

NE MEXICO OIL CONSERVATION COMMISSION
MULTIPOINT A ONE POINT BACK PRESSURE TEST OR GAS WELL

Form C-122
Revised 9-1-65

Type Test ☒ Initial ☐ Annual ☐ Special						Test Date 7-29-77			
Company Atlantic Richfield Company				Connection E. P. N. G.					
Pool Blinbry Gas				Formation Blinbry				Unit	
Completion Date 7-19-77		Total Depth 6460		Plug Back TD 5736		Elevation 3340 GL		Farm or Lease Name O. J. Boyd	
Case Size 5 1/2"	Wt. 15.5	d 4,950	Set At 6460	Perforations: From 5368 To 5680				Well No. 2	
Tub. Size 2-3/8"	Wt. 4.7	d 1,995	Set At 5287	Perforations: From open To end				Unit Sec. Twp. Rge. D 23 22 37	
Type Well - Single - Bradenhead - G.G. or G.O. Multiple Single						Packer Set At 5287		County Lea	
Producing Thru Tba.		Reservoir Temp. °F 127 @ 5287		Mean Annual Temp. °F 60		Baro. Press. - P _g 13.2		State New Mexico	
L 5287	H 5287	G _g .683	% CO ₂ -	% N ₂ -	% H ₂ S -	Prover -	Meter Run 4"	Taps Flg.	

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							571				24 hr.
1.	4 X 2.000			89	4.00	68	557				30 min.
2.	4 X 2.000			95	12.96	60	493				1 hr.
3.	4 X 2.000			99	25.00	60	395				1 hr.
4.	4 X 2.000			105	42.25	62	325				1 hr.
5.											

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	19.81	20.22	102.2	.9924	1.210	nil	481
2	19.81	37.45	108.2	1.000	1.210	nil	898
3	19.81	52.96	112.2	1.000	1.210	nil	1270
4	19.81	70.67	118.2	.9981	1.210	nil	1691
5							

NO.	P _r	Temp. °R	T _r	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	.15	528	1.37	nil			.683	X X X X X X X X	669	385
2	.16	520	1.35	nil						
3	.17	520	1.35	nil						
4	.18	522	1.36	nil						
5										

NO.	P _r ²	P _w	P _w ²	P _c ² - P _w ²
1	584.2	574.2	329.7	11.6
2		522.0	272.5	68.8
3		446.8	199.6	141.7
4		416.5	173.5	167.8
5				

$$(1) \frac{P_c^2}{P_c^2 - P_w^2} = 29.422$$

$$AOF = Q \left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 2.609$$

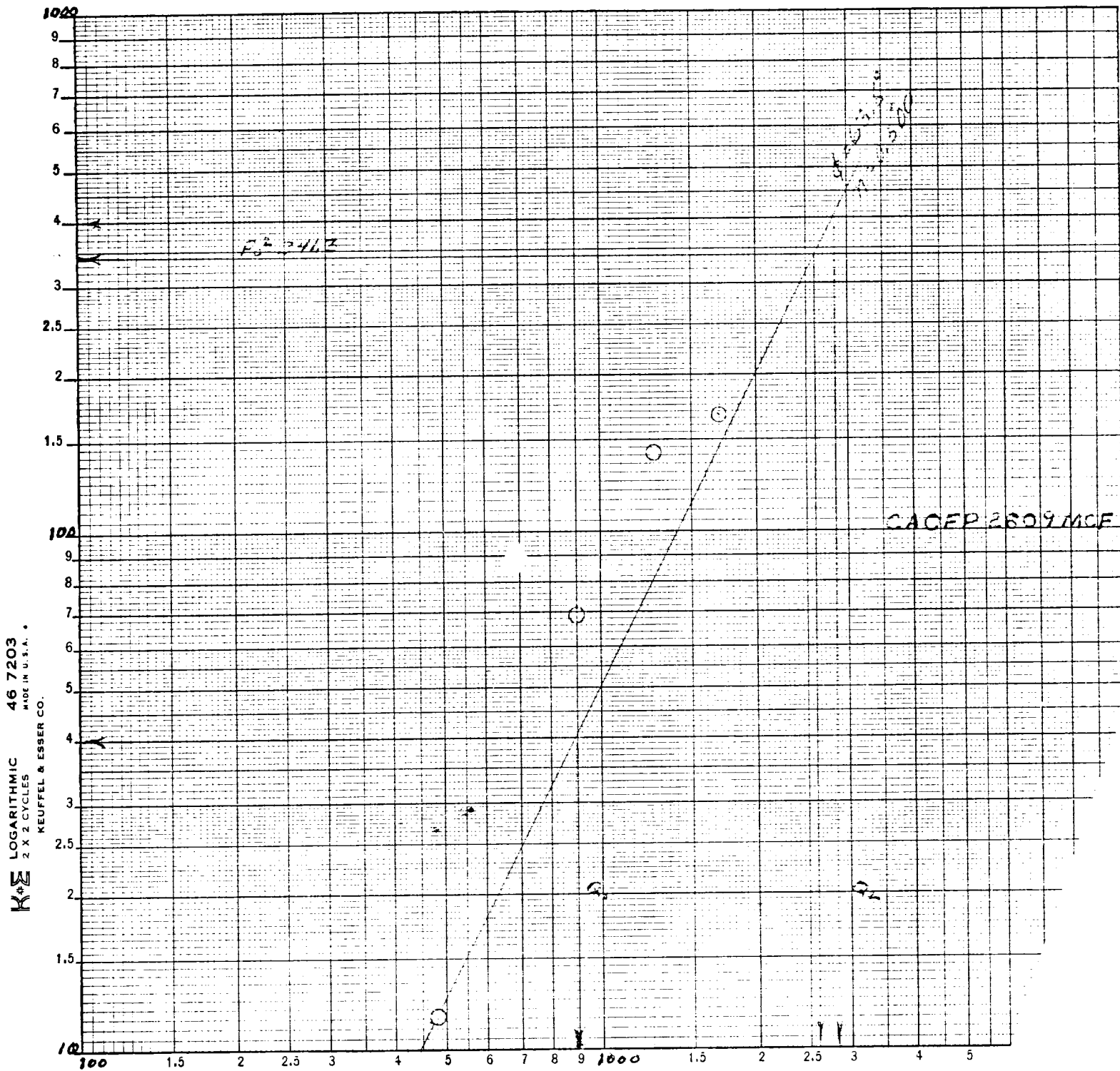
$$(2) \left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 5.424$$

Absolute Open Flow	2,609	Mcfd @ 15.025	Angle of Slope @	63.5°	Slope, n	.500
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Remarks: Due to poor point alignment, a slope of .500 was drawn through the low rate of flow.

Approved By: <i>[Signature]</i>	Conducted By: Rick Pagan	Calculated By: Rick Pagan	Checked By: <i>[Signature]</i>
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ATLANTIC RICHFIELD
 J. BOYD #2
 D-23-22S-37E
 LEA COUNTY, N.M.
 7-29-77



$$\begin{array}{rcl}
 Q_2 & 2815 & \text{Log } 3.449478 \\
 Q_1 & 890 & \text{Log } 2.949390 \\
 \hline
 n & = & 0.500088 \\
 & = & 0.500
 \end{array}$$

WORKSHEET FOR CALCULATION OF FATIC COLUMN WELLHEAD PRESSURE (P_w)

COMPANY Atlantic Richfield Company LEASE 0. J. Boyd WELL NO. 2 DATE 7-29-77

LOCATION: Unit D Section 23 Township 22 Range 37

L 5287 H 5287 L/H 1.000 G .683 % CO₂ - % N₂ - % H₂S -

d 1.995 F_r .018231 GH 3611 P_{cr} 669 T_{cr} 385

LINE	1st Rate		2nd Rate		3rd Rate		4th Rate	
	1st Trial	2nd Trial	1st Trial	2nd Trial	1st Trial	2nd Trial	1st Trial	2nd Trial
1 Q _m	.481	.481	.898	.898	1.270	1.270	1.691	1.691
2 T _w (W.H. °R)	534	534	534	534	534	534	534	534
3 T _s (R.H. °R)	587	587	587	587	587	587	587	587
4 T = ($\frac{T_w + T_s}{2}$)	560.5	560.5	560.5	560.5	560.5	560.5	560.5	560.5
5 Z (Est.)	.905	.897	.915	.908	.930	.922	.941	.930
6 T _Z	507.2	502.8	512.9	508.9	521.3	516.8	527.4	521.3
7 GH/T _Z	7.119	7.182	7.041	7.095	6.927	6.987	6.846	6.927
8 e ^s (Table XIV)	1.306	1.309	1.302	1.305	1.297	1.300	1.293	1.297
9 1-e ^s (Table XIV)	.234	.236	.232	.234	.229	.231	.226	.229
10 P ₁	570.2	570.2	506.2	506.2	408.2	408.2	338.2	338.2
11 P ₁ ² /1000	325.1	325.1	256.2	256.2	166.6	166.6	114.4	114.4
12 F _r (Table XV)	.018231	.081231	.018231	.018231	.018231	.018231	.018231	.018231
13 F _c = F _r T _Z	9.248	9.166	9.350	9.278	9.503	9.421	9.616	9.503
14 F _c Q _m	4.45	4.41	8.40	8.33	12.07	11.97	16.26	16.07
15 L/H (F _c Q _m) ²	19.8	19.4	70.5	69.4	145.7	143.2	264.4	258.2
16 F _w = L/H (F _c Q _m) ² (1-e ^s)	4.64	4.59	16.36	16.22	33.32	33.00	59.87	59.08
17 P _w ² = P ₁ ² + F _w	329.8	329.7	272.6	272.5	200.0	199.6	174.2	173.5
18 P _s ² = e ^s P _w ²	430.7	431.6	355.0	355.5	259.3	259.4	225.2	224.9
19 P _s	656.3	657.0	595.8	596.2	509.2	509.3	474.6	474.3
20 P = ($\frac{P_1 + P_s}{2}$)	613.2	613.6	551.0	551.2	458.7	458.8	406.4	406.2
21 P _r = (P/P _{cr})	.92	.92	.82	.82	.69	.69	.61	.61
22 T _r = (T/T _{cr})	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46
23 Z (Table X)	0.897	0.897	0.908	0.908	0.922	0.922	0.930	0.930