

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

OCT 29 '87

Type Test ☒ Initial ☐ Annual ☐ Special		Test Date 6-18-87	
Company HARVARD PETROLEUM		Connection TO AIR	
Well PECOS SLOPE <i>ABO</i>		Formation ABO	
Completion Date 6-17-87		Total Depth 4300	
Plug Back TD 4298		Elevation 4100	
Farm or Lease Name QUESTO		Well No. 4	
Coq. Size 4.5	WI. 11.6	Set At 4.052	Set At 4338
Perforations From 2976	To 3253	Unit 4	
Thp. Size 2.375	WI. 4.7	Set At 1.999	Set At 3268
Perforations From OPEN	To ENDED	Unit G 34 5 22E	
Type Well - Single - Brdenhead - G.C. or G.O. Multiple SINGLE		Packer Set At NONE	
Producing Thru TUBING		Reservoir Temp. °F 101°	
Mean Annual Temp. °F 60°		Base. Press. - P ₀ 1.32	
State NEW MEXICO		County CHAVES	
L 3114	H 3114	G _g .608	% CO ₂ .078
% N ₂ 5.552	% H ₂ S 0	ProvePOS 1/8 CHOKE	Meter Run 0
Taps 0			

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.	2.000		.125	350	0.00	70°	180	70	540	70	72 HRS.
2.							350	70	540	70	4 HRS.
3.											
4.											
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, F _{pv}	Rate of Flow Q, Mcfd
1	.2618	0.00	363.2	.9905	1.282	1.025	124
2.							
3							
4.							
5.							

NO.	P ₁	Temp. °R	T ₁	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	.53	530	1.54	.951			.608	XXXXXX	660	345
2.										
3.										
4.										
5										

P _c 553.2 P _c ² 306				
NO.	P ₁ ²	P _w	P _w ²	P _c ² - P _w ²
1		363.2	132	111
2				
3				
4				
5				

$$(1) \frac{P_c^2}{P_c^2 - P_w^2} = 2.7568$$

$$AOF = Q \left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 342$$

$$(2) \left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 2.7568$$

Absolute Open Flow XXX 342	Mcf @ 15.025	Angle of Slope @ 45°	Slope, n 1.000
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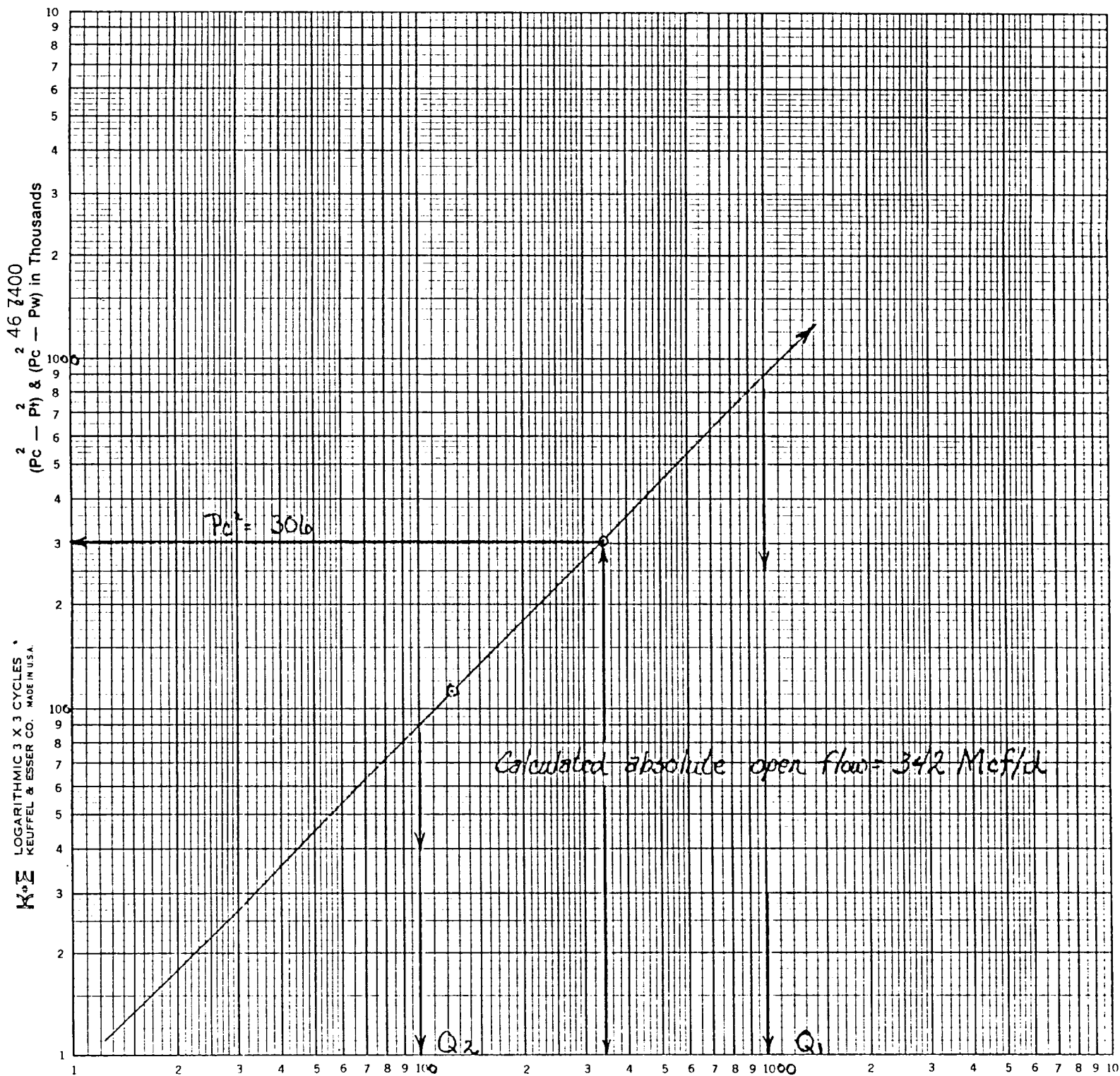
Remarks: WELL PRODUCING H₂O. RAN ONE POINT STABLE TEST AFTER TALKING TO COMMISSION 6-17-87

Approved By Division	Conducted By:	Calculated By:	Checked By:
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BACK PRESSURE CURVE

Operator Harvard Petroleum Lease Questo Well No. 4
 County Chaves Field Pecos Slope Location 34 55 22E
 Date of Test 6-18-87 Slope "n" 1.000 Angle of Slope 45°

Calc. Abs. Potential 342 MCF/D



$$\overline{\Delta P}_1^2 \quad P_c^2 - P_w^2 = 900$$

$$\overline{\Delta P}_2^2 \quad P_c^2 - P_w^2 = 90$$

$$Q_1 = 1000$$

$$Q_2 = 100$$

$$\text{LOG } Q_1 = 3.000$$

$$\text{LOG } Q_2 = 2.000$$

$$n = 1.000$$