

File 122 Yates
Form C-122
Revised 9-1-65

NEW MEXICO OIL CONSERVATION COMMISSION
MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

SEP 8 1980

Type Test ☒ Initial ☐ Annual ☐ Special		Test Date 7-14-80		O.C.D.	
Company Yates Petroleum Corp.		Connection Transwestern Pipeline Company		ARTESIA, OFFICE	
Pool Wildcat Abo		Formation Abo		Unit NM 10458	
Completion Date 11-15-79		Total Depth 4130'		Plug Back TD 4069'	
Elevation 3621' KB		Form or Lease Name Duncan "LH" Fed		Well No. 1-Y	
Csg. Size 4-1/2"	Wt. 9.5#	d 4.090	Set At 4069	Perforations: From 3876 To 3884	
Tbg. Size 2-7/8"	Wt. 6.5#	d 2.441	Set At 3833	Perforations: From To	
Type Well - Single - Broadhead - G.G. or G.O. Multiple Single				Packer Set At 3833	
Producing Thru Tubing		Reservoir Temp. °F 95 @ 3880		Mean Annual Temp. °F 62	
Baro. Press. - P _a 13.2		State New Mexico		County Chaves	
L 3875	H 3875	G _g 0.657	% CO ₂ 0.68	% N ₂ 5.97	% H ₂ S Nil
Prover 2"		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. hw	Temp. °F	Press. p.s.i.g.	Temp. °F	Press. p.s.i.g.		Temp. °F
SI							1908	95			Months
1.	2.067 x 0.625			690	13	90	980	81			1 hour
2.				690	25	90	964	84			1 hour
3.				690	50	90	952	86			1 hour
4.				690	92	90	928	88			1 hour
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, Mcfd
1	1.866	95.61	703.2	.9723	1.234	1.062	227
2	1.866	132.59	703.2	.9723	1.234	1.062	315
3	1.866	187.51	703.2	.9723	1.234	1.062	446
4	1.866	254.35	703.2	.9723	1.234	1.062	605
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	Mcfd/bbl. Deq.
1.	0.96	550	1.429	.887			0.657	X X X X X X X X	662	359	732
2.	0.96	550	1.429	.887				X X X X X			385
3.	0.96	550	1.429	.887							
4.	0.96	550	1.429	.887							
5.											

NO.	P _i ²	P _w	P _w ²	P _e ² - P _w ²
1			1224	65
2			1188	101
3			1146	143
4			1089	200
5				

(1) $\frac{P_e^2}{P_e^2 - P_w^2} = 6.445$

AOF = Q $\left[\frac{P_e^2}{P_e^2 - P_w^2} \right]^n = 3545$

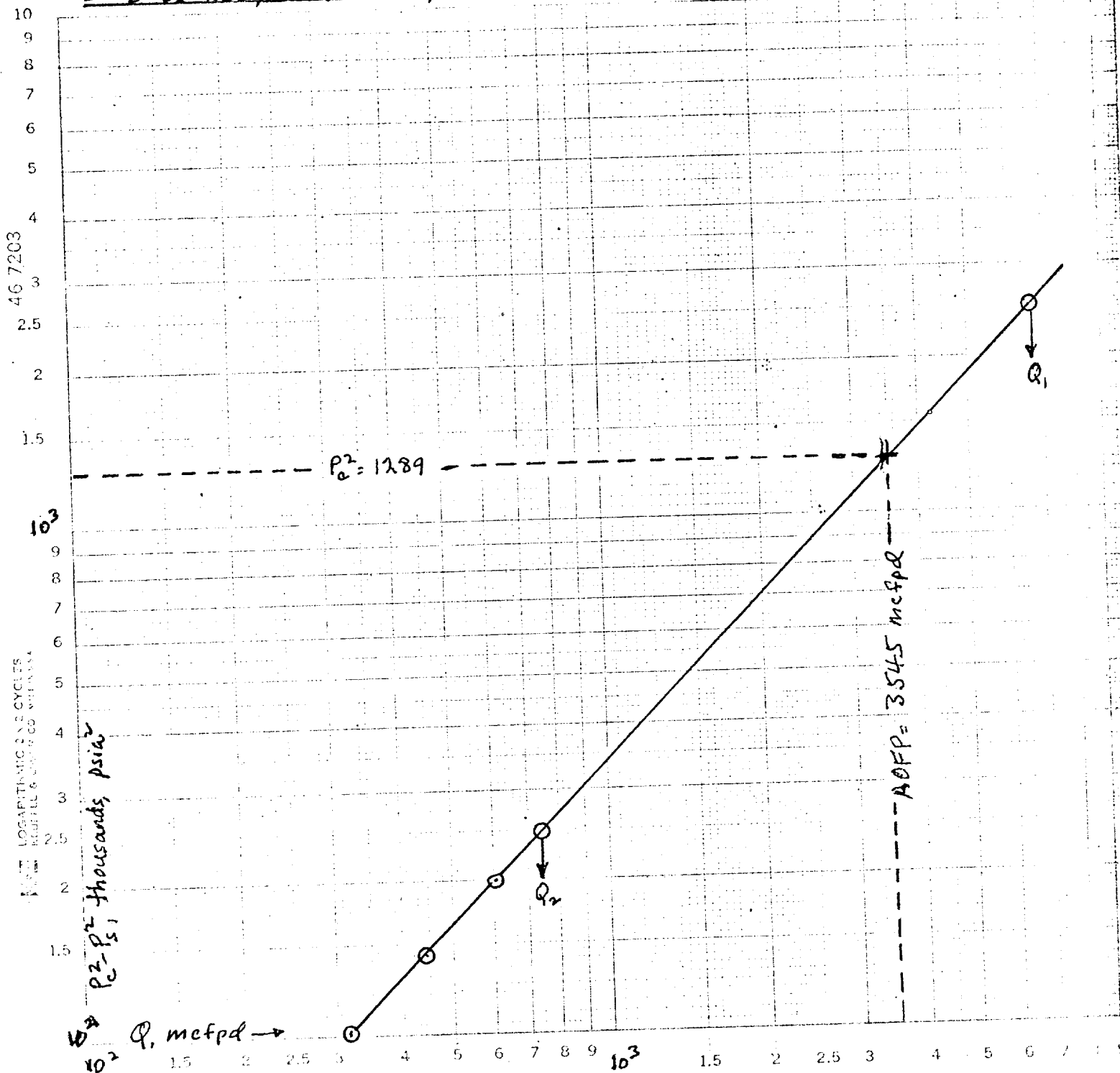
(2) $\left[\frac{P_e^2}{P_e^2 - P_w^2} \right]^n = 5.853$

Absolute Open Flow		3545 Mcfd @ 15.025	Angle of Slope θ	46.6 deg	Slope, n	0.9475
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Remarks: Static pressures by Bennett Wireline; Flowing pressures by DWT. Calculations worksheet C-122D attached. NOTE: Orifice plate too small. Well performance exceeded anticipated potential.

Approved By Commission:	Conducted By: David Weaver	Calculated By: Eddie Mahfood	Checked By:
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Duncan LH Federal No 1-Y
 C-3-8a-25a, Wildcat Abo, Chaves Co, N. Mex.



$Q_1 = 6610$ mcfpd $\log Q_1 = 3.8202$
 $Q_2 = 746$ mcfpd $\log Q_2 = 2.8722$
 $n = 0.9475$

1

LINE	1	2	3	4																
1 Q _m	-	0.227	0.315	0.446	0.605															
2 T _w (W.H. °R)	555	541	544	546	548															
3 T _s (B.H. °R)	555	554	553	553	552															
4 T = ($\frac{1}{2}T_w + T_s$)	545	547.5	548.5	549.5	550															
5 Z (Est.)	0.523	.836	.839	.841	.8455															
6 T _Z	1151.1	459.71	459.09	462.13	465.02															
7 CH/TZ	5.6111	5.5625	5.5469	5.509	5.475															
8 e ^s (Table XIV)	1.1259	1.2319	1.2312	1.2295	1.2279															
9 1-e ^s (Table XIV)		0.1883	0.1878	0.1867	0.1856															
10 F ₁	1021.2	993.2	982.2	965.2	941.2															
11 P ₁ 2/1000	1042.8	986.4	964.7	931.6	885.8															
12 F ₁ (Table XV) = 0.375	0.21166	0.20859	0.20726	0.20660	0.20531															
13 F ₁ = F ₁ TZ		4.4009	4.4114	4.4133	4.4112															
14 F ₁ Q _m		0.4999	1.3905	1.9817	2.705															
15 L/H (F ₁ Q _m) ²		0.998	1.933	3.927	7.317															
16 F _w = L/H (F ₁ Q _m) ² (1-e ^s)		0.2	0.4	0.7	1.4															
17 P _w ² = P ₁ ² + F _w		993.4	965.1	932.3	887.2															
18 P _s ² = e ^s P _w ²	1288.6	1223.8	1188.2	1146.3	1089.4															
19 P _s	1135.2	1106.2	1090.1	1070.6	1043.7															
20 P = ($\frac{1}{2}P_s + P_s$)	1078.2	1049.7	1030.8	1017.9	992.5															
21 P ₁ = (P/P _{cr})	1.473	1.434	1.418	1.391	1.356															
22 T ₁ = (T/T _{cr})	1.416	1.412	1.412	1.4273	1.4286															
23 Z (Table XI)		0.836	0.837	0.841	0.8455															

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