

OIL CONSERVATION DIVISION

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENTP. O. BOX 2088
SANTA FE, NEW MEXICO 87501Form C-122
Revised 10-1-78
RECEIVED

MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Type Test ☒ Initial ☐ Annual ☐ Special						Test Date 11-6-81		JAN 4 1982	
Company Yates Petroleum Corporation				Connection Transwestern Pipeline Company				O. C. D. ARTESIA, OFFICE	
Pool <u>Pecos Slope - Abo Gas</u> Undesignated Abo				Formation Abo				Unit	
Completion Date 6-11-81		Total Depth 4400'		Plug Back TD 4395'		Elevation 3809' GR		Farm or Lease Name Powers "OL" Federal	
Coq. Size 4-1/2"	Wt. 9.5#	d 4.090"	Set At 4395'	Perforations: From 3754' To 3806'		Well No. 2			
Tig. Size 2-3/8"	Wt. 4.7#	d 1.995"	Set At 3790'	Perforations: From - To -		Unit Sec. Twp. Rye. N 33 6S 25E			
Type Well - Single - Blindhead - G.G. or G.O. Multiple Single						Packer Set At -		County Chaves	
Producing Thru Tubing		Reservoir Temp. °F 96 @ 3780		Mean Annual Temp. °F 62°		Baro. Press. - P _a 13.2		State New Mexico	
L 3790	H 3790	Gg .670	% CO ₂ 3.00	% N ₂ 7.03	% H ₂ S 0	Prover -	Meter Run 2"	Taps Flanged	

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.	
SI							1000			
1.	2.067 x .500			460	70.0	60	460	65		
2.	2.067 x .500			350	30.7	57	833	65		
3.	2.067 x .500			335	13.7	57	924	65		
4.	2.067 x .500			330	9.5	57	946	65		
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	1.189	182.0	473.2	1.000	1.222	1.041	275
2	1.189	105.6	363.2	1.003	1.222	1.033	159
3	1.189	69.2	348.2	1.003	1.222	1.032	104
4	1.189	57.2	343.2	1.003	1.222	1.032	86
5							

NO.	P _t	Temp. °R	T _r	Z	Gas Liquid Hydrocarbon Ratio	_____ Mcf/hbl.
1	.71	520	1.46	.922	Dry	_____
2	.54	517	1.45	.938	A.P.L. Gravity of Liquid Hydrocarbons	Dry _____ Deg.
3	.53	517	1.45	.939	Specific Gravity Separator Gas	.670 _____
4	.53	517	1.45	.939	Specific Gravity Flowing Fluid	_____ .670
5					Critical Pressure	669 _____ P.S.I.A.
					Critical Temperature	357 _____ R

NO.	P _t ²	P _w	P _w ²	P _t ² - P _w ²
1	223.9		225.0	801.6
2	716.1		716.4	310.2
3	878.3		878.5	148.1
4	920.1		920.2	106.4
5				

(1) $\frac{P_t^2}{P_t^2 - P_w^2} = \frac{1.2807}{P_t^2 - P_w^2}$

AOF = Q $\left[\frac{P_t^2}{P_t^2 - P_w^2} \right]^n = \frac{317}{P_t^2 - P_w^2}$

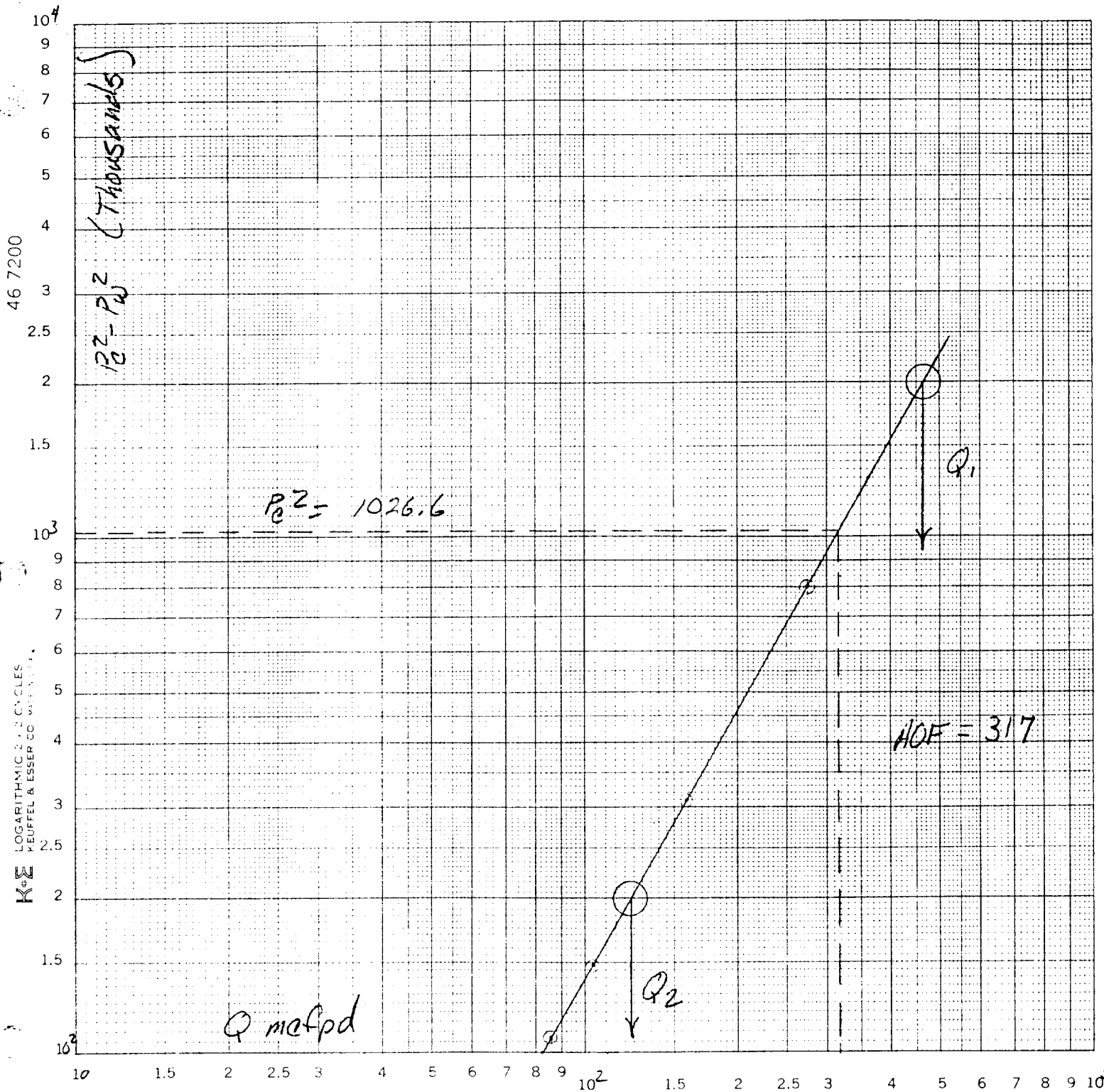
(2) $\left[\frac{P_t^2}{P_t^2 - P_w^2} \right]^n = \frac{1.1526}{P_t^2 - P_w^2}$

Absolute Open Flow	317	Mcf @ 15.025	Angle of Slope θ	Slope, n	.574
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Remarks: _____

Approved By Division	Conducted By: David Weaver	Calculated By: Al Springer	Checked By:
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Yates Petroleum Corp.
 Powers "OL" Fed #2
 Unit N, sec 33, T-6S, R-25E
 Chaves County, New Mexico



$$(P_c^2 - P_w^2)_1 = 2,000$$

$$(P_c^2 - P_w^2)_2 = 200$$

$$Q_1 = 465$$

$$Q_2 = 124$$

$$\log Q_1 = 2.66745$$

$$\log Q_2 = 2.09342$$

$$n = .57403 = .574$$

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

C-122D
Revised 9-1-65

COMPANY Yates Petroleum Corp LEASE Powers 'OL Fed. WELL NO. #2 DATE 12/31/81

LOCATION: Unit N Section 33 Township 6S Range 25E

L 3990 H 3990 L/H 1.000 G .690 % CO₂ 3.00 % N₂ 7.03 % H₂S 0

d 1.995 F_r .01823 GH 2539 P_{cr} 669 T_{cr} 357

LINE	1 st Rate	2 nd Rate	3 rd Rate	4 th Rate
1 Q _m	.295	.157	.086	
2 F _w (Table IV)	525	525	525	
3 F _w (Table IV)	556	556	556	
4 F _w (Table IV)	540.5	540.5	540.5	
5 F _w (Table IV)	.928	.877	.864	
6 F _w	501.53	494.02	466.59	
7 3H/TZ	5.062	5.356	5.437	
8 e ^s (Table XIV)	1.209	1.222	1.226	
9 1-e ^s (Table XIV)	.193	.182	.184	
10 P _t	473.2	846.2	937.2	
11 P _t ² /1000	223.9	716.1	878.3	
12 F _r (Table XV)	.01823	.01823	.01823	
13 F _c = F _r TZ	9.144	8.641	8.513	
14 F _c Q _m	2.575	1.374	.885	
15 L/H (F _c Q _m) ²	6.323	1.888	.784	
16 F _w = L/H (F _c Q _m) ² (1-e ^s)	1.071	.344	.143	
17 P _w ² = P _t ² + F _w	225.0	716.4	878.5	
18 P _s ² = e ^s P _w ²	272.0	875.4	1077.0	
19 P _s	521.6	935.6	1034.8	
20 P = (P _t + P _s)	497.4	890.9	987.5	
21 P _r = P/P _{cr}	.74	1.33	1.48	
22 T _r = (T/T _{cr})	1.51	1.51	1.51	
23 T _r (Table XV)	.928	.877	.864	