

EMPIRE OIL & REFG CO.  
Crawford No. 4.

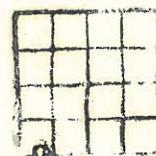
SEC. 2 T. 14 R. 15W  
SE SW SW  
330' N 999.2' E SW Cor.

Total Depth. 3300'  
Comm. 4-20-36 Comp. 6-3-36  
Shot or Treated.  
Contractor. Herman Trapp.  
Issued. 8-8-36.

County. Russell

CASING.

|                    |                |        |
|--------------------|----------------|--------|
| 20"                | 19'9"          | Pulled |
| 15 $\frac{1}{2}$ " | 398'3" UR 607' | Pulled |
| 12 $\frac{1}{2}$ " | 906'           |        |
| 10"                | 2510' UR 2554' | Pulled |
| 8 $\frac{1}{4}$ "  | 2915'          | Pulled |
| 6 5/8"             | 3291' UR 3295' |        |



Elevation.

Production. Pot. 757 Oil,  
No wtr 24 hrs.

Figures Indicate Bottom of Formations.

|                          |      |                     |      |                         |         |
|--------------------------|------|---------------------|------|-------------------------|---------|
| collar                   | 10   | line                | 1900 | line grey               | 2035    |
| sdv line                 | 20   | shale grey          | 1905 | line                    | 2995    |
| clay yellow              | 25   | line                | 1940 | shale                   | 3005    |
| shale blue               | 60   | red rock            | 1955 | lime                    | 3025    |
| slate blue               | 180  | line                | 2005 | red rock                | 3033    |
| sand                     | 215  | shale               | 2030 | shale blue              | 3037    |
| slate white              | 220  | line                | 2045 | lime Oswald S.O.        | 3070    |
| red rock                 | 240  | red rock            | 2050 | lime                    | 3105    |
| sand                     | 265  | lime                | 2075 | shale blue              | 3110    |
| shale grey               | 270  | red rock            | 2080 | lime grey               | 3145    |
| red rock                 | 285  | lime                | 2100 | S.O. & W. 3130-35       |         |
| sdv shale                | 325  | shale grey          | 2105 | lime                    | 3210    |
| lime                     | 330  | lime                | 2145 | red rock                | 3215    |
| sdv shale                | 365  | red rock            | 2160 | lime                    | 3235    |
| shale grey               | 390  | lime                | 2205 | shale blue              | 3245    |
| shale blue (Hole caving) | 395  | shale               | 2210 | lime                    | 3265    |
| sand                     | 403  | red rock            | 2220 | shale blue              | 3274    |
| slate blue               | 415  | lime                | 2235 | lime grey               | 3277    |
| shale blue               | 430  | shale grey          | 2250 | SLM CORR. 3277-3291     |         |
| lime shell               | 432  | lime                | 2285 | shale                   | 3295    |
| sand                     | 460  | shale grey          | 2290 | lime grey               | 3298    |
| shale blue               | 480  | lime grey           | 2305 | sand                    | 3300    |
| mud blue                 | 500  | shale grey          | 2315 | Total Depth             |         |
| sand                     | 535  | lime grey           | 2320 |                         |         |
| red rock                 | 577  | shells & shale      | 2345 |                         |         |
| sand                     | 582  | lime                | 2355 | Filled 1300' in 35 min. |         |
| red rock                 | 700  | shale               | 2360 |                         |         |
| sand                     | 705  | lime                | 2370 |                         |         |
| red rock                 | 898  | shale               | 2385 | <u>WATER RECORD</u>     |         |
| anhydrite                | 906  | shells & shale      | 2415 | 4 BW                    | 200     |
| lime                     | 950  | red rock            | 2420 | HFV                     | 240-65  |
| red rock                 | 1090 | shale blue          | 2430 | 6 BW                    | 770'    |
| slate blue               | 1150 | lime                | 2440 | HFV                     | 432-60  |
| red rock                 | 1185 | shale blue          | 2475 | 1 BWPH                  | 3130-35 |
| shale blue               | 1275 | lime grey           | 2480 |                         |         |
| salt                     | 1555 | shale               | 2500 |                         |         |
| shale blue               | 1570 | lime                | 2510 |                         |         |
| lime                     | 1590 | broken lime         | 2545 |                         |         |
| lime grey                | 1605 | shale blue          | 2555 |                         |         |
| shale grey               | 1620 | lime                | 2575 |                         |         |
| lime                     | 1645 | lime grey           | 2585 |                         |         |
| slate grey               | 1655 | shale grey          | 2590 |                         |         |
| lime                     | 1665 | lime & shale breaks | 2610 |                         |         |
| shale                    | 1675 | shale               | 2615 |                         |         |
| red rock                 | 1690 | lime                | 2645 |                         |         |
| lime                     | 1710 | shale               | 2655 |                         |         |
| shale black              | 1715 | shale & shells grey | 2705 |                         |         |
| lime S.O.                | 1730 | lime                | 2715 |                         |         |
| shale blue               | 1735 | shale               | 2725 |                         |         |
| red rock                 | 1740 | lime                | 2745 |                         |         |
| lime grey                | 1780 | shale black         | 2755 |                         |         |
| shale grey               | 1785 | S.O. 2765           |      |                         |         |
| lime                     | 1790 | Topoka lime grey    | 2775 |                         |         |
| shale                    | 1800 | shale grey          | 2780 |                         |         |
| red rock                 | 1820 | lime (hole caving)  | 2810 |                         |         |