

WORKSHEET FOR CALCULATION OF STATIC COLUMN WELLHEAD PRESSURE (Pw)

C-122D

DATE: 05/01/2000

COMPANY Fasken Oil and Ranch, Ltd.

LEASE Indian Hills Unit

WELL NO. 23

LOCATION: Unit N

Section 16

Township 21S

Range 24E

L 9745 H 9745 L / H 1 G 0.6 %CO₂ 0.2218 %N₂ 0.7454 %H₂S 0

d 1.995 Fr 0.018231 GH 5847 Pcr 672 Tcr 378

LINE	1st Rate	2nd Rate	3rd Rate	4th Rate	5th Rate
1 Qm	0.438	0.764	1.055	1.34	
2 Tw(W.H.DegR)	535	535	550	535	
3 Ts(B.H.DegR)	628	628	628	628	
4 T = (Tw+Ts) / 2	581.5	581.5	589	581.5	
5 Z (Est.)	0.789	0.792	0.797	0.806	
6 TZ	458.8	460.5	469.4	468.7	
7 GH / TZ	12.744	12.696	12.455	12.475	
8 e ^s (Table XIV)	1.613	1.610	1.595	1.597	
9 1-e ^{-s} (Table XIV)	0.380	0.379	0.373	0.374	
10 Pt	2,013.2	1,873.2	1,713.2	1,563.2	
11 Pt ² / 1000	4,053.0	3,508.9	2,935.1	2,443.6	
12 Fr (Table XV)	0.018231	0.018231	0.018231	0.018231	
13 Fc = FrTZ	8.364	8.396	8.558	8.545	
14 FcQm	3.664	6.415	9.029	11.450	
15 L / H(FcQm) ²	13.422	41.149	81.522	131.099	
16 Fw = L / H(FcQm) ² (1-e ^{-s})	5.099	15.587	30.421	48.983	
17 Pw ² = Pt ² +Fw	4,058.1	3,524.5	2,965.5	2,492.6	
18 Ps ² = e ^s Pw ²	6,544.4	5,673.6	4,730.9	3,979.4	
19 Ps	2,558.2	2,381.9	2,175.1	1,994.9	
20 P = (Pt+Ps) / 2	2,285.7	2,127.6	1,944.1	1,779.0	
21 Pr = (P / Pcr)	3.401	3.166	2.893	2.647	
22 Tr = (T / Tcr)	1.538	1.538	1.558	1.538	
23 Z (Table XI)	0.789	0.792	0.797	0.806	