

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

Adopted 9-1-65

DATE 7/7/89

COMPANY Yates Petroleum Corporation LEASE Moore FQ WELL NO. 1
 LOCATION: Unit F Section 19 Township 20S Range 25E
 L 8202.0 H 8202.0 L/H 1.000 G .592 %CO2 .53 %N2 .93 %H2S 0.00
 d 1.995 Fr .017777 GH 4855.6 Pcr 673.0 Tcr 349.9

| LINE | 1st Rate | 2nd Rate | 3rd Rate | 4th Rate | 5th Rate |
|---|----------|----------|----------|----------|----------|
| 1 Qm | .018 | .018 | .021 | .023 | 0.000 |
| 2 Tw(W.H.°R) | 522.0 | 522.0 | 522.0 | 522.0 | 0.0 |
| 3 Ts(B.H.°R) | 666.0 | 666.0 | 666.0 | 666.0 | 0.0 |
| 4 T=(Tw+Ts)/2 | 594.0 | 594.0 | 594.0 | 594.0 | 0.0 |
| 5 Z(Est.) | .884 | .893 | .902 | .919 | 0.000 |
| 6 TZ | 525.2 | 530.3 | 535.9 | 546.1 | 0.0 |
| 7 GH/TZ | 9.246 | 9.156 | 9.061 | 8.891 | 0.000 |
| 8 e<(Table XIV) | 1.414 | 1.409 | 1.405 | 1.396 | 0.000 |
| 9 1-e<(Table XIV) | .293 | .290 | .288 | .284 | 0.000 |
| 10 Pt | 1344.2 | 1198.2 | 1061.2 | 838.2 | 0.0 |
| 11 Pt ² /1000 | 1806.9 | 1435.7 | 1126.1 | 702.6 | 0.0 |
| 12 Fr<(Table XV) | .017777 | .017777 | .017777 | .017777 | 0.000000 |
| 13 Fc=FrTZ | 9.336 | 9.433 | 9.526 | 9.708 | 0.000 |
| 14 FcQm | .166 | .173 | .200 | .223 | 0.000 |
| 15 L/H(FcQm) ² | .028 | .030 | .040 | .050 | 0.000 |
| 16 Fw=L/H(FcQm) ² (1-e<) | .008 | .009 | .011 | .014 | 0.000 |
| 17 Pw ² =Pt ² +Fw | 1806.9 | 1435.7 | 1126.2 | 702.6 | 0.0 |
| 18 Ps ² =e<Pw ² | 2555.7 | 2023.4 | 1581.9 | 980.6 | 0.0 |
| 19 Ps | 1598.7 | 1422.5 | 1257.7 | 990.3 | 0.0 |
| 20 P=(Pt+Ps)/2 | 1471.4 | 1310.3 | 1159.5 | 914.2 | 0.0 |
| 21 Pr=(P/Pcr) | 2.19 | 1.95 | 1.72 | 1.36 | 0.00 |
| 22 Tr=(T/Tcr) | 1.70 | 1.70 | 1.70 | 1.70 | 0.00 |
| 23 Z<(Table XI) | .884 | .893 | .902 | .919 | 0.000 |