

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

Form C-122
Revised 9-1-65

RECEIVED

Type Test ☒ Initial ☐ Annual ☐ Special						Test Date 7-22-77		SEP 22 1977	
Company Yates Petroleum Corp.				Connection El Paso Natural Gas Company				O.C.C.	
Pool Undesignated				Formation Strawn				Unit ARTESIAN, CANADIAN	
Completion Date 6-9-77		Total Depth 9800'KB		Plug Back TD 8896'KB		Elevation 3364'KB		Farm or Lease Name Midwest "HH"	
Csg. Size 4 1/2"	Wt. 11.6#	d 4.000	Set At 8930'	Perforations: From 8807' To 8820'		Well No. 1			
Tbg. Size 2-3/8"	Wt. 4.7#	d 1.995	Set At 8750'	Perforations: From To		Unit Sec. Twp. Rge. F 21 18S 27E			
Type Well - Single - Bradenhead - G.G. or G.O. Multiple Single						Packer Set At 8750'KB		County Eddy	
Producing Thru Tubing		Reservoir Temp. °F 141 @ 8805'		Mean Annual Temp. °F 62°		Baro. Press. - P _a 13.2 psi		State New Mexico	
L 8805	H 8805	Gg	% CO ₂ 2.20	% N ₂ 1.45	% H ₂ S Nil	Prover	Meter Run 4"	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
SI							1789	82			2 mos.
1.	4.026	X	0.625	447	6	82	1688	89			1 hr.
2.				448	14	82	1581	86			1 hr.
3.				449	19	82	1475	82			1 hr.
4.				449	49	80	950	76			1 hr.
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	1.845	52.547	460.2	.9795	1.172	1.049	117
2.		80.354	461.2	.9795	1.172	1.049	178
3.		93.711	462.2	.9795	1.172	1.049	208
4.		150.492	462.2	.9813	1.172	1.050	335
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.	0.683	542	1.383	.9095	45.78	51.3	.728	XXXXXXX	674	392
2.	0.684	542	1.383	.9090				XXXXX		
3.	0.686	542	1.383	.9085						
4.	0.686	540	1.378	.9060						
5.										

NO.	P _t	P _w	R _w	P _c	P _c ² - R _w ²
1			7011	823	
2			6274	1560	
3			5609	2225	
4			2523	5311	
5					

(1) $\frac{P_c^2}{P_c^2 - R_w^2} = 3.5209$

AOE = Q $\left[\frac{P_c^2}{P_c^2 - R_w^2} \right]^n = 428$

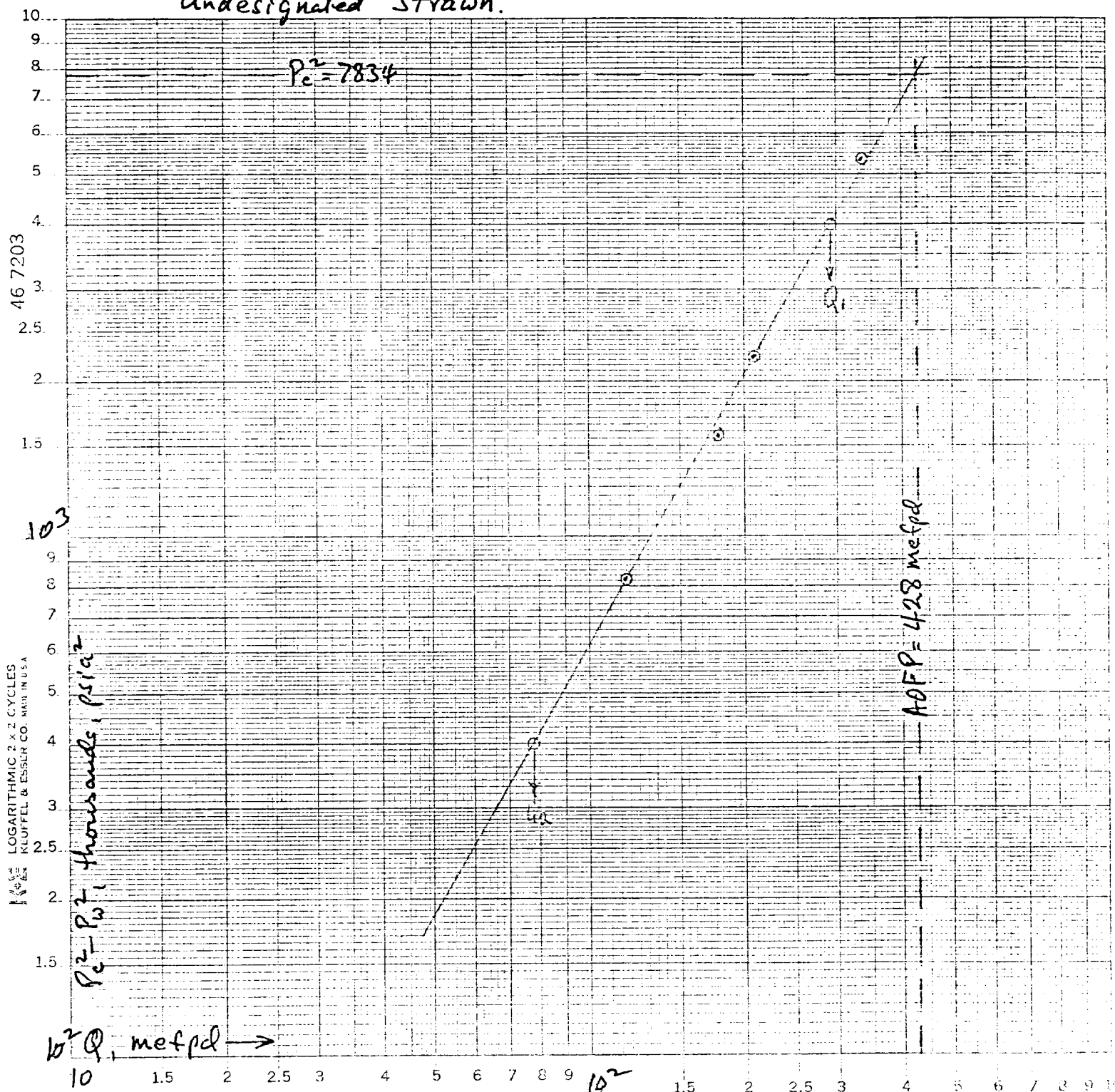
(2) $\left[\frac{P_c^2}{P_c^2 - R_w^2} \right]^n = 2.0578$

Absolute Cper. Flow	428	Mcfd @ 15.025	Angle of Slope @	60°10'	Slope, n	0.5733
---------------------	-----	---------------	------------------	--------	----------	--------

Remarks: Static Pressures by Bennett Wireline. Flowing pressures by DWT. Calculations sheet C-122D attached.

Approved By Commission:	Conducted By: Don Weaver	Calculated By: Eddie Mahfood	Checked By:
-------------------------	-----------------------------	---------------------------------	-------------

YPC-Midwest HH #1
Unit F Sec 21-18S-27E, Eddy Co.
Undesignated Strawn.



$$Q_1 = 292 \text{ mcfpd} \quad \log Q_1 = 2.4654$$

$$Q_2 = 78 \text{ mcfpd} \quad \log Q_2 = 1.8921$$

$$n = 0.5733$$

WORKSHEET FOR CALCULATION OF STATIC COLUMN WELLHEAD PRESSURE (P_w)COMPANY YFC LEASE Middlefield WELL NO. 1 DATE 7-22-77LOCATION: Unit F Section 21 Township 15S Range 23EL 8805 H 3505 L/H G 793 % CO₂ 2.20 % N₂ 1.45 % H₂S Nd 2.0168 F_r 0.01726 GH 6482 P_{CT} 672 T_{CT} 40

TABLE IX & X

LINE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1 Q _m		0.117	0.173	0.238	0.335																		
2 T _w (W.H. °R)	542	5.1	1.0	1.2	1.3																		
3 T _s (B.H. °R)	601	6.0	1.1	1.4	1.5																		
4 T = ($\frac{T_w + T_s}{2}$)	571.5	5.745	5.72	5.68	5.62																		
5 Z (Est.)	0.690	0.694	0.693	0.690	0.687																		
6 TZ	394.335	398.703	396.746	391.92	431.054																		
7 GH/TZ	17.706	17.512	17.614	17.815	16.198																		
8 e ^s (Table XIV)	1.9425	1.9284	1.9358	1.9505	1.8357																		
9 1 - e ^s (Table XIV)		0.4814	0.4834	0.4873	0.4552																		
10 P _t	1802.2	1701.1	1594.2	1488.2	963.2																		
11 P _t ² /1000	3247.9	2893.74	2541.47	2214.74	927.75																		
12 F _r (Table XV) $\frac{4H}{5} + 0.215 \frac{P_t}{P_w}$	0.66397	0.65669	0.66051	0.66806	0.60741																		
13 F _c = F _r IZ		7.873	6.842	6.765	7.440																		
14 F _c Q _m		0.921	1.218	1.407	2.7492																		
15 L/H (F _c Q _m) ²		0.85	1.483	1.980	6.1212																		
16 F _w = L/H (F _c Q _m) ² (1 - e ^{-s})		0.41	0.72	0.96	2.83																		
17 P _w ² = P _t ² + F _w	4032.4	741.74	698.92	657.04	435.67																		
18 P _s ² = e ^s P _w ²	7832.9	7011.45	6274.1	5603.3	2508.0																		
19 P _s	2799.2	2647.9	2504.8	2367.1	1583.6																		
20 P = ($\frac{P_t + P_s}{2}$)	2300.7	2174.5	2049.5	1927.7	1273.4																		
21 P _r = (P/P _{CT})	3.424	3.236	3.05	2.87	1.895																		
22 T _r = (T/T _{CT})	1.3804	1.388	1.382	1.372	1.3575																		
23 Z (Table XI)	0.690	0.694	0.693	0.689	0.759																		