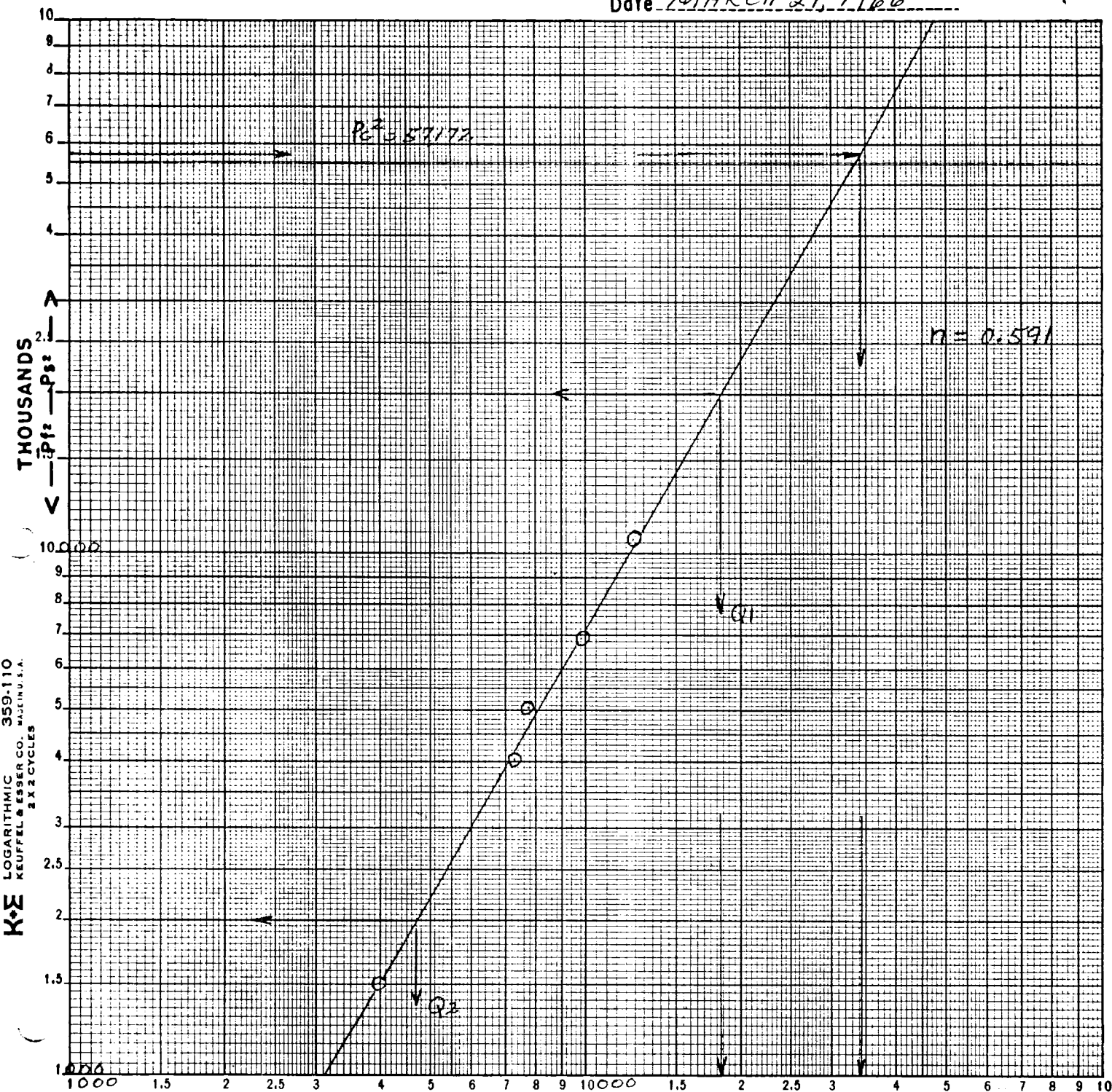
NO.	P _r ²	P _w	P _w ²	P _c ² - P _w ²	(1) $\frac{P_c^2}{P_c^2 - P_w^2} = \frac{8.285}{-}$	(2) $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = \frac{3.482}{-}$
1	34,848	7461.2	55,670	1502		
2	32,333	7290.2	53,147	4025		
3	29,509	7090.2	50,270	6901		
4	25,890	6820.2	46,515	10657		
5	31,609	7220.2	52,131	5041		

Absolute Open Flow 34,232 Mcfd @ 15.025		Angle of Slope θ 59.4	Slope, n .591
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Remarks: BHP measured with BHP bomb.			
Approved By Commission:	Conducted By: A. L. Ellerd	Calculated By: A. L. Ellerd	Checked By:

**GAS WELL
BACK PRESSURE CURVE**

County LEA Field GRAMA RIDGE
 Operator SHELL OIL COMPANY
 Lease "GRB" STATE Well No. 1
 Volume 34,232 MCF/24 hr.
 Date MARCH 21, 1966



$$\Delta P_1^2 \quad P_c^2 - P_{wf}^2 = 20000$$

$$\Delta P_2^2 \quad P_c^2 - P_{wf}^2 = 2000$$

$$Q_1 = 18350$$

$$Q_2 = 4700$$

$$\text{Log } Q_1 = 4.262636$$

$$\text{Log } Q_2 = 3.672098$$

$$n = 0.590538$$