

WORKSHEET FOR CALCULATION OF STATIC COLUMN WELLHEAD PRESSURE (Pw) C-122D

Adopted 9-1-65

DATE 4/5/89

COMPANY Yates Petroleum Corporation LEASE Thomas LN Federal WELL NO. 6

LOCATION: Unit N Section 15 Township 6S Range 25E

L 3668.0 H 3668.0 L/H 1.000 G .643 %CO₂ .02 %N₂ 5.15 %H₂S 0.00

d 1.995 Fr .017777 GH 2358.5 Pcr 662.0 Tcr 355.7

LINE	1st Rate	2nd Rate	3rd Rate	4th Rate	5th Rate
1 Qm	.244	.279	.331	.378	0.000
2 Tw(W.H.°R)	522.0	522.0	522.0	522.0	0.0
3 Ts(B.H.°R)	561.0	561.0	561.0	561.0	0.0
4 T=(Tw+Ts)/2	541.5	541.5	541.5	541.5	0.0
5 Z(Est.)	.899	.916	.926	.946	0.000
6 TZ	487.0	496.3	501.3	512.0	0.0
7 GH/TZ	4.843	4.753	4.705	4.606	0.000
8 e ^s (Table XIV)	1.199	1.195	1.193	1.189	0.000
9 1-e ^{-s} (Table XIV)	.166	.163	.162	.159	0.000
10 Pt	698.2	575.2	510.2	373.2	0.0
11 Pt ² /1000	487.5	330.9	260.3	139.3	0.0
12 Fr(Table XV)	.017777	.017777	.017777	.017777	0.000000
13 Fc=FrTZ	8.658	8.822	8.913	9.103	0.000
14 FcQm	2.111	2.458	2.952	3.439	0.000
15 L/H(FcQm) ²	4.454	6.042	8.716	11.824	0.000
16 Fw=L/H(FcQm) ² (1-e ^{-s})	.740	.986	1.410	1.876	0.000
17 Pw ² =Pt ² +Fw	488.2	331.8	261.7	141.2	0.0
18 Ps ² =e ^s Pw ²	585.4	396.6	312.2	167.8	0.0
19 Ps	765.1	629.7	558.8	409.6	0.0
20 P=(Pt+Ps)/2	731.7	602.5	534.5	391.4	0.0
21 Pr=(P/Pcr)	1.11	.91	.81	.59	0.00
22 Tr=(T/Tcr)	1.52	1.52	1.52	1.52	0.00
23 Z(Table XI)	.899	.916	.926	.946	0.000

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

Form C-122

RECEIVED

4/57
File

Type Test [x] Initial [] Annual [] Special						Test Date 12/22/88		APR 10 '89	
Company Yates Petroleum Corporation				Connection Transwestern Pipeline Company				O.C.D.	
Pool ABO Pecos Slope ABO				Formation Pecos Slope				Unit ARTESIA OFFICE	
Completion Date 8/14/82		Total Depth 4112.0'		Plug Back TD 4062.0'		Elevation 3916.7'		Farm or Lease Name Thomas LN Federal	
Csg Size 4.500"	Wt. 9.500#	d 4.090"	Set At 4112.0'	Perforations: From 3720.0' To 3855.0'		Well No. 6			
Tbg Size 2.375"	Wt. 4.700#	d 1.995"	Set At 3668.0'	Perforations: From 0.0' To 0.0'		Unit Sec Twp Rge N 15 6S 25E			
Type Well Single				Packer Set At 3668.0'		County Chaves			
Producing Thru Tubing		Resv. Temp. °F 101 @ 3669'		Mean Temp. °F 62.0		Baro. Press. - Pa 13.2 psia.		State New Mexico	
L 3668.0'	H 3668.0'	Gg .643	%CO2 .02	%N2 5.15	%H2S 0.00	Prover 0.000"	Meter Run 2.000"	Taps Flange	

FLOW DATA					TUBING DATA		CASING DATA		Duration of Flow
NO	Prover Orifice Size X Size	Press. psig	Diff. hw	Temp. °F	Press. psig	Temp. °F	Press. psig	Temp. °F	
SI	0.000 X 0.000	0	0.0	37	950	0	0	0	0 hrs.
1.	2.067 X .875	175	13.5	38	685	62	0	0	24 hrs.
2.	2.067 X .875	180	17.2	39	562	62	0	0	24 hrs.
3.	2.067 X .875	180	24.2	37	497	62	0	0	24 hrs.
4.	2.067 X .875	190	30.0	39	360	62	0	0	24 hrs.
5.	0.000 X 0.000	0	0.0	0	0	0	0	0	0 hrs.

RATE OF FLOW CALCULATIONS							
NO	Coefficient (24 HOUR)	√hwPm	Pressure Pm	Flow Temp Factor Ft.	Gravity Factor Fg	Super Compress. Fact. Fpv	Rate of Flow Q, Mcfd
1.	3.729	50.41	188.20	1.022	1.247	1.018	244
2.	3.729	57.65	193.20	1.021	1.247	1.018	279
3.	3.729	68.38	193.20	1.023	1.247	1.018	331
4.	3.729	78.08	203.20	1.021	1.247	1.019	378
5.	0.000	0.00	0.00	0.000	0.000	0.000	0

NO	Pr	Temp. °R	Tr	Z	Gas Liquid Hydrocarbon Ratio Dry	Mcf/bbl.
1.	.28	498	1.40	.966	A.P.I. Gravity of Liquid Hydrocarbons	0.000 Deg.
2.	.29	499	1.40	.965	Specific Gravity Separator Gas	.643 xxxxxxxxxxxxxx
3.	.29	497	1.40	.964	Specific Gravity Flowing Fluid	xxxxx .643
4.	.31	499	1.40	.963	Critical Pressure	662.0 PSIA 662.0 PSIA
5.	0.00	0	0.00	0.000	Critical Temperature	355.7°R 355.7°R

Pc 963.2 Pc2 927.8	
NO	Pt2 Pw Pw2 Pc2-Pw2
1.	487.5 698.7 488.2 439.5
2.	330.9 576.1 331.8 595.9
3.	260.3 511.6 261.7 666.0
4.	139.3 375.7 141.2 786.6
5.	0.0 0.0 0.0 0.0

$$\frac{Pc^2}{Pc^2 - Pw^2} = \frac{1.1751}{(2)} \left[\frac{Pc^2}{Pc^2 - Pw^2} \right]^n = \frac{1.1286}{}$$

$$AOF = Q \left[\frac{Pc^2}{Pc^2 - Pw^2} \right]^n = 426 \text{ Mcfd}$$

Absolute Open Flow	426 Mcfd @ 15.025	Angle of Slope, θ	37	Slope, n	.750
Remarks:					

Approved By:	Conducted By: David Weaver	Calculated By: Andrea Carpenter	Checked By:
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