

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

Form C-122
 Revised 9-1-65

RECEIVED

Type Test ☒ Initial ☐ Annual ☐ Special					Test Date 7-10-79		OCT 3 1979		
Company Yates Petroleum Corp. ✓			Connection Transwestern Pipeline Co.						
Pool Kennedy Farms Morrow			Formation Morrow			Unit O. C. C. ARTESIA, OFFICE			
Completion Date 4-12-79		Total Depth 8580' KE		Plug Back TD 8556' KB		Elevation 3371' KE		Farm or Lease Name Armstrong "KS" State Com	
Csg. Size 4-1/2"	Wt. 11.6#	d 4.000	Set At 8588' KB	Perforations: From 8385 To 8393'		Well No. 1			
Thq. Size 2-3/8"	Wt. 4.7#	d 1.995	Set At 8383' KB	Perforations: From 8332 To 8336'		Unit Soc. Twp. Rge. I 16 17S 26E			
Type Well - Single - Bradenhead - G.G. or G.O. Multiple Single					Packer Set At 8327' KB		County Eddy		
Producing Thru Tubing		Reservoir Temp. °F 142 @ 8380		Mean Annual Temp. °F 62		Baro. Press. - P _a 13.2		State New Mexico	
L 8380	H 8380	G _g .651	% CO ₂ 0.30	% N ₂ 0.56	% H ₂ S Nil	Prover 4"	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							2576	74			Days
1.	4.027 x 2.000			450	9	90	2501	75			1 hour
2.				453	17	90	2448	76			1 hour
3.				456	37	89	2333	77			1 hour
4.				460	63	88	2186	78			1 hour
5.											

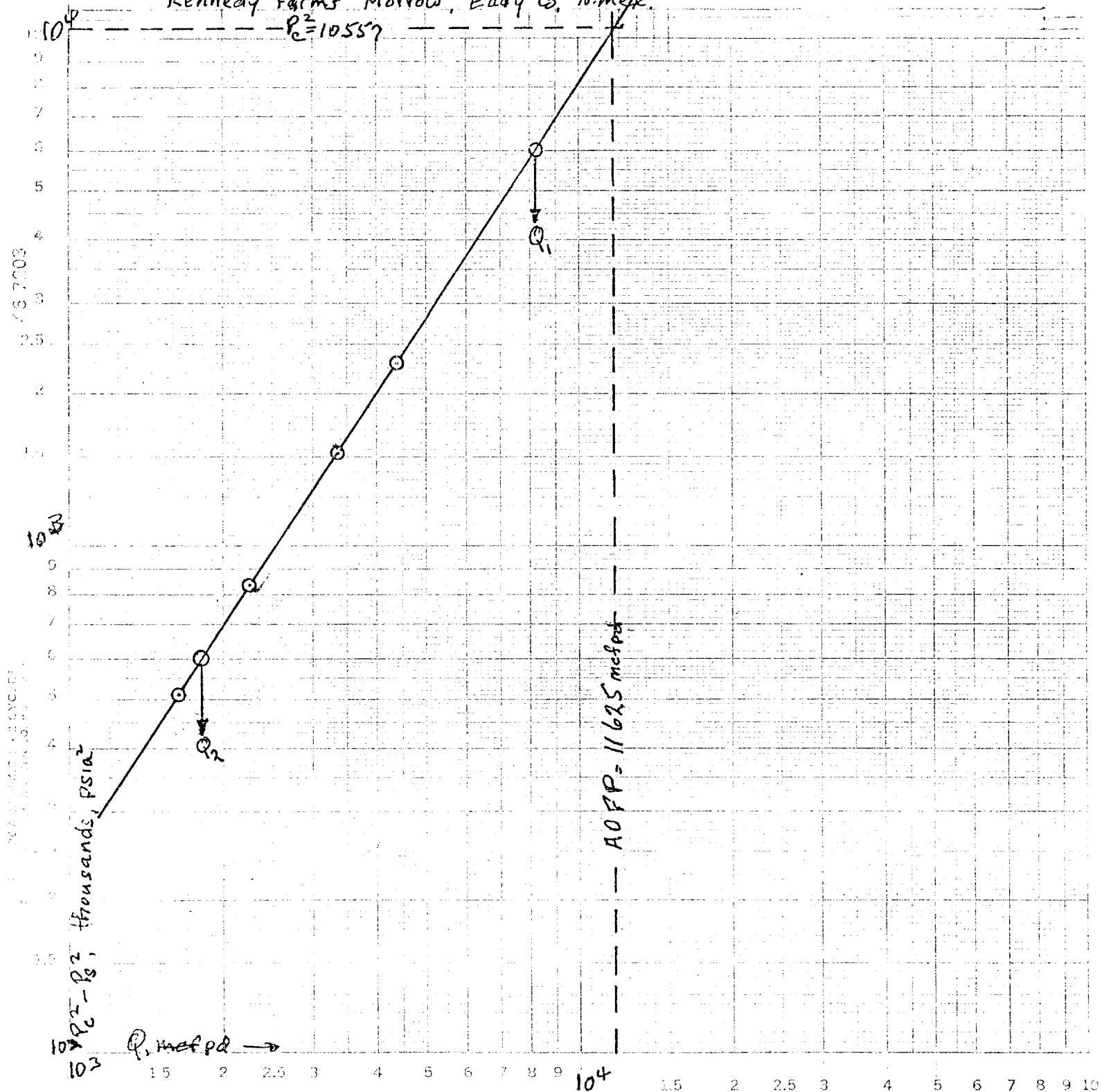
RATE OF FLOW CALCULATIONS							
NO.	Coefficient (24 Hour)	$\sqrt{h_w P_m}$	Pressure P _m	Flow Temp. Factor Ft.	Gravity Factor F _g	Super Compress. Factor, F _{pv}	Rate of Flow Q, Mcfd
1	19.81	64.57	463.2	.9723	1.267	1.0355	1632
2	19.81	89.02	466.2	.9723	1.267	1.0357	2250
3	19.81	131.76	469.2	.9732	1.267	1.0362	3335
4	19.81	172.66	473.2	.9741	1.267	1.0365	4375
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	.689	550	1.511	.9327	104.4 Mcf/bbl.	56.6 Deg.	0.623	XXXXXX	651	671
2	.694	550	1.511	.9322				XXXXX	672 P.S.I.A.	373.5 R
3	.698	549	1.508	.9314						
4	.704	549	1.508	.9308						
5										

$F_c = 3249.2 \quad P_c^2 = 10557$					$(1) \frac{P_c^2}{P_c^2 - P_w^2} = 4.5880$		$(2) \left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 2.65735$	
NO.	P _r ²	P _w	P _w ²	P _c ² - P _w ²	$AOF = Q \left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 11625$			
1			10047	510				
2			9718	839				
3			9033	1524				
4			8256	2301				
5								

Absolute Open Flow		10625 Mcfd @ 15.025	Angle of Slope θ	53.56 deg	Slope, n	0.6443
Remarks: Static pressures by Bennett Wireline; flowing pressures by DWT. Calculations worksheet C-122D attached.						
Approved By Commission:		Conducted By: Don Weaver		Calculated By: Eddie Mahfood		Checked By:

YPC- ARMSTRONG KS Com. No. 1, I-16-17S-26E
Kennedy Farms Morrow, Eddy Co. N. Mex.



$$\begin{aligned} Q_1 &= 8200 \text{ mcfpd} & \log Q_1 &= 3.91381 \\ Q_2 &= 1850 \text{ mcfpd} & \log Q_2 &= 3.26951 \\ n &= 0.64430 \end{aligned}$$

WORKSHEET FOR CALCULATION OF STATIC COLUMN WELLHEAD PRESSURE (P_w)

COMPANY YPC LEASE ARMSTRONG KSCOM WELL NO. 1 DATE 7-10-79

LOCATION: Unit I Section 16 Township 17-S Range 26-E

L 8380 H 8380 L/H 1.000 G 651 % CO₂ 0.30 % N₂ 0.56 % H₂S NH

d 8.0046 F_t 1016472 GH 5455.3 P_{CT} 671 T_{CT} 373.5

3380 4.015 33674

LINE	51	1	2	3	4	51	1	2	3	4
1 Q _m	-	1.632	2.250	3.335	4.375		1.632	2.250	3.335	4.375
2 T _w (W.H. °R)	534	535	536	537	538					
3 T _s (B.H. °R)	602	602	601	601	600					
4 T = (T _w + T _s) / 2	568	568.5	568.5	569	569		568.5			
5 Z (Est.)	1793	1792	1789	1786	1783		0.791			
6 TZ	450.49	450.25	448.55	448.94	445.53		449.68			
7 GH/TZ	12.110	12.116	12.162	12.151	12.245		12.131			
8 e ^s (Table XIV)	1.15748	1.15751	1.15779	1.15772	1.15828		1.15761			
9 1 - e ^s (Table XIV)		.3651	0.3662	0.3660	0.3682		0.3655			
10 P _t	2589.2	2514.2	2461.2	2346.2	2199.2		2514.2			
11 P _t 2/1000	6704.0	6321.2	6057.5	5504.7	4836.5		6321.2			
12 F _t (Table XV) _S	0.45128	0.45435	0.45603	0.45568	0.45917		0.45493			
13 F _c = F _t TZ		7.4165	7.3885	7.3949	7.3388		7.4071			
14 F _c Q _m		12.104	16.624	24.662	32.107		12.088			
15 L/H (F _c Q _m) ²		146.5	276.36	608.2	1030.9		146.1			
16 F _w = L/H (F _c Q _m) ² (1 - e ^s)		53.5	101.2	222.6	379.6		53.4			
17 P _w ² = P _t ² + F _w		6374.7	6158.7	5727.3	5216.1		6374.6			
18 P _s ² = e ^s P _w ²	10557.0	10040.8	9717.8	9033.1	8256.0		10047.0			
19 P _s	3249.2	3168.7	3117.3	3005.5	2873.3		3169.7			
20 P = (P _t + P _s) / 2	2919.2	2841.5	2789.3	2675.9	2536.3		2842.0			
21 P _t = (P/P _{CT})	4.350	4.235	4.157	3.99	3.780		4.235			
22 T _t = (T/T _{CT})	1.5207	1.522	1.522	1.523	1.523		1.522			
23 Z (Table XI)	0.793	0.791	0.789	0.786	0.783		0.791			