

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 5-1-79		JUL 5 1979		
Company Yates Petroleum Corp.				Connection Natural Gas Pipeline of America				O.C.C. ARTESIA, OFFICE	
Pool Wildcat Morrow				Formation Morrow				Unit	
Completion Date 6-9-75		Total Depth 11025'		Plug Back TD 10958'		Elevation 3749' KB		Farm or Lease Name Marco Polo "EA" State	
Csg. Size 4-1/2"	Wt. 13.5	Id 3.920	Set At 10958	Perforations: From 10870' to 10887' KB				Well No. 1	
Tbg. Size 2-3/8"	Wt. 4.7	Id 1.995	Set At 10858	Perforations: From To				Unit Sec. Twp. Rje. H 32 16S 30E	
Type Well - Single - Bradenhead - G.G. or G.O. Multiple Single					Packer Set At 10834'		County Eddy		
Producing Thru Tubing		Reservoir Temp. °F 162 @ 10870		Mean Annual Temp. °F 62		Baro. Press. - P _a 13.2		State New Mexico	
L 10870	H 10870	G _g 0.767	% CO ₂ 0.31	% N ₂ 1.45	% H ₂ S Nil	Prover	Meter Run 3"	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							2917	42			Days
1.	3.068 x 0.875			564	19	66	2504	54			1 hour
2.				564	32	66	2385	63			1 hour
3.				565	56	66	2239	70			1 hour
4.				565	83	65	2051	75			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.	3.650	104.7	577	.9943	1.220	1.0608	492
2.	3.650	135.9	577	.9943	1.220	1.0608	638
3.	3.650	179.9	578	.9943	1.220	1.0609	845
4.	3.650	219.0	578	.9952	1.220	1.0614	1029
5.							

NO.	P _i	Temp. °R	T _r	Z	Gas Liquid Hydrocarbon Ratio	24.77 Mcf/bbl.
					A.P.I. Gravity of Liquid Hydrocarbons	56.9 Deg.
1.	0.862	526	1.391	.8887	Specific Gravity Separator Gas	.672
2.	0.862	526	1.391	.8887	Specific Gravity Flowing Fluid	.7865
3.	0.864	526	1.391	.8885	Critical Pressure	669 P.S.I.A.
4.	0.864	525	1.389	.8877	Critical Temperature	378 °R
5.						

P _c 4253.2 P _c ² 18090				
NO.	P _i ²	P _w	P _w ²	P _c ² - P _w ²
1			13814	4276
2			12575	5515
3			10880	7210
4			9560	8530
5				

$$(1) \frac{P_c^2}{P_c^2 - P_w^2} = 2.12075$$

$$AOF = Q \left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 2182$$

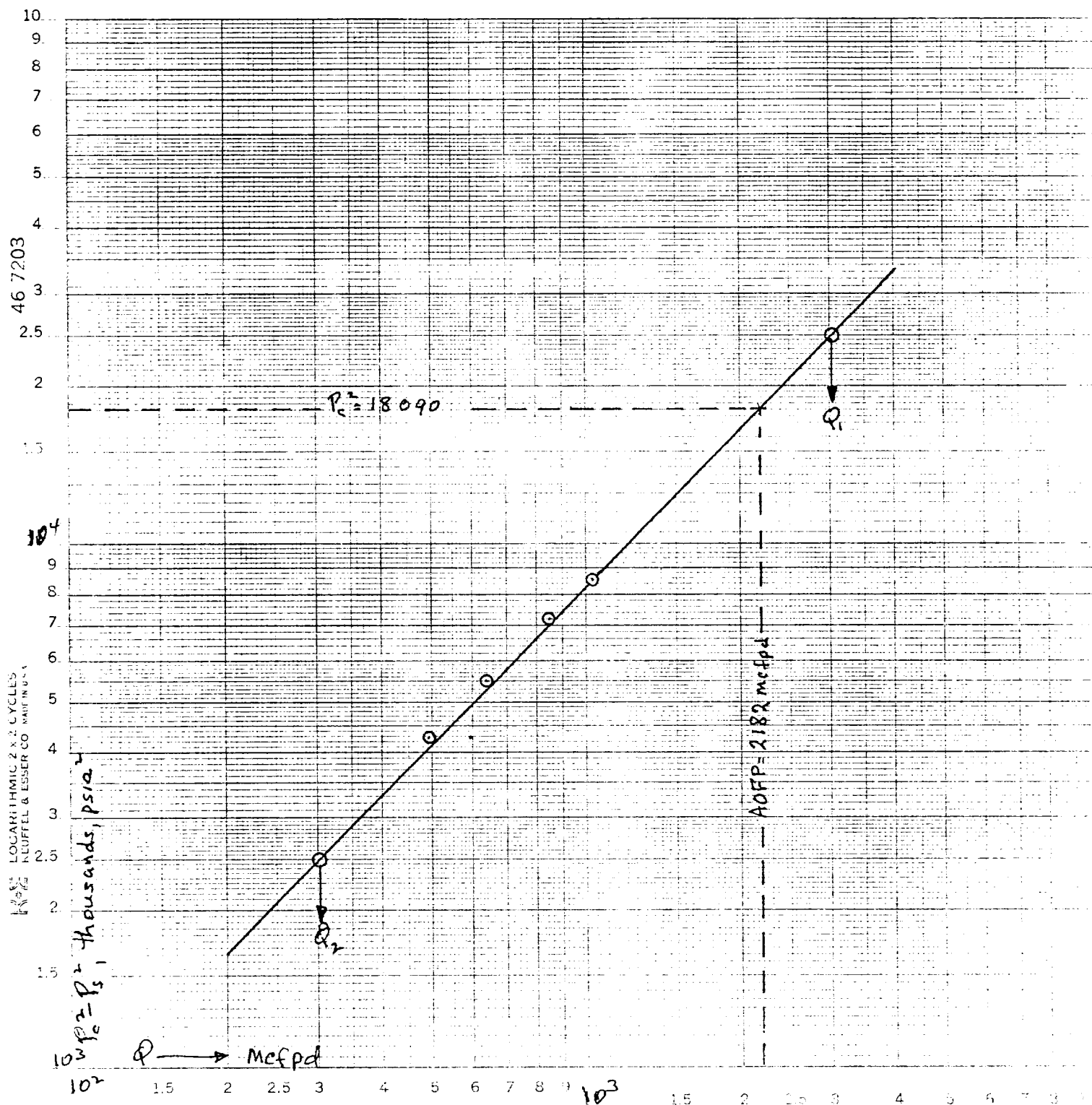
$$(2) \left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 2.12075$$

Absolute Open Flow	2182 Mcfd @ 15.025	Angle of Slope θ	45	Slope, n	1.00
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Remarks: Static pressures by Bennett Wireline, flowing pressures by DWT.
Calculations worksheet C-122D attached.

Approved By Commission:	Conducted By: Bill Trembley, Jr.	Calculated By: Eddie Mahfood	Checked By:
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YPC- Marco Polo EA State No.1
H-32-16s-30E, Eddy County, N.M. Wildest Morrow



$$Q_1 = 3010 \text{ mcfpd} \quad \log Q_1 = 3.479$$

$$Q_2 = 301 \text{ mcfpd} \quad \log Q_2 = 2.479$$

$$n = 1.000$$

WORKSHEET FOR CALCULATION OF SIC COLUMN WELLHEAD PRESSURE (P_w)

C-122D
Adapted 9-1-65

COMPANY Nate Petroleum Corp LEASE Musco Polo EH State WELL NO. 1 DATE 5/1/70

LOCATION: Unit H Section 32 Township 16S Range 30E

L 10870 H 10870 L/H 1 C 17865 %CO₂ 0.30 %N₂ 1.41 %H₂S 0

234-10845/3982-43143 d 2.0015 F_i 0.01653 GH 8549.3 P_{cr} 6000 T_{cr} 415.5

108700 108700

LINE	1	2	4	1	2	3	4	5	6
1 Q _m									
2 T _w (W.H. °R)	502	514	522	530	535				
3 T _s (B.H. °R)	620	619	618	617	616				
4 T = (T _w + T _s)	561	566.5	570.2	573.2	575.5				
5 Z (Est.)	.968	.929	.920	.935	.905				
6 TZ	430.22	412.98	410.76	421.54	405.73				
7 GH/TZ	19.872	20.702	20.812	20.282	21.072				
8 e ^s (Table XIV)	2.1069	2.1734	2.1826	2.1225	2.2038				
9 1 - e ^s (Table XIV)		0.5339	0.5448	.5526	0.5462				
10 P _i	2930.2	2517.2	2398.2	2252.2	2074.2				
11 P _i 2/1000		633.63	575.16	5072.4	4302.3				
12 F _i (Table XIV)	0.74580	0.77631	0.78050	0.76657	0.79018				
13 F _i = F _i TZ		6.830	6.9931	6.9711	6.9210				
14 F _c Q _m		3.360	4.334	5.8906	6.9046				
15 L/H (F _c Q _m) ²		11.29	18.782	24.70	47.67				
16 F _w = L/H (F _c Q _m) ² (1 - e ^{-s})		6.1	10.2	18.5	26.0				
17 P _w = P _i 2 + F _w		6342.4	5761.6	5090.9	4328.3				
18 P _s = e ^s P _w 2	18090	13781.6	12575.3	10892.0	9538.7				
19 P _s	42532	3712.8	3546.2	3300.3	3088.4				
20 P = (P _i + P _s)	3591.6	3115.0	2972.2	2776.3	2581.3				
21 P _i = (P/P _{cr})	5.393	4.677	4.463	4.169	3.876				
22 T _i = (T/T _{cr})	1.350	1.363	1.373	1.380	1.385				
23 Z (Table XI)	.968	.929	.920	.936	.903				