

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

RECEIVED

Type Test ☒ Initial ☐ Annual ☐ Special						Test Date 11-19-81		DEC 4 1981	
Company Yates Petroleum Corporation/				Connection Transwestern Pipeline Co.				O. C. D.	
Pool Pecos Slope - Abo Gas Undesignated Abo				Formation Abo				Unit ARTESIA, OFFICE	
Completion Date 9-15-81		Total Depth 4100'		Flow back TD 4087'		Elevation 3843' GR		Farm or Lease Name George QJ Federal	
Coq. Size 4-1/2"	Wt. 9.5#	d 4.090"	Set At 4100'	Perforations: From 3622' To 3879'		Well No. 1			
Thq. Size 2-3/8"	Wt. 4.7#	d 1.995"	Set At 3850'	Perforations: From - To -		Unit A	Sec. 34	Twp. 6S	Rge. 25E
Type Well - Single - Brodenhead - G.G. or G.O. Multiple Single						Packer Set At None		County Chaves	
Producing Thru Tubing		Reservoir Temp. *F 98# 4095'		Mean Annual Temp. *F 60		Baro. Press. P _a 13.2		State New Mexico	
L 3850'	H 3850'	G _g 0.642	% CO ₂ 0.14	% N ₂ 5.18	% H ₂ 0	Prover ---	Meter Run 2"	Taps Flange	

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	of Flow
SI							1010				days
1.	2.067 x 1.375			360	15	68	884	70			24 hrs
2.	2.067 x 1.375			360	41	70	745	73			24 hrs
3.	2.067 x 1.375			360	53	71	680	73			24 hrs
4.	2.067 x 1.375			360	64	70	660	74			24 hrs
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	10.20	74.82	373.2	0.9924	1.248	1.016	959
2	10.20	123.70	373.2	0.9905	1.248	1.015	1583
3	10.20	140.64	373.2	0.9896	1.248	1.015	1798
4	10.20	154.5	373.2	0.9905	1.248	1.015	1977
5							

NO.	P _r	Temp. *F	T _r	Z	Gas Liquid Hydrocarbon Ratio Mcf/bbl.	A.P.I. Gravity of Liquid Hydrocarbon Deg.
1	0.565	628	1.754	0.969	Specific Gravity Separator Gas 0.642	X X X X X X X X
2	0.565	630	1.760	0.970	Specific Gravity Flowing Fluid X X X X X	
3	0.565	631	1.763	0.970	Critical Pressure 661 P.S.I.A.	P.S.I.A.
4	0.565	630	1.760	0.970	Critical Temperature 358 R	R
5						

NO.	P _r ²	P _w ²	P _w ²	P _r ² - P _w ²	(1) $\frac{P_r^2}{P_r^2 - P_w^2} = 2.617$	(2) $\left[\frac{P_r^2}{P_r^2 - P_w^2} \right]^n = 2.184$
1	805.0		818.5	228.4		
2	574.9		611.8	435.1		
3	480.5		530.1	516.8		
4	453.2		514.0	532.9		
5						

Absolute Open Flow 3200 Mcfd @ 15.025		Angle of Slope 0		Slope, n 0.812	
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Remarks: Static pressures by Bennett Wireline, flowing pressures by DWT calculations
Worksheet C-122D attached.

Approved By Division	Conducted By: David Weaver	Calculated By: Albert R. Stall	Checked By:
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COMPANY Yates Pet. Corp. LEASE George OT Fed. WELL NO. 1 DATE 12-4-81

LOCATION: Unit A Section 34 Township 6S Range 25E

L 3850' H 3850' L/H 1 G 0.6642 % CO₂ 0.14 % N₂ 5.18 % H₂S 0

d 1.995 F_i 0.018231 GH 2471 P_{cr} 661 T_{cr} 358

TABLE IX & Z

4TH RATE

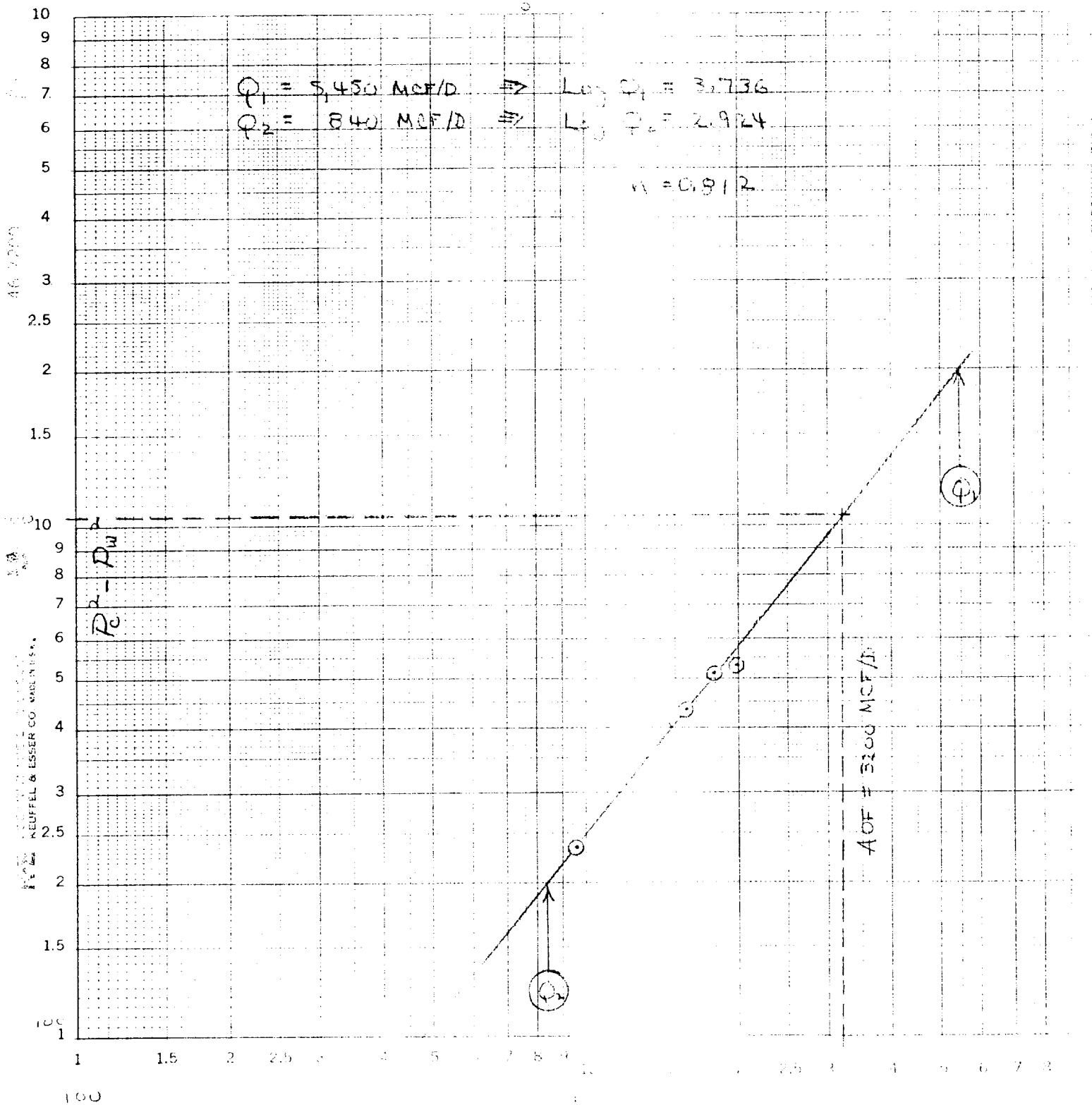
3RD RATE

2ND RATE

1ST RATE

LINE	1 ST TRIAL	2 ND TRIAL	1 ST TRIAL	2 ND TRIAL	1 ST TRIAL	2 ND TRIAL	1 ST TRIAL	2 ND TRIAL	1 ST TRIAL	2 ND TRIAL
1 Q _{sc}	1.0	1.0	1.65	1.65	1.9	1.9	2.1	2.1	2.1	2.1
2 Q _{sc} (WELL IN)	530	530	533	533	533	533	534	534	534	534
3 Q _{sc} (WELL IN)	558	558	558	558	558	558	558	558	558	558
4 Q _{sc} (WELL IN)	544	544	545.5	545.5	545.5	545.5	546	546	546	546
5 Q _{sc} (WELL IN)	0.890	0.891	0.876	0.887	0.885	0.896	0.902	0.899	0.899	0.899
6 Q _{sc} (WELL IN)	484	484	478	484	483	489	492	491	491	491
7 Q _{sc} (WELL IN)	5104	5104	5171	5104	5118	5056	5017	5034	5034	5034
8 Q _{sc} (WELL IN)	1.211	1.211	1.214	1.211	1.212	1.209	1.207	1.208	1.208	1.208
9 Q _{sc} (WELL IN)	0.174	0.174	0.176	0.174	0.175	0.173	0.171	0.172	0.172	0.172
10 Q _{sc} (WELL IN)	817.2	817.2	758.2	758.2	758.2	758.2	758.2	758.2	758.2	758.2
11 Q _{sc} (WELL IN)	805.0	805.0	574.9	574.9	480.5	480.5	480.5	480.5	480.5	480.5
12 Q _{sc} (WELL IN)	0.174	0.174	0.176	0.174	0.175	0.173	0.171	0.172	0.172	0.172
13 P _{sc} = P _{cr}	8.824	8.824	8.714	8.824	8.8054	8.7150	8.9077	8.7514	8.7514	8.7514
14 P _{sc} (WELL IN)	8.824	8.824	14.379	14.379	16.731	16.938	18.826	18.798	18.798	18.798
15 L/H (P _{sc} - Q _{sc})	77.86	77.86	206.75	211.97	279.91	286.91	354.81	353.36	353.36	353.36
16 P _{sc} = L/H (P _{sc} - Q _{sc})	13.55	13.55	36.39	36.78	48.98	49.64	60.67	60.78	60.78	60.78
17 P _{sc} = 1.2 * P _{sc}	818.5	818.5	611.3	611.8	529.5	530.1	513.9	514.0	514.0	514.0
18 P _{sc} = 0.8 * P _{sc}	991.2	991.2	742.1	742.9	641.8	640.9	620.2	620.9	620.9	620.9
19 P _s	995.6	995.6	861.5	860.7	801.1	800.6	787.6	788.0	788.0	788.0
20 P = (P _s + P _{sc})	946.4	946.4	809.8	809.5	747.1	746.9	730.4	730.6	730.6	730.6
21 P _r = (P/P _{cr})	1.4318	1.4318	1.2251	1.2246	1.1303	1.1299	1.1050	1.1053	1.1053	1.1053
22 T _r = (T/T _{cr})	1.5196	1.5196	1.5237	1.5237	1.5237	1.5237	1.5251	1.5251	1.5251	1.5251
23 Z (T _r = 1)	0.891	0.891	0.887	0.887	0.896	0.896	0.899	0.899	0.899	0.899

YATES PETROLEUM COMPANY
 6000 W. 4th Street
 Unit A, Sec 34, T14N, R12E
 Cheyenne County, N.D.



Q (MCF/D)