NEW MEXICO OIL CONSERVATION COMMISSION

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Form C-122
Revised 9-1-65

RECEIVED
JUN 27 1978
O. C. C.
ARTESIA, OFFICE

Type Test: ☒ Initial ☐ Annual ☐ Special				Test Date: 5-18-78	
Company: Yates Petroleum Corporation		Connection: El Paso Natural Gas Co.			
Pool: Kennedy Farms Morrow		Formation: Morrow		Unit	
Completion Date: 12-15-77	Total Depth: 8670 KB	Plug Back TD: 8607' KB	Elevation: 3375' KB	Farm or Lease Name: Siegenthaler IS Com	
Csg. Size: 5½" / Wt.: 17# / d: 4.892 / Set At: 8647'		Perforations: From 8404 To 8430' KB		Well No.: 1	
Tbg. Size: 2-3/8" / Wt.: 4.7# / d: 1.995 / Set At: 8341'		Perforations: From 8352 To 8355 KB		Unit: I / Sec.: 21 / Twp.: 17S / Rge.: 26E	
Type Well – Single – Bradenhead – G.G. or G.O. Multiple: Dual - gas - gas		Packer Set At: 8347 & 8145'		County: Eddy	
Producing Thru: Csg. Annulus	Reservoir Temp. °F: 8420	Mean Annual Temp. °F: 62	Baro. Press. – P_a: 13.2	State: N. Mex.	

L	H	Gg	% CO_2	% N_2	% H_2S	Prover	Meter Run	Taps
8411	8411	0.626	0.28	0.29	Nil	-	4	Flanged

	FLOW DATA				TUBING DATA		CASING DATA		
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	Duration of Flow
SI					2722	54			24 hrs
1.	4.026 x 1.250	643	16	83	2582	61			1 hr
2.		644	28	84	2485	66			1 hr
3.		646	49	84	2325	70			1 hr
4.		648	71	83	2141	73			1 hr
5.									

RATE OF FLOW CALCULATIONS

NO.	Coefficient (24 Hour)	$\sqrt{h_w P_m}$	Pressure P_m	Flow Temp. Factor Ft,	Gravity Factor Fg	Super Compress. Factor, Fpv	Rate of Flow Q, Mcfd
1	7.469	102.47	656.2	.9786	1.278	1.0519	1007
2.		135.65	657.2	.9777	1.278	1.0519	1332
3.		179.72	659.2	.9777	1.278	1.0517	1764
4.		216.67	661.2	.9786	1.278	1.0519	2129
5.							

NO.	P_t	Temp. °R	T_r	Z
1.	.976	543	1.502	.9037
2.	.978	544	1.505	.9038
3.	.981	544	1.505	.9041
4.	.984	543	1.502	.9038
5.				

Gas Liquid Hydrocarbon Ratio 206.17 Mcf/bbl.
A.P.I. Gravity of Liquid Hydrocarbons 56.3 Deg.
Specific Gravity Separator Gas .612 xxxxxxxxx
Specific Gravity Flowing Fluid xxxxx .626
Critical Pressure 672 P.S.I.A. 669.5 P.S.I.A.
Critical Temperature 361.5 R 365.5 R

P_c 3406.4 P_c^2 11603

NO	P_t^2	P_w	P_w^2	$P_c^2 - P_w^2$
1			10454	1149
2			9678	1925
3			8488	3115
4			7206	4397
5				

(1) $\frac{P_c^2}{P_c^2 - P_w^2} = 2.639$

(2) $\left[\frac{P_c^2}{P_c^2 - P_w^2}\right]^n = 1.7272$

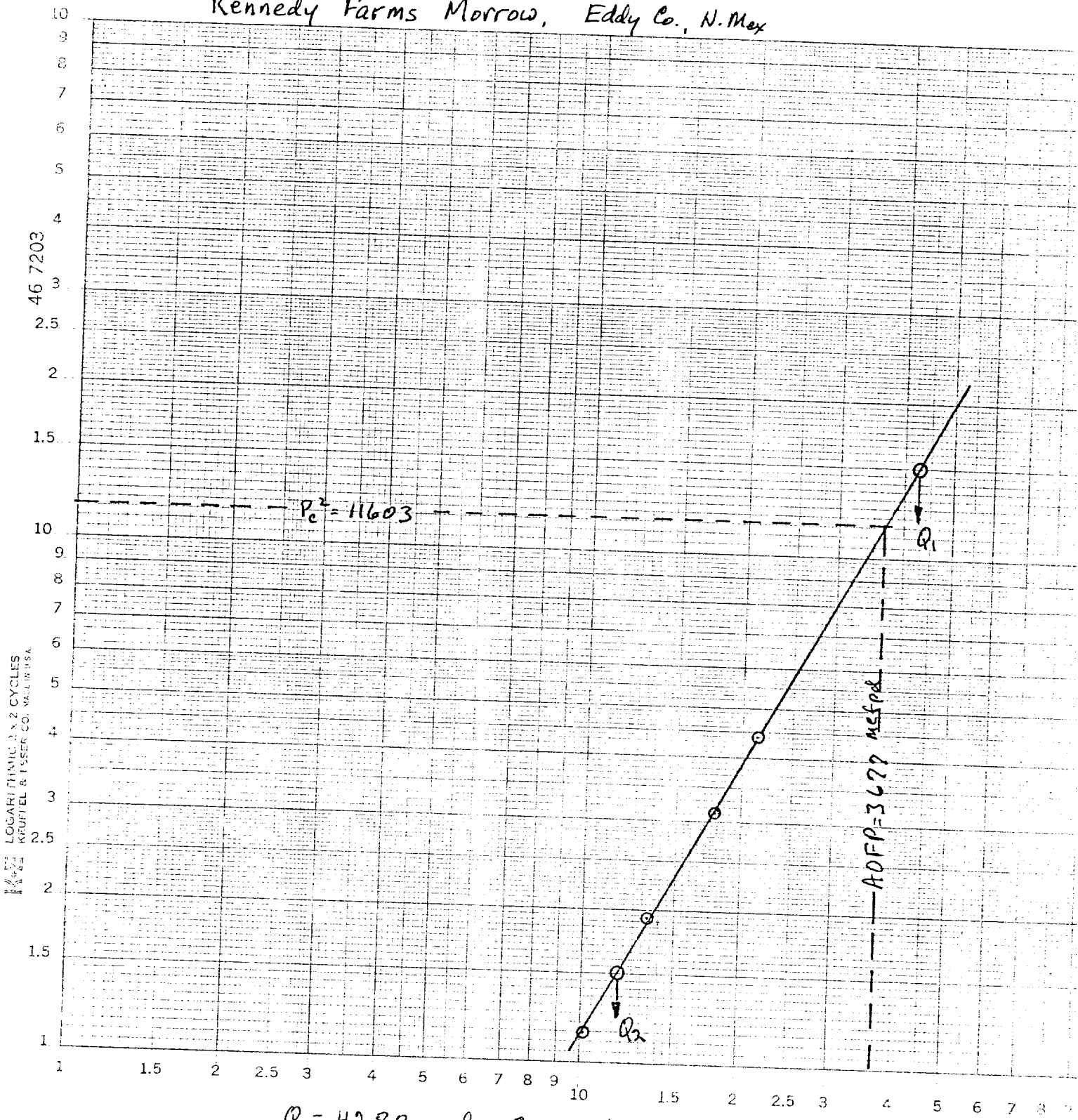
AOF = Q $\left[\frac{P_c^2}{P_c^2 - P_w^2}\right]^n = 3677$

Absolute Open Flow 3677 Mcfd @ 15.025 Angle of Slope θ 60.6 Deg Slope, n .5632

Remarks: Shut-in BHP by Bennett Wireline prior to dual completion. Flowing tubing pressures by Dead Weight Tester. Calculations work sheet C-122 D attacked.

Approved By Commission:	Conducted By:	Calculated By:	Checked By:
	Bill Trembley, Jr	Eddie Mahfood	

YPC- Siegenthaler "IS" Com No. 1
Unit I Sec 21-17S-26E,
Kennedy Farms Morrow, Eddy Co., N. Mex



$Q_1 = 4280$ $\log Q_1 = 3.6314$

$Q_2 = 1170$ $\log Q_2 = 3.0682$

$n = 0.5632$

WORKSHEET FOR CALCULATION OF ST. IC COLUMN WELLHEAD PRESSURE (P_w)

C-122D
Auopted 9-1-65

COMPANY Yates Petroleum Corp LEASE Siegenthaler IS Com WELL NO. 1 - Morrow DATE 5-18-78

LOCATION: Unit I Section 21 Township 17-S Range 26-E

L 8411 H 8411 L/H 1.000 G 0.626 % CO_2 0.28 % N_2 0.29 % H_2S Nil

$2\frac{3}{8}$ - 209(2.441) 8311.9
$5\frac{1}{2}$-2" - 8185(15.65) 128092.5
$5\frac{1}{2}$-4 - 17(7.93) 134.8
8411 (15.24) 129061.8

d 3.9172 F_r .003017 GH 5265.3 P_{cr} 669 (TABLE IX & X) T_{cr} 365 (TABLE IX & X)

LINE	S1	1	2	3	4	S1	1	2	3	4
1 Q_m	—	1.007	1.332	1.764	2.129		1.007	1.332	1.764	2.129
2 T_w (W.H. °R)	514	521	526	530	533					
3 T_s (B.H. °R)	603	602	601	600	599					
4 $T = (\frac{T_w + T_s}{2})$	558.5	561.5	563.5	565	566		561.5	563.5	565	566
5 Z (Est.)	.8055	.800	.795	.795	.794			.799		
6 TZ	449.87	449.20	447.98	449.175	449.40			450.257		
7 GH/TZ	11.704	11.7215	11.7531	11.722	11.716			11.6945		
8 e^s (Table XIV)	1.5510	1.5520	1.5539	1.5520	1.5517			1.5504		
9 $1-e^{-s}$ (Table XIV)		0.3557	0.3564	0.3559	0.3556			0.3550		
10 P_t	2735.2	2595.2	2498.2	2338.2	2154.2			2498.2		
11 $P_t^{2}/1000$	7481.3	6735.1	6241.0	5467.2	4640.6			6241.0		
12 ~~F_r (Table XV)~~ $S: .0315\frac{9H}{T^2}$	.43830	.43956	.44075	.43958	.43936			.43854		
13 $F_c = F_r$ TZ		1.3779	1.3740	1.3776	1.3783			1.3809		
14 $F_c Q_m$		1.3873	1.8301	2.430	2.934			1.8393		
15 $L/H (F_c Q_m)^2$		1.9247	3.349	5.905	8.611			3.383		
16 $F_w = L/H(F_c Q_m)^2(1-e^{-s})$		0.685	1.194	2.1	3.06			1.201		
17 $P_w^2 = P_t^2 + F_w$		6735.8	6242.2	5469.3	4643.7			6242.2		
18 $P_s^2 = e^s P_w^2$	11603.5	10453.9	9699.8	8484.1	7205.6			9677.9		
19 P_s	3406.4	3233.2	3114.4	2913.5	2684.3			3110.9		
20 $P = (\frac{P_t + P_s}{2})$	3070.8	2914.2	2806.3	2625.8	2419.3			2806.6		
21 $P_r = (P/P_{cr})$	4.590	4.356	4.195	3.925	3.616			4.192		
22 $T_r = (T/T_{cr})$	1.530	1.538	1.544	1.548	1.551			1.544		
23 Z (Table XI)	.8055	0.800	0.799	0.795	0.794			0.799		

One copy to be filed in District Office (Work copy acceptable)