

* ON-LINE TDC

* BIT # 24 SMITH F3 BIT DIAMETER : 0.50 inch NOZZ 13/13/13

MUD RHEOLOGICAL PARAMETERS : PV = 20 YP = 10 GEL = 6 *

| * TIME | * MEASURED | * DEPTHS | | | * DRILLING PARAMETERS | | | | * MUD PARAMETERS | | | | * OVERPRESSURE SURVEY | | | | * ACCUMULATED ON BIT | | | | | | | | |
|----------|------------|----------|----------|---------|-----------------------|-----|------|-------|------------------|--------|-----------|-------------|-----------------------|-------------|-------|-------|----------------------|--------|------|-------|--------|------|---------|-------|-----|
| | | * VERTCL | * LAGGED | * ROP | * WOB | RPM | TORG | PRESS | FLOW | * PIT | * DENSITY | TEMPERATURE | | RESISTIVITY | * GAC | * DCS | NORM | PF | ECD | FRAC | * FEET | TIME | COST | | |
| * Hr:mn | * feet | feet | feet | * ft/h | * klbs | rpm | ftlb | psi | gpm | * bbls | ppg | IN | OUT | IN | OUT | ohm | * unit | ppg | ppg | ppg | * feet | DHr | \$ | | |
| D * 3:1 | * 9370.0 | 9359.9 | 9334.0 | * 22.0 | * 20.5 | 78 | 3300 | 1313 | 328 | * 446 | * 9.2 | 9.3 | 83.0 | 104.1 | .99 | 1.01 | * 7 | * 1.45 | 1.98 | * 8.8 | 9.2 | 16.2 | * 329.9 | 10.79 | 199 |
| D * 3:2 | * 9371.1 | 9359.9 | 9336.0 | * 22.0 | * 29.4 | 78 | 3300 | 1318 | 329 | * 450 | * 9.2 | 9.3 | 82.8 | 103.9 | .99 | 1.00 | * 7 | * 1.45 | 1.98 | * 8.8 | 9.2 | 16.2 | * 329.9 | 10.81 | 199 |
| D * 3:6 | * 9372.5 | 9362.4 | 9338.0 | * 24.8 | * 31.4 | 78 | 3300 | 1318 | 328 | * 460 | * 9.1 | 9.3 | 82.4 | 103.4 | .99 | 1.00 | * 7 | * 1.45 | 1.98 | * 8.8 | 9.2 | 16.2 | * 332.4 | 10.87 | 198 |
| D * 3:7 | * 9373.6 | 9363.0 | 9338.0 | * 23.9 | * 29.3 | 77 | 3300 | 1328 | 329 | * 464 | * 9.2 | 9.3 | 81.8 | 103.7 | .99 | 1.00 | * 7 | * 1.46 | 1.98 | * 8.8 | 9.2 | 16.2 | * 333.0 | 10.98 | 198 |
| D * 3:9 | * 9374.1 | 9364.0 | 9340.0 | * 33.6 | * 28.9 | 77 | 3200 | 1332 | 329 | * 468 | * 9.2 | 9.3 | 81.8 | 103.4 | .99 | 1.00 | * 7 | * 1.36 | 1.98 | * 8.8 | 9.2 | 16.2 | * 334.0 | 10.92 | 198 |
| D * 3:11 | * 9375.0 | 9364.9 | 9341.0 | * 25.7 | * 27.4 | 77 | 3200 | 1337 | 325 | * 474 | * 9.2 | 9.3 | 81.5 | 103.4 | .98 | 1.00 | * 7 | * 1.42 | 1.98 | * 8.8 | 9.2 | 16.2 | * 334.9 | 10.96 | 198 |
| D * 3:13 | * 9376.1 | 9366.0 | 9342.0 | * 29.1 | * 28.0 | 77 | 3300 | 1337 | 329 | * 478 | * 9.2 | 9.3 | 81.1 | 103.0 | .98 | 1.00 | * 7 | * 1.38 | 1.98 | * 8.8 | 9.2 | 16.2 | * 336.0 | 11.00 | 198 |
| D * 3:16 | * 9377.3 | 9366.0 | 9342.0 | * 29.1 | * 29.1 | 77 | 3200 | 1342 | 329 | * 486 | * 9.2 | 9.3 | 80.9 | 103.6 | .98 | 1.00 | * 6 | * 1.38 | 1.98 | * 8.8 | 9.2 | 16.2 | * 336.0 | 11.04 | 198 |
| D * 3:17 | * 9378.3 | 9367.2 | 9343.0 | * 29.5 | * 31.4 | 77 | 3300 | 1342 | 325 | * 490 | * 9.2 | 9.3 | 80.8 | 103.3 | .98 | .99 | * 6 | * 1.39 | 1.98 | * 8.8 | 9.2 | 16.2 | * 337.2 | 11.06 | 197 |
| D * 3:19 | * 9379.2 | 9369.1 | 9344.0 | * 27.6 | * 29.4 | 77 | 3300 | 1337 | 329 | * 496 | * 9.1 | 9.3 | 80.5 | 103.0 | .98 | 1.00 | * 6 | * 1.42 | 1.98 | * 8.8 | 9.2 | 16.2 | * 339.1 | 11.10 | 197 |
| D * 3:21 | * 9380.1 | 9370.0 | 9344.0 | * 26.1 | * 30.3 | 77 | 3200 | 1337 | 329 | * 502 | * 9.1 | 9.3 | 80.3 | 102.7 | .98 | 1.01 | * 7 | * 1.45 | 1.98 | * 8.8 | 9.2 | 16.2 | * 340.0 | 11.13 | 197 |
| D * 3:23 | * 9381.1 | 9370.0 | 9346.0 | * 26.1 | * 29.5 | 77 | 3200 | 1346 | 329 | * 504 | * 9.1 | 9.3 | 80.2 | 102.3 | .98 | 1.01 | * 7 | * 1.45 | 1.98 | * 8.8 | 9.2 | 16.2 | * 340.0 | 11.16 | 197 |
| D * 3:25 | * 9382.0 | 9371.9 | 9347.0 | * 27.1 | * 33.6 | 77 | 3200 | 1342 | 325 | * 510 | * 9.1 | 9.3 | 80.0 | 102.1 | .98 | 1.00 | * 6 | * 1.43 | 1.98 | * 8.8 | 9.2 | 16.2 | * 341.9 | 11.17 | 196 |
| D * 3:28 | * 9383.4 | 9373.3 | 9349.0 | * 28.0 | * 31.7 | 77 | 3300 | 1342 | 325 | * 516 | * 9.1 | 9.2 | 79.7 | 102.0 | .98 | 1.01 | * 6 | * 1.45 | 1.98 | * 8.8 | 9.2 | 16.2 | * 343.3 | 11.25 | 196 |
| D * 3:30 | * 9384.0 | 9373.3 | 9350.0 | * 28.0 | * 31.0 | 77 | 3200 | 1328 | 325 | * 522 | * 9.1 | 9.3 | 79.6 | 101.8 | .98 | 1.00 | * 7 | * 1.45 | 1.98 | * 8.8 | 9.2 | 16.2 | * 343.3 | 11.28 | 196 |
| D * 3:35 | * 9385.2 | 9375.1 | 9351.0 | * 16.6 | * 31.5 | 76 | 3300 | 1342 | 329 | * 536 | * 9.1 | 9.3 | 79.2 | 101.4 | .98 | 1.01 | * 7 | * 1.60 | 1.98 | * 8.8 | 9.2 | 16.2 | * 345.1 | 11.35 | 196 |
| D * 3:37 | * 9386.2 | 9376.1 | 9352.0 | * 25.3 | * 32.7 | 77 | 3200 | 1351 | 329 | * 546 | * 9.1 | 9.3 | 79.2 | 101.7 | .98 | 1.00 | * 7 | * 1.46 | 1.98 | * 8.8 | 9.2 | 16.2 | * 346.1 | 11.39 | 196 |
| D * 3:39 | * 9387.4 | 9376.1 | 9352.0 | * 25.3 | * 30.3 | 77 | 3200 | 1342 | 325 | * 550 | * 9.1 | 9.3 | 79.1 | 101.7 | .98 | 1.00 | * 7 | * 1.46 | 1.98 | * 8.8 | 9.2 | 16.2 | * 346.1 | 11.42 | 196 |
| D * 3:40 | * 9388.4 | 9378.3 | 9352.0 | * 50.8 | * 30.2 | 77 | 3200 | 1337 | 329 | * 550 | * 9.1 | 9.3 | 79.0 | 101.6 | .98 | 1.01 | * 7 | * 1.25 | 1.98 | * 8.8 | 9.2 | 16.2 | * 348.3 | 11.44 | 195 |
| D * 3:42 | * 9389.0 | 9378.3 | 9354.0 | * 50.8 | * 27.4 | 77 | 3200 | 1337 | 329 | * 552 | * 9.1 | 9.3 | 78.9 | 101.3 | .98 | 1.02 | * 7 | * 1.25 | 1.98 | * 8.8 | 9.2 | 16.2 | * 348.3 | 11.46 | 195 |
| D * 3:44 | * 9390.4 | 9380.3 | 9356.0 | * 32.1 | * 27.1 | 77 | 3200 | 1332 | 329 | * 556 | * 9.2 | 9.3 | 78.7 | 100.4 | .98 | 1.01 | * 7 | * 1.35 | 1.98 | * 8.8 | 9.2 | 16.2 | * 350.3 | 11.51 | 195 |
| D * 3:46 | * 9391.2 | 9381.1 | 9356.0 | * 36.5 | * 28.0 | 77 | 3300 | 1323 | 325 | * 558 | * 9.1 | 9.3 | 78.7 | 100.2 | .98 | 1.02 | * 7 | * 1.32 | 1.98 | * 8.8 | 9.2 | 16.2 | * 351.1 | 11.53 | 195 |
| D * 3:54 | * 9393.6 | 9383.6 | 9359.0 | * 82.9 | * 12.8 | 59 | 1400 | 1285 | 325 | * 589 | * 9.1 | 9.3 | 78.6 | 100.4 | .99 | 1.01 | * 7 | * 1.00 | 1.98 | * 8.8 | 9.2 | 16.2 | * 353.6 | 11.56 | 194 |
| D * 3:54 | * 9394.4 | 9384.3 | 9359.0 | * 132.4 | * 30.1 | 78 | 1700 | 1281 | 329 | * 589 | * 9.1 | 9.4 | 78.6 | 100.5 | .99 | 1.00 | * 7 | * .87 | 1.98 | * 8.8 | 9.2 | 16.2 | * 354.3 | 11.56 | 193 |
| D * 3:55 | * 9395.0 | 9384.9 | 9360.0 | * 31.0 | * 30.0 | 80 | 2000 | 1295 | 327 | * 591 | * 9.1 | 9.3 | 78.4 | 99.6 | .99 | 1.01 | * 7 | * 1.40 | 1.98 | * 8.8 | 9.2 | 16.2 | * 354.9 | 11.59 | 193 |
| D * 3:57 | * 9396.2 | 9386.1 | 9360.0 | * 32.0 | * 31.1 | 78 | 1900 | 1285 | 334 | * 587 | * 9.1 | 9.4 | 78.3 | 99.5 | .99 | 1.02 | * 7 | * 1.42 | 1.98 | * 8.8 | 9.2 | 16.2 | * 356.1 | 11.62 | 193 |
| D * 4:1 | * 9397.1 | 9386.1 | 9361.0 | * 32.0 | * 31.0 | 77 | 3100 | 1267 | 325 | * 587 | * 9.1 | 9.3 | 78.1 | 99.7 | .99 | 1.03 | * 6 | * 1.42 | 1.98 | * 8.8 | 9.2 | 16.2 | * 356.1 | 11.68 | 193 |
| D * 4:4 | * 9398.1 | 9388.0 | 9363.0 | * 18.3 | * 32.0 | 77 | 3200 | 1267 | 329 | * 595 | * 9.1 | 9.3 | 78.0 | 100.3 | .99 | 1.00 | * 6 | * 1.57 | 1.99 | * 8.8 | 9.2 | 16.2 | * 358.0 | 11.74 | 193 |
| D * 4:7 | * 9399.3 | 9389.2 | 9364.0 | * 29.1 | * 31.0 | 77 | 3200 | 1257 | 325 | * 595 | * 9.1 | 9.4 | 78.0 | 100.4 | .99 | .99 | * 7 | * 1.43 | 1.99 | * 8.8 | 9.2 | 16.2 | * 359.2 | 11.70 | 193 |
| D * 4:8 | * 9400.0 | 9390.0 | 9364.0 | * 36.6 | * 33.4 | 77 | 3200 | 1257 | 329 | * 593 | * 9.1 | 9.3 | 78.0 | 100.3 | .99 | .99 | * 7 | * 1.36 | 1.99 | * 8.8 | 9.2 | 16.2 | * 360.0 | 11.80 | 193 |
| D * 4:11 | * 9401.3 | 9391.2 | 9365.0 | * 28.5 | * 33.1 | 77 | 3200 | 1252 | 329 | * 591 | * 9.1 | 9.4 | 78.1 | 100.2 | .99 | .99 | * 6 | * 1.44 | 1.99 | * 8.8 | 9.2 | 16.3 | * 361.2 | 11.85 | 192 |
| D * 4:13 | * 9402.1 | 9391.2 | 9367.0 | * 28.5 | * 30.2 | 77 | 3300 | 1248 | 329 | * 589 | * 9.1 | 9.4 | 78.4 | 100.1 | .99 | 1.00 | * 7 | * 1.44 | 1.99 | * 8.8 | 9.2 | 16.3 | * 361.2 | 11.88 | 192 |
| D * 4:15 | * 9403.0 | 9392.9 | 9367.0 | * 34.1 | * 32.4 | 77 | 3300 | 1248 | 329 | * 581 | * 9.1 | 9.3 | 78.5 | 99.7 | .99 | 1.00 | * 6 | * 1.40 | 1.99 | * 8.8 | 9.2 | 16.3 | * 362.9 | 11.91 | 192 |
| D * 4:18 | * 9404.1 | 9394.0 | 9370.0 | * 19.8 | * 32.2 | 77 | 3200 | 1238 | 325 | * 574 | * 9.1 | 9.4 | 78.7 | 99.6 | .99 | 1.00 | * 6 | * 1.56 | 1.99 | * 8.8 | 9.2 | 16.3 | * 364.0 | 11.96 | 192 |
| D * 4:20 | * 9405.0 | 9394.0 | 9370.0 | * 19.8 | * 31.7 | 77 | 3200 | 1234 | 325 | * 570 | * 9.1 | 9.4 | 79.0 | 99.6 | .99 | .99 | * 7 | * 1.56 | 1.99 | * 8.8 | 9.2 | 16.3 | * 364.0 | 12.00 | 192 |
| D * 4:23 | * 9406.5 | 9396.4 | 9371.0 | * 33.7 | * 31.2 | 78 | 3200 | 1234 | 325 | * 570 | * 9.1 | 9.4 | 79.2 | 99.6 | .99 | 1.01 | * 7 | * 1.39 | 1.99 | * 8.8 | 9.2 | 16.3 | * 366.4 | 12.05 | 192 |
| D * 4:25 | * 9407.2 | 9396.4 | 9372.0 | * 33.7 | * 31.0 | 78 | 3200 | 1234 | 325 | * 572 | * 9.1 | 9.4 | 79.4 | 98.8 | .99 | 1.00 | * 7 | * 1.39 | 1.99 | * 8.8 | 9.2 | 16.3 | * 366.4 | 12.07 | 192 |
| D * 4:27 | * 9408.2 | 9398.1 | 9373.0 | * 24.2 | * 35.3 | 77 | 3300 | 1230 | 329 | * 568 | * 9.1 | 9.4 | 79.7 | 99.0 | .99 | 1.00 | * 7 | * 1.49 | 1.99 | * 8.8 | 9.2 | 16.3 | * 368.1 | 12.12 | 192 |
| D * 4:30 | * 9409.5 | 9399.4 | 9375.0 | * 26.7 | * 31.3 | 77 | 3300 | 1234 | 329 | * 568 | * 9.1 | 9.4 | 79.5 | 99.2 | .98 | 1.00 | * 7 | * 1.47 | 1.99 | * 8.8 | 9.2 | 16.3 | * 369.4 | 12.17 | 191 |
| D * 4:31 | * 9410.1 | 9399.4 | 9375.0 | * 26.7 | * 32.6 | 77 | 3200 | 1243 | 329 | * 568 | * 9.1 | 9.3 | 78.8 | 99.2 | .99 | 1.00 | * 7 | * 1.47 | 1.99 | * 8.8 | 9.2 | 16.3 | * 369.4 | 12.18 | 191 |
| D * 4:35 | * 9411.7 | 9401.6 | 9377.0 | * 26.1 | * 31.0 | 77 | 3300 | 1234 | 328 | * 568 | * 9.1 | 9.4 | 80.3 | 98.7 | .98 | 1.00 | * 7 | * 1.47 | 1.99 | * 8.8 | 9.2 | 16.3 | * 371.6 | 12.25 | 191 |
| D * 4:36 | * 9412.3 | 9401.6 | 9377.0 | * 26.1 | * 32.4 | 77 | 3400 | 1229 | 329 | * 566 | * 9.1 | 9.3 | 80.3 | 98.8 | .98 | 1.00 | * 7 | * 1.47 | 1.99 | * 8.8 | 9.2 | 16.3 | * 371.6 | 12.26 | 191 |
| D * 4:39 | * 9413.9 | 9402.2 | 9379.0 | * 33.7 | * 28.9 | 77 | 3300 | 1234 | 329 | * 566 | * 9.1 | 9.3 | 80.6 | 98.9 | .98 | 1.00 | * 7 | * 1.38 | 1.99 | * 8.8 | 9.2 | 16.3 | * 372.2 | 12.31 | 191 |
| D * 4:40 | * 9414.2 | 9403.8 | 9380.0 | * 34.9 | * 29.0 | 77 | 3200 | 1234 | 329 | * 564 | * 9.1 | 9.4 | 80.8 | 99.2 | .98 | 1.00 | * 7 | * 1.37 | 1.99 | * 8.8 | 9.2 | 16.3 | * 373.8 | 12.33 | 191 |
| D * 4:42 | * 9415.8 | 9405.7 | 9380.0 | * 47.1 | * 30.9 | 78 | 3200 | 1238 | 329 | * 562 | * 9.1 | 9.3 | 80.9 | 99.3 | .98 | .99 | * 7 | * 1.28 | 1.99 | * 8.8 | 9.2 | 16.3 | * 375.7 | 12.37 | 190 |
| D * 4:43 | * 9416.1 | 9406.0 | 9380.0 | * 41.9 | * 29.4 | 77 | 3100 | 1234 | 325 | * 562 | * 9.1 | 9.3 | 80.9 | 99.4 | .98 | 1.00 | * 7 | * 1.29 | 1.99 | * 8.8 | 9.2 | 16.3 | * 376.0 | 12.38 | 190 |
| D * 4:44 | * 9417.0 | 9406.9 | 9382.0 | * 34.0 | * 29.0 | 77 | 3300 | 1243 | 325 | * 560 | * 9.1 | 9.4 | 81.0 | 99.5 | .98 | 1.00 | * 6 | * 1.37 | 1.99 | * 8.8 | 9.2 | 16.3 | * 376.9 | 12.40 | 190 |
| D * 4:47 | * 9418.1 | 9408.8 | 9383.0 | * 25.0 | * 32.5 | 77 | 3200 | 1238 | 329 | * 562 | * 9.1</ | | | | | | | | | | | | | | |