

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

DATE 09/03/1993

COMPANY Yates Petroleum Corp LEASE North Carlsbad OK Com WELL NO. 1

LOCATION: Unit B Section 26 Township 21S Range 26E

L 9977 H 9977 L/H 1.000 G 0.658 %CO<sub>2</sub> 0.510 %N<sub>2</sub> 0.336 %H<sub>2</sub>S 0.000

d 2.441 Fr 0.010495 GH 6562.9 Pcr 671.6 Tcr 373.3

| LINE                                                  | 1st Rate | 2nd Rate | 3rd Rate | 4th Rate | 5th Rate |
|-------------------------------------------------------|----------|----------|----------|----------|----------|
| 1 Qm                                                  | 1.492    | 1.470    | 1.786    | 1.871    |          |
| 2 Tw(W.H.°R)                                          | 522      | 522      | 522      | 522      |          |
| 3 Ts(B.H.°R)                                          | 619      | 619      | 619      | 619      |          |
| 4 T = (Tw+Ts) / 2                                     | 570.2    | 570.2    | 570.2    | 570.2    |          |
| 5 Z (Est.)                                            | 0.823    | 0.848    | 0.875    | 0.906    |          |
| 6 TZ                                                  | 469.3    | 483.2    | 499.1    | 516.7    |          |
| 7 GH / TZ                                             | 13.983   | 13.581   | 13.148   | 12.702   |          |
| 8 e <sup>As</sup> (Table XIV)                         | 1.689    | 1.664    | 1.637    | 1.610    |          |
| 9 1-e <sup>As</sup> (Table XIV)                       | 0.408    | 0.399    | 0.389    | 0.379    |          |
| 10 Pt                                                 | 1263.2   | 1038.2   | 813.2    | 588.2    |          |
| 11 Pt <sup>2</sup> / 1000                             | 1595.7   | 1077.9   | 661.3    | 346.0    |          |
| 12 Fr (Table XV)                                      | 0.010495 | 0.010495 | 0.010495 | 0.010495 |          |
| 13 Fc = FrTZ                                          | 4.926    | 5.071    | 5.238    | 5.422    |          |
| 14 FcQm                                               | 7.35     | 7.46     | 9.36     | 10.14    |          |
| 15 L / H(FcQm) <sup>2</sup>                           | 54.0     | 55.6     | 87.5     | 102.9    |          |
| 16 Fw = L / H(FcQm) <sup>2</sup> (1-e <sup>As</sup> ) | 22.03    | 22.19    | 34.08    | 38.99    |          |
| 17 Pw <sup>2</sup> = Pt <sup>2</sup> +Fw              | 1617.7   | 1100.0   | 695.4    | 385.0    |          |
| 18 Ps <sup>2</sup> = e <sup>As</sup> Pw <sup>2</sup>  | 2732.9   | 1830.6   | 1138.5   | 619.8    |          |
| 19 Ps                                                 | 1653.1   | 1353.0   | 1067.0   | 787.3    |          |
| 20 P = (Pt+Ps) / 2                                    | 1458.2   | 1195.6   | 940.1    | 687.7    |          |
| 21 Pr = (P / Pcr)                                     | 2.17     | 1.78     | 1.40     | 1.02     |          |
| 22 Tr = (T / Tcr)                                     | 1.53     | 1.53     | 1.53     | 1.53     |          |
| 23 Z (Table XI)                                       | 0.823    | 0.848    | 0.875    | 0.906    |          |