

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

Adopted 9-1-65

DATE 7/7/89

COMPANY Yates Petroleum Corporation LEASE Richard Knob AEX WELL NO. 1

LOCATION: Unit G Section 34 Township 17S Range 24E

L 4809.0 H 4809.0 L/H 1.000 G .650 %CO<sub>2</sub> 0.00 %N<sub>2</sub> 1.10 %H<sub>2</sub>S 0.00

d 2.441 Fr .010495 GH 3125.9 Pcr 668.4 Tcr 369.4

| LINE                                               | 1st Rate | 2nd Rate | 3rd Rate | 4th Rate | 5th Rate |
|----------------------------------------------------|----------|----------|----------|----------|----------|
| 1 Qm                                               | 2.249    | 2.466    | 2.620    | 2.931    | 0.000    |
| 2 Tw(W.H.°R)                                       | 522.0    | 522.0    | 522.0    | 522.0    | 0.0      |
| 3 Ts(B.H.°R)                                       | 575.0    | 575.0    | 575.0    | 575.0    | 0.0      |
| 4 T=(Tw+Ts)/2                                      | 548.5    | 548.5    | 548.5    | 548.5    | 0.0      |
| 5 Z(Est.)                                          | .814     | .820     | .828     | .831     | 0.000    |
| 6 TZ                                               | 446.6    | 449.8    | 453.9    | 456.0    | 0.0      |
| 7 GH/TZ                                            | 6.999    | 6.950    | 6.887    | 6.855    | 0.000    |
| 8 e <sup>-s</sup> (Table XIV)                      | 1.300    | 1.298    | 1.295    | 1.293    | 0.000    |
| 9 1-e <sup>-s</sup> (Table XIV)                    | .231     | .229     | .228     | .227     | 0.000    |
| 10 Pt                                              | 1243.2   | 1192.2   | 1129.2   | 1096.2   | 0.0      |
| 11 Pt <sup>2</sup> /1000                           | 1545.5   | 1421.3   | 1275.1   | 1201.7   | 0.0      |
| 12 Fr(Table XV)                                    | .010495  | .010495  | .010495  | .010495  | 0.000000 |
| 13 Fc=FrTZ                                         | 4.687    | 4.720    | 4.764    | 4.786    | 0.000    |
| 14 FcQm                                            | 10.542   | 11.642   | 12.480   | 14.028   | 0.000    |
| 15 L/H(FcQm) <sup>2</sup>                          | 111.135  | 135.542  | 155.746  | 196.797  | 0.000    |
| 16 Fw=L/H(FcQm) <sup>2</sup> (1-e <sup>-s</sup> )  | 25.656   | 31.097   | 35.448   | 44.609   | 0.000    |
| 17 Pw <sup>2</sup> =Pt <sup>2</sup> +Fw            | 1571.2   | 1452.4   | 1310.5   | 1246.3   | 0.0      |
| 18 Ps <sup>2</sup> =e <sup>s</sup> Pw <sup>2</sup> | 2042.8   | 1884.9   | 1696.7   | 1611.6   | 0.0      |
| 19 Ps                                              | 1429.3   | 1372.9   | 1302.6   | 1269.5   | 0.0      |
| 20 P=(Pt+Ps)/2                                     | 1336.2   | 1282.6   | 1215.9   | 1182.8   | 0.0      |
| 21 Pr=(P/Pcr)                                      | 2.00     | 1.92     | 1.82     | 1.77     | 0.00     |
| 22 Tr=(T/Tcr)                                      | 1.48     | 1.48     | 1.48     | 1.48     | 0.00     |