

# WORK SHEET FOR STEPWISE CALCULATION

(SURFACE) PRESSURE  
(SURFACE) ( $P_c$  &  $P_w$ )

Form C-122-E  
Adopted 9-1-65

Standard Oil Company  
of Texas  
LEASE Bogle Flats Unit  
WELL NO. 4  
DATE 6-8-66

LOCATION: Unit F Section 10 Township 22S Range 23E  
L 7074 H 7074 L/H 1.000 G .646 %CO<sub>2</sub> .54 %N<sub>2</sub> .90 %H<sub>2</sub>S .36  
d  $F_r$   $Q_m$  0  $M^2 cfd$  (L/H) ( $F_r Q_m$ )<sup>2</sup> 0  $P_{cr}$  673  $T_{cr}$  368  
TABLE IX & X

| LINE | ITEM                           | SOURCE | 1                        | 2       | 3       | 4       | 5       | 6       | 7                               | 8 | 9 | 10 |
|------|--------------------------------|--------|--------------------------|---------|---------|---------|---------|---------|---------------------------------|---|---|----|
| 1    | H                              |        | 7074                     | 3527    |         | 0       |         |         | Delta P = 3 (37.5 GH)           |   |   |    |
| 2    | GH                             |        | 4569.30                  | 2284.90 |         | 0       |         |         | $I_s + 4 I_1 + I_2$             |   |   |    |
| 3    | 37.5GH                         |        | 171.368                  | 85.684  |         | 0       |         |         | = 3 (17.368)                    |   |   |    |
| 4    | $P_c$ or $P_n$                 |        | 2823.5                   | 2576.5  | 2574.5  | 2326.5  | 2323.5  |         | 173.87 + 686.944 + 169.523      |   |   |    |
| 5    | $P_r$                          |        | 4.20                     | 3.83    | 3.83    | 3.46    | 3.45    |         | = 514.104                       |   |   |    |
| 6    | T                              |        | 592                      | 562.5   | 562.5   | 533     | 533     |         |                                 |   |   |    |
| 7    | $T_r$                          |        | 1.61                     | 1.53    | 1.53    | 1.45    | 1.45    |         | 1,029.654                       |   |   |    |
| 8    | Z                              |        | .826                     | .786    | .786    | .739    | .739    |         |                                 |   |   |    |
| 9    | P/Z, P/Z                       |        | 3418.28                  | 3278.0  | 3275.4  | 3148.2  | 3144.1  |         | = 499.3                         |   |   |    |
| 10   | P/TZ                           |        | 9.6                      | 5.7741  | 5.8229  | 5.9066  | 5.8989  |         |                                 |   |   |    |
| 11   | (P/TZ) <sup>2</sup> /1000      |        | (9.6) <sup>2</sup> /1000 |         |         |         |         |         | $P_{wg} = P_s - \text{Delta P}$ |   |   |    |
| 12   | L/H ( $F_r Q_m$ ) <sup>2</sup> |        |                          |         |         |         |         |         |                                 |   |   |    |
| 13   |                                |        | 11 + 12                  |         |         |         |         |         | = 2833.5 + 499.3                |   |   |    |
| 14   | $I_n$                          |        | 10 ÷ 13                  | 173.187 | 171.597 | 171.736 | 169.302 | 169.523 |                                 |   |   |    |
| 15   | $M = P_n - P_{n-1}$            |        |                          | 247     | 249     | 248     | 251     |         | = 2324.2                        |   |   |    |
| 16   | $N = I_n + I_{n-1}$            |        |                          | 344.784 | 344.923 | 341.038 | 341.259 |         |                                 |   |   |    |
| 17   | $M \times N$                   |        | 15 × 16                  |         | 85,886  |         | 85,656  |         |                                 |   |   |    |
| 18   | $\sum (M \times N)$            |        | $\sum 17$                | 171,368 |         | 85,482  |         |         |                                 |   |   |    |