

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

Adopted 9-1-65

DATE 4/4/89

COMPANY Yates Petroleum Corporation LEASE Estelle TR Federal WELL NO. 1

LOCATION: Unit N Section 21 Township 17S Range 27E

L 9081.0 H 9081.0 L/H 1.000 G .659 %CO<sub>2</sub> .49 %N<sub>2</sub> .37 %H<sub>2</sub>S 0.00

d 1.995 Fr .017777 GH 5987.3 Pcr 671.4 Tcr 373.7

| LINE                                               | 1st Rate | 2nd Rate | 3rd Rate | 4th Rate | 5th Rate |
|----------------------------------------------------|----------|----------|----------|----------|----------|
| 1 Qm                                               | .660     | .694     | .753     | .761     | 0.000    |
| 2 Tw(W.H.°R)                                       | 522.0    | 522.0    | 522.0    | 522.0    | 0.0      |
| 3 Ts(B.H.°R)                                       | 700.0    | 700.0    | 700.0    | 700.0    | 0.0      |
| 4 T=(Tw+Ts)/2                                      | 611.0    | 611.0    | 611.0    | 611.0    | 0.0      |
| 5 Z(Est.)                                          | .839     | .840     | .888     | .844     | 0.000    |
| 6 TZ                                               | 512.5    | 513.3    | 542.5    | 515.5    | 0.0      |
| 7 GH/TZ                                            | 11.683   | 11.665   | 11.037   | 11.615   | 0.000    |
| 8 e <sup>s</sup> (Table XIV)                       | 1.549    | 1.549    | 1.513    | 1.546    | 0.000    |
| 9 1-e <sup>-s</sup> (Table XIV)                    | .355     | .354     | .339     | .353     | 0.000    |
| 10 Pt                                              | 1917.2   | 1849.2   | 1017.2   | 1723.2   | 0.0      |
| 11 Pt <sup>2</sup> /1000                           | 3675.7   | 3419.5   | 1034.7   | 2969.4   | 0.0      |
| 12 Fr(Table XV)                                    | .017777  | .017777  | .017777  | .017777  | 0.000000 |
| 13 Fc=FrTZ                                         | 9.117    | 9.125    | 9.643    | 9.163    | 0.000    |
| 14 FcQm                                            | 6.016    | 6.335    | 7.260    | 6.969    | 0.000    |
| 15 L/H(FcQm) <sup>2</sup>                          | 36.187   | 40.129   | 52.710   | 48.568   | 0.000    |
| 16 Fw=L/H(FcQm) <sup>2</sup> (1-e <sup>-s</sup> )  | 12.829   | 14.218   | 17.865   | 17.150   | 0.000    |
| 17 Pw <sup>2</sup> =Pt <sup>2</sup> +Fw            | 3688.5   | 3433.8   | 1052.6   | 2986.6   | 0.0      |
| 18 Ps <sup>2</sup> =e <sup>s</sup> Pw <sup>2</sup> | 5714.4   | 5317.9   | 1592.2   | 4616.8   | 0.0      |
| 19 Ps                                              | 2390.5   | 2306.1   | 1261.8   | 2148.7   | 0.0      |
| 20 P=(Pt+Ps)/2                                     | 2153.8   | 2077.6   | 1139.5   | 1935.9   | 0.0      |
| 21 Pr=(P/Pcr)                                      | 3.21     | 3.09     | 1.70     | 2.88     | 0.00     |
| 22 Tr=(T/Tcr)                                      | 1.63     | 1.63     | 1.63     | 1.63     | 0.00     |
| 23 Z(Table XI)                                     | .839     | .840     | .888     | .844     | 0.000    |