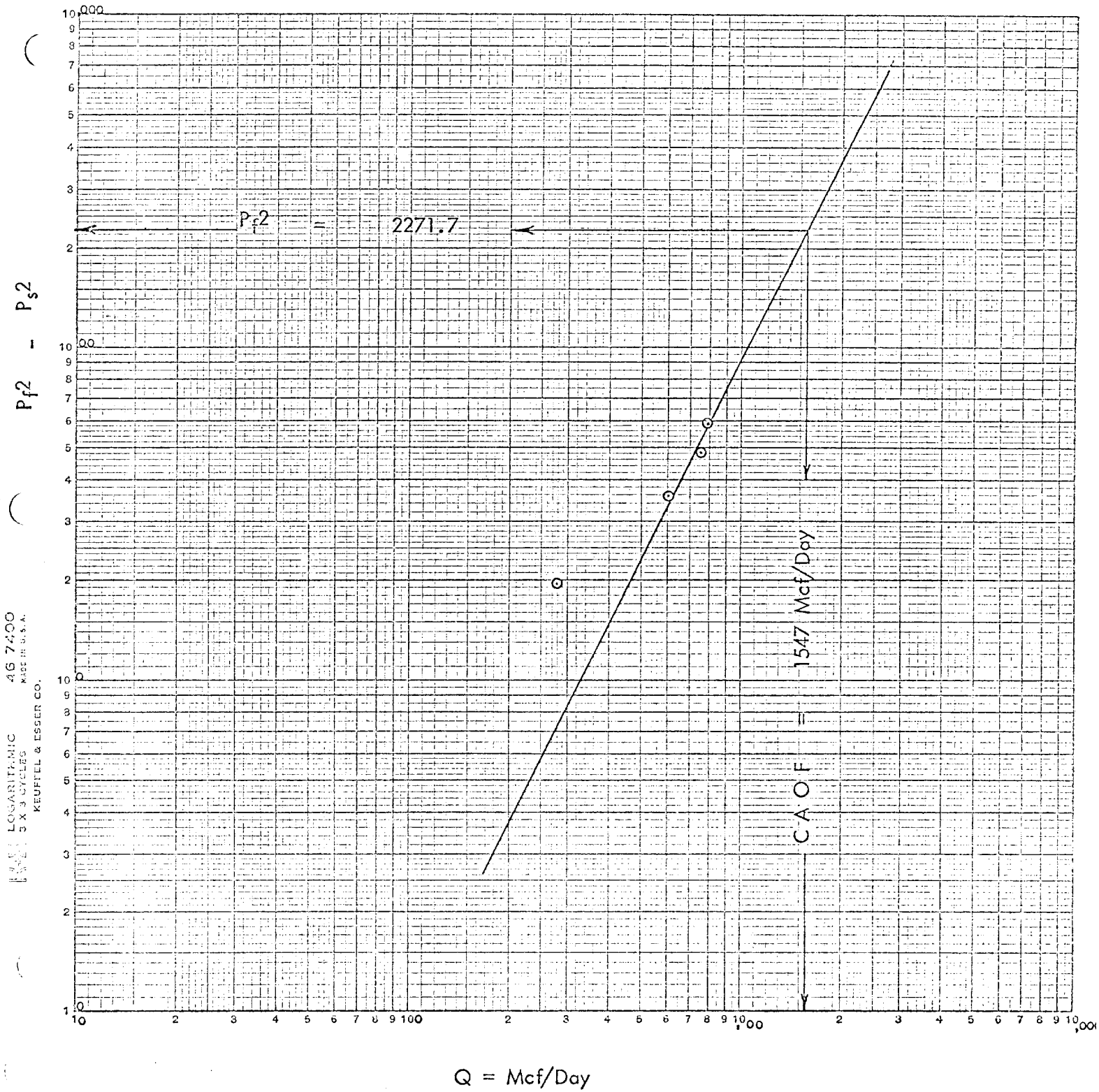


RECEIVED

Type Test ☐ Initial ☐ Annual ☒ Special		Test Date 11-25-75		DEC 8 1975	
Company Read & Stevens, Inc.		Connection Transwestern Pipe Line Co.		C. C. C.	
Pool Buffalo Valley		Formation Atoka-Penn.		Unit ARTESIA, OFFICE	
Completion Date 2-2-75 3-2-74		Total Depth 8,966'		Plug Back TD 8,910'	
Elevation 3617 RDB		Farm or Lease Name Harris Federal			
Csg. Size 5 1/2"	Wt. 17#	d 4.892"	Set At 8,966'	Perforations: From 8,566' To 8,807'	
Tag. Size 2 3/8"	Wt. 4.7#	d 1.995"	Set At 8,558'	Perforations: From Open Ended	
Type Well - Single - Bradenhead - G.G. or G.O. Multiple Single		Packer Set At 8,558'		County Chaves	
Producing Thru Tubing		Reservoir Temp. °F 160 @ 8,666'		Mean Annual Temp. °F 60	
Baro. Press. - P _c 13.2		State New Mexico			
L 8666	H 8666	G _g 0.625	% CO ₂ -----	% N ₂ -----	% H ₂ S -----
Prover -----		Meter Run 2" x 0.875"		Taps Flange	
FLOW DATA					
NO.	Prover Line Size	X	Orifice Size	Press. p.s.i.g.	Diff. hw
SI					
1.	2"	x	0.875"	800.0	4.0
2.	2"	x	0.875"	820.0	18.0
3.	2"	x	0.875"	830.0	28.0
4.	2"	x	0.875"	840.0	30.0
5.					
TUBING DATA					
	Press. p.s.i.g.	Temp. °F			
	1157.0				
CASING DATA					
	Press. p.s.i.g.	Temp. °F			
	Packer	Choke			
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
1	3.729	57.03	813.2	.9706	1.265
2	3.729	122.46	833.2	.9768	1.265
3	3.729	153.65	843.2	.9813	1.265
4	3.729	159.99	853.2	.9759	1.265
5					
NO.	P _r	Temp. °R	T _r	Z	Gas Liquid Hydrocarbon Ratio
1	1.21	552	1.51	.886	101.096 Mcf/bbl.
2	1.24	545	1.49	.878	A.P.I. Gravity of Liquid Hydrocarbons 63.0
3	1.26	540	1.48	.873	Specific Gravity Separator Gas 0.625
4	1.27	546	1.50	.878	Specific Gravity Flowing Fluid XXXXX
5					Critical Pressure 671 P.S.I.A.
					Critical Temperature 365 °R
$P_f = 1507.2$ $P_s^2 = 2271.7$					
NO.	P _f	P _s	P _f ²	P _f ² - P _s ²	$(1) \frac{P_f^2}{P_f^2 - P_s^2} = 3.874$
1	1002.4	1440.2	2074.2	197.5	$(2) \left[\frac{P_f^2}{P_f^2 - P_s^2} \right]^n = 1.968$ $AOF = Q \left[\frac{P_f^2}{P_f^2 - P_s^2} \right]^n = 1547$
2	918.1	1383.2	1913.2	358.5	
3	830.3	1338.2	1790.8	480.9	
4	752.0	1298.2	1685.3	586.4	
5					
Absolute Open Flow		1547		Mcf/d @ 15.025	
Angle of Slope θ		63.4°		Slope, n 0.50 limit	
Bottom Hole Pressures measured with Amerada Gauge @ 8,666 feet. Points do not line up, drew 0.50 average slope through Rates 2, 3 & 4.					
Approved By Commission:		Conducted By: G.J.P.		Calculated By: R.L.W.	
				Checked By: J.W.W.	

Abs. Slope (n) = 0.500 Limited

$$CAOF = 785.9 \left(\frac{2271.7}{586.4} \right)^{.500} = 1547 \text{ Mcf/Day}$$



Reed & Stevens, Inc.
Harris Federal No. 2
Bottom Hole Pressures for 4-point back pressure test
Tabulation of Pressure and Time

Test Date: November 25, 1975
Test Depth: 8,666 Feet
Element No.: 8534 (0-5600 psi)
Oper.: G.J.P.

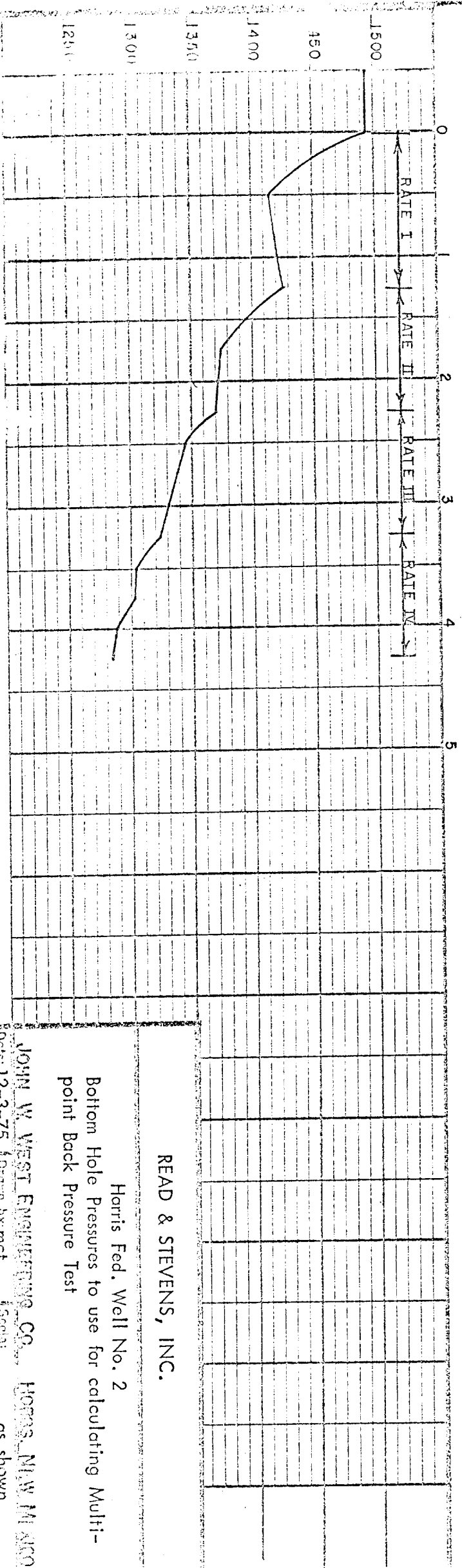
<u>DATE</u>	<u>TIME</u>	<u>CUM. HRS./MIN.</u>	<u>PSIG @ 8,666 FEET</u>
11-25-75	10:35 am		1494 Gauge reached 8,666'
11-25-75	11:30 am	00 Hrs. 00 Min.	1494 Open choke 9/64
		00 30	1415
		00 45	1418
		01 00	1421
	12:45 pm	01 15	1427 End Rate I
		01 30	1395 Choke 11/64
		01 45	1376
		02 00	1373
	1:45 pm	02 15	1370 End Rate II
		02 30	1345 Choke 14/64
		02 45	1339
		03 00	1331
	2:45 pm	03 15	1325 End Rate III
		03 30	1305 Choke 17/64
		03 45	1302
		04 00	1288
11-25-75	3:45 pm	04 Hrs. 15 Min.	1285 End Rate IV, end test

Test Date: November 25, 1975
Test Depth: 8,666 Feet

Element No.: 8534
Range: 0-5600 psi
Clock No.: 11782
Range: 0-24 Hour

Note: See tabulation of Pressure and Time on attached sheet.

TIME - IN HOURS



READ & STEVENS, INC.

Harris Fed. Well No. 2

Bottom Hole Pressures to use for calculating Multi-point Back Pressure Test

JOHN W. WEST ENGINEERING CO. HARRIS, NEW MEXICO
Date 12-3-75 Drawn by mct as shown