

415F
File

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Type Test 4 POINT ☒ Initial ☐ Annual						Test Date JUN 11 1987			
Company HARVARD PETROLEUM				Connection TO AIR					
Pool PECOS SLOPE				Formation ABO				Unit	
Completion Date		Total Length 4506		Plug Back TD 3500		Elevation ARTESIA, OFFICE 55		Farm or Lease Name ALTERED STATE	
Coq. Size 4.5	Wt. 11.6	d	Set At 4455	Perforations: From 2958 To 3164		Well No. 1			
Thq. Size 2 3/8	Wt. 4.6	d	Set At 3115	Perforations: From To		Unit Sec. Twp. Rge. 27 5S 22E			
Type Well - Single - Brdenhead - G.G. or G.O. Multiple SINGLE						Packer Set At NONE		County CHAVES	
Producing Thru TUBING		Reservoir Temp. °F 60		Mean Annual Temp. °F 60		Baro. Press. - P ₀ 13.2		State NEW MEXICO	
L	H	G _g 0.609	% CO ₂ 0.109	% N ₂ 4.482	% H ₂ S 0	Prover 2.000	Meter Run 0	Taps 0	

FLOW DATA						TUBING DATA		BHP 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							851	60	851	60	72HRS
1.	2.000	0.0937	837	0.00	60	837	837	60	836	60	60MIN
2.	2.000	0.125	820	0.00	63	820	820	63	820	63	60MIN
3.	2.000	0.2187	732	0.00	64	732	732	64	734	64	60MIN
4.	2.000	0.2500	618	0.00	64	618	618	64	685	64	60MIN
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 _{pv}	Rate of Flow Q, Mcd
1	0.1410	0.00	850.2	1.000	1.281	1.067	164
2	0.2648	0.00	833.2	0.9971	1.281	1.064	300
3	0.8393	0.00	745.2	0.9962	1.281	1.058	844
4	1.0870	0.00	631.2	0.9962	1.281	1.049	918
5							

NO.	P _t	Temp. °R	T _r	Z	Gas Liquid Hydrocarbon Ratio	Mcf/bbl.
1	1.28	520	1.50	.878	0	
2	1.25	523	1.51	.883	0	
3	1.12	524	1.51	.893	0.609	XXXXXXX
4	0.95	524	1.51	.909	XXXXX	0.609
5					664	664 P.S.I.A.
					347	347 R

NO.	P _t	P _w	P _t ²	P _w ²	P _t ² - P _w ²
1	723	849.2	721	26	
2	694	833.2	694	53	
3	555	747.2	558	189	
4	398	698.2	487	260	
5					

(1) $\frac{P_t^2}{P_t^2 - P_w^2} = 3.9524$ (2) $\left[\frac{P_t^2}{P_t^2 - P_w^2} \right]^n = 3.1375$

AOG = Q $\left[\frac{P_t^2}{P_t^2 - P_w^2} \right]^n = 2648$

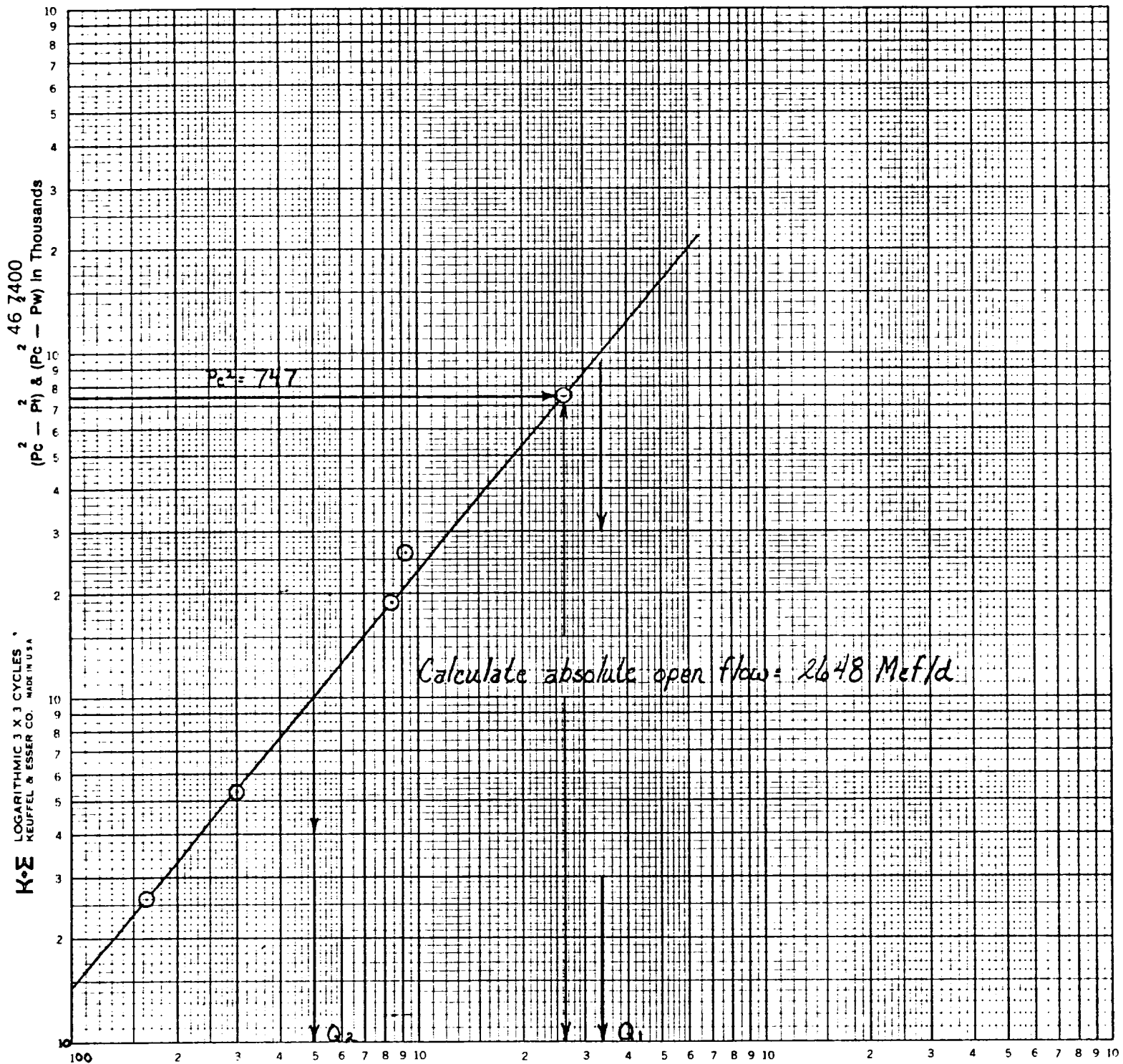
Absolute Open Flow	2648	Mcd @ 15.025	Angle of Slope °	50.25	Slope, n	0.832
--------------------	------	--------------	------------------	-------	----------	-------

Remarks:

Approved By Division	Conducted By: CLIFF PERKINS	Calculated By: RICHARD TOWNLEY	Checked By:
----------------------	--------------------------------	-----------------------------------	-------------

DENNETT & CATHEY PRODUCTION TESTING BACK PRESSURE CURV

Operator Harvard Pet. Lease Altered Well No. 1
 County Chaves Field Pecos Slope Location 27 55 22E
 Date of Test 6-1-87 Slope "n" 0.832 Angle of Slope 50.25
 Calc. Abs. Potential 2648 MCF/D



$$\overline{\Delta P}_1^2 \quad P_c^2 - P_w^2 = 1000$$

$$\overline{\Delta P}_2^2 \quad P_c^2 - P_w^2 = 100$$

$$Q_1 = 3396$$

$$Q_2 = 500$$

Q, Mcfd

$$\text{LOG } Q_1 = 3.53097$$

$$\text{LOG } Q_2 = 2.69897$$

$$n = 0.83200$$