# HALLIBURTON SERVICES

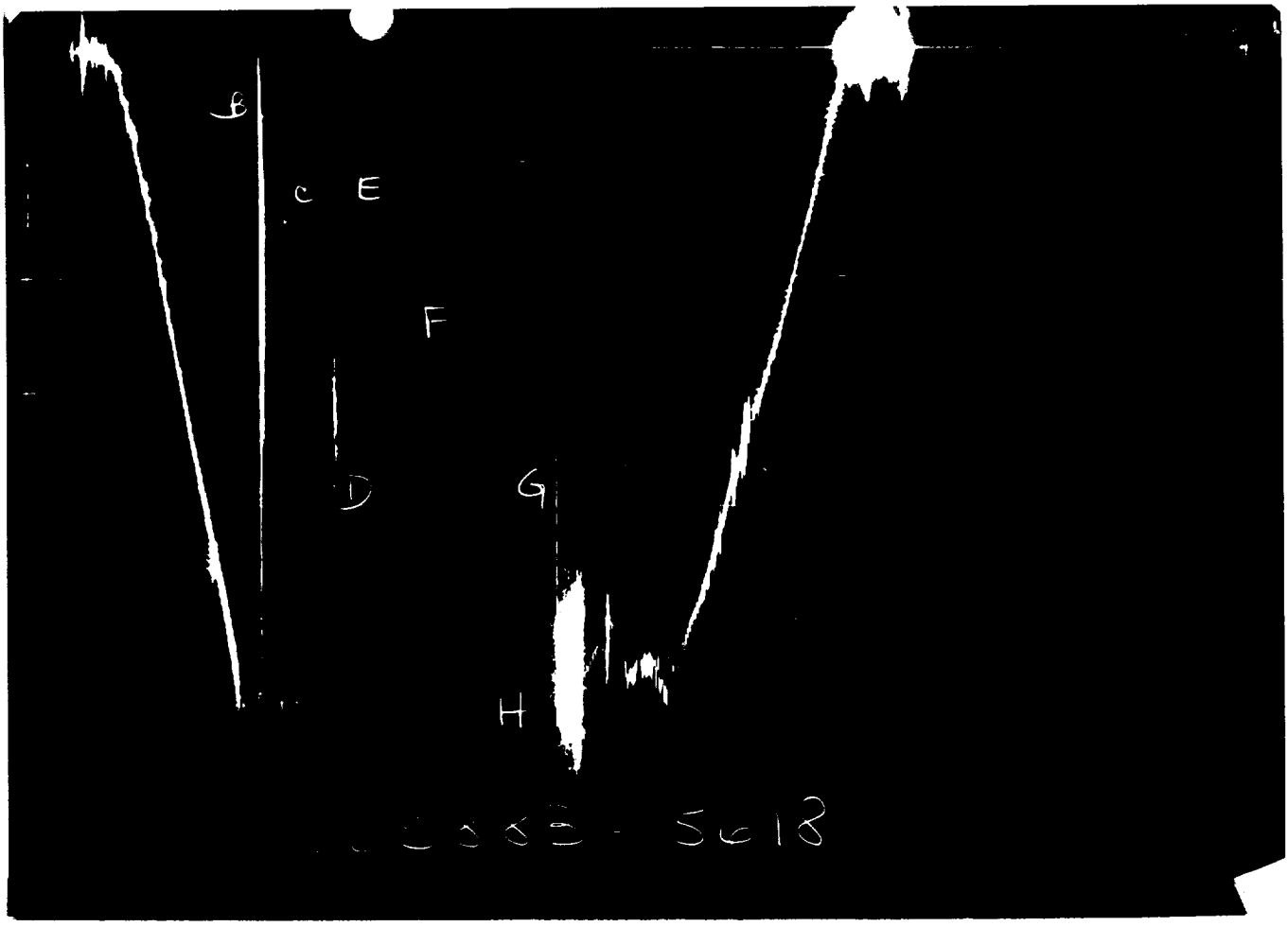
TICKET NO. 50588300

19-FEB-87

HOBBS

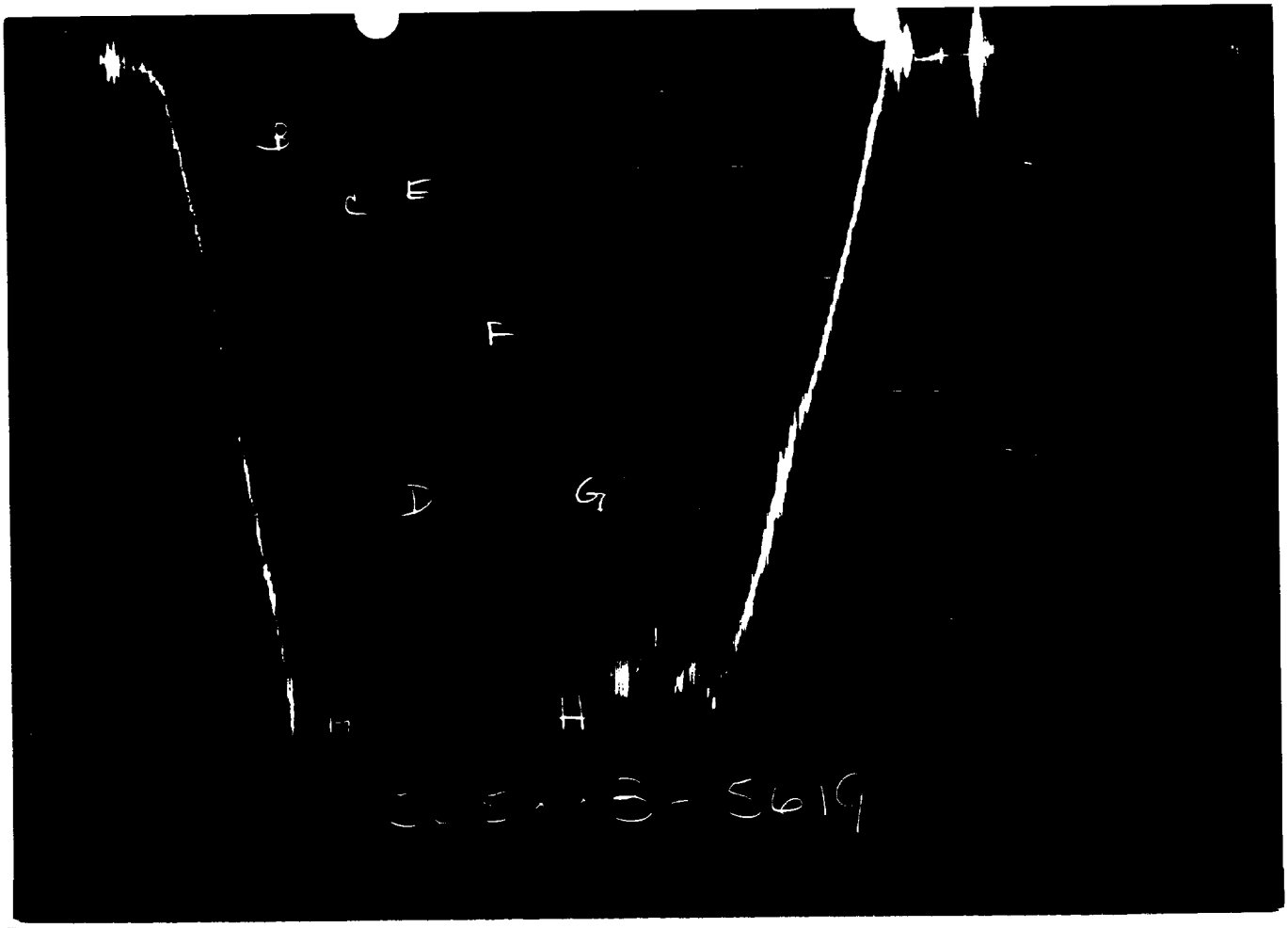
# FORMATION TESTING SERVICE REPORT

| | | | | | |
|---|---|---|---|---|---|
| BARR "H" STATE | 1 | 1 | 10985.0 - 11125.0 | HONDO DRILLING COMPANY | |
| LEASE NAME | WELL NO. | TEST NO. | TESTED INTERVAL | LEASE OWNER/COMPANY NAME | |
| LEGAL LOCATION SEC. - TWP. - RNG. | 7 - 16 S - 33 E | FIELD AREA | WEST LOVINGTON | COUNTY | LEA |
| STATE | NEW MEXICO | PM | | | |




GAUGE NO: 5618 DEPTH: 10967.0 BLANKED OFF: NO HOUR OF CLOCK: 24

| ID | DESCRIPTION | PRESSURE | | TIME | | TYPE |
|---|---|---|---|---|---|---|
| | | REPORTED | CALCULATED | REPORTED | CALCULATED | |
| A | INITIAL HYDROSTATIC | 5525 | 5524.3 | | | |
| B | INITIAL FIRST FLOW | 562 | 514.4 | 30.0 | 29.7 | F |
| C | FINAL FIRST FLOW | 1187 | 1199.8 | | | |
| C | INITIAL FIRST CLOSED-IN | 1187 | 1199.8 | 61.0 | 59.4 | C |
| D | FINAL FIRST CLOSED-IN | 3797 | 3808.8 | | | |
| E | INITIAL SECOND FLOW | 1122 | 1135.0 | 90.0 | 91.5 | F |
| F | FINAL SECOND FLOW | 2408 | 2429.2 | | | |
| F | INITIAL SECOND CLOSED-IN | 2408 | 2429.2 | 180.0 | 180.4 | C |
| G | FINAL SECOND CLOSED-IN | 3583 | 3588.9 | | | |
| H | FINAL HYDROSTATIC | 5525 | 5461.2 | | | |




GAUGE NO: 5619 DEPTH: 11122.0 BLANKED OFF: YES HOUR OF CLOCK: 24

| ID | DESCRIPTION | PRESSURE | | TIME | | TYPE |
|---|---|---|---|---|---|---|
| | | REPORTED | CALCULATED | REPORTED | CALCULATED | |
| A | INITIAL HYDROSTATIC | 5615 | 5572.9 | | | |
| B | INITIAL FIRST FLOW | 691 | 658.2 | 30.0 | 29.7 | F |
| C | FINAL FIRST FLOW | 1251 | 1260.3 | | | |
| C | INITIAL FIRST CLOSED-IN | 1251 | 1260.3 | 61.0 | 59.4 | C |
| D | FINAL FIRST CLOSED-IN | 3832 | 3803.6 | | | |
| E | INITIAL SECOND FLOW | 1165 | 1146.4 | 90.0 | 91.5 | F |
| F | FINAL SECOND FLOW | 2448 | 2447.2 | | | |
| F | INITIAL SECOND CLOSED-IN | 2448 | 2447.2 | 180.0 | 180.4 | C |
| G | FINAL SECOND CLOSED-IN | 3619 | 3589.3 | | | |
| H | FINAL HYDROSTATIC | 5615 | 5490.3 | | | |

# EQUIPMENT & HOLE DATA

FORMATION TESTED: CISCO
NET PAY (ft): 17.0
GROSS TESTED FOOTAGE: 140.0
ALL DEPTHS MEASURED FROM: KB
CASING PERFS. (ft):
HOLE OR CASING SIZE (in): 7.875
ELEVATION (ft): 4262.5 G.L.
TOTAL DEPTH (ft): 11125.0
PACKER DEPTH(S) (ft): 10980, 10985
FINAL SURFACE CHOKE (in): 3/8"
BOTTOM HOLE CHOKE (in): 0.750
MUD WEIGHT (lb/gal): 9.30
MUD VISCOSITY (sec): 50
ESTIMATED HOLE TEMP. (°F):
ACTUAL HOLE TEMP. (°F): 136 @ 11121.0 ft

TICKET NUMBER: 50588300

DATE: 2-11-87 TEST NO: 1

TYPE DST: OPEN HOLE

HALLIBURTON CAMP: HOBBS

TESTER: HERB SMITH

WITNESS: JACK JOHNSON

DRILLING CONTRACTOR: HONDO DRILLING COMPANY

# FLUID PROPERTIES FOR RECOVERED MUD & WATER

| SOURCE | RESISTIVITY | CHLORIDES |
|---|---|---|
| MUD PIT | 0.102 @ 64 °F | 44998 ppm |
| BOTTOM RECOVERY | 1.090 @ 66 °F | 71526 ppm |
| TOOL TOP | 0.077 @ 68 °F | 55583 ppm |
| SAMPLER | 0.071 @ 68 °F | 59374 ppm |
| | @ °F | ppm |
| | @ °F | ppm |

# SAMPLER DATA

Psig AT SURFACE: 1450.0
cu.ft. OF GAS: 3.125
cc OF OIL: 1300.0
cc OF WATER: 300.0
cc OF MUD:
TOTAL LIQUID cc: 1600.0

# HYDROCARBON PROPERTIES

OIL GRAVITY (°API): 43.5 @ 60 °F
GAS/OIL RATIO (cu.ft. per bbl): 381
GAS GRAVITY:

# CUSHION DATA

| TYPE | AMOUNT | WEIGHT |
|---|---|---|
| | | |
| | | |

# RECOVERED:

70 BBLS. OF OIL - HEAVY GAS CUT OIL & WATER

MEASURED FROM TESTER VALVE

# REMARKS:

TYPE & SIZE MEASURING DEVICE: POSITIVE CHOKE | TICKET NO: 50588300

| TIME | CHOKE SIZE | SURFACE PRESSURE PSI | GAS RATE MCF | LIQUID RATE BPD | REMARKS |
|---|---|---|---|---|---|
| 2-11-87 | | | | | |
| 0810 | | | | | PICKED-UP AND MADE-UP TOOLS |
| 0920 | | | | | STARTED TOOLS IN HOLE |
| 1236 | BH | | | | OPENED TOOL - 6" BLOW |
| 1238 | | 5 | | | FAST INCREASE IN PRESSURE |
| 1241 | 1/4" | 30 | | | " |
| 1243 | | 45 | | | " - MANIFOLD PLUGGING WITH RUST |
| 1246 | | 74 | | | FAST INCREASE |
| 1253 | 3/8" | 120 | | | " |
| 1300 | " | 165 | | | " |
| 1302 | | 160 | | | GAS TO SURFACE - MANIFOLD CLEAN |
| 1306 | | 160 | | | CLOSED TOOL |
| 1407 | 3/8" | 20 | | | REOPENED TOOL |
| 1410 | | 35 | | | INCREASE |
| 1420 | | 55 | | | " |
| 1430 | | 45 | | | DECREASE |
| 1440 | | 50 | | | INCREASE |
| 1450 | | 60 | | | " |
| 1500 | | 55 | | | DECREASE |
| 1510 | | 50 | | | " |
| 1520 | | 50 | | | STABLE |
| 1530 | | 55 | | | INCREASE |
| 1536 | | 45 | | | DECREASE |
| 1537 | | 45 | | | CLOSED TOOL |
| 1837 | | | | | OPENED BYPASS |
| 1838 | | | | | JARRED OFF BOTTOM |
| 1900 | | | | | PULLED OUT OF HOLE - 14 JOINTS |
| 1926 | | | | | DROPPED BAR AND REVERSED OUT |
| 2050 | | | | | PUT KELLY ON AND PUMPED DOWN |
| | | | | | DRILL PIPE. |
| 2100 | | | | | PULLED OUT OF HOLE |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

| TICKET NO: 50588300 |
|---|
| CLOCK NO: 27306 HOUR: 24 |

| GAUGE NO: 5618 |
|---|
| DEPTH: 10907.0 |

| REF | MINUTES | PRESSURE | ΔP | $\frac{t \times \Delta t}{t + \Delta t}$ | $\log \frac{t + \Delta t}{\Delta t}$ |
|---|---|---|---|---|---|
| **FIRST FLOW** | | | | | |
| B 1 | 0.0 | 514.4 | | | |
| 2 | 2.0 | 545.4 | 31.0 | | |
| 3 | 4.0 | 555.6 | 10.2 | | |
| 4 | 6.0 | 580.3 | 24.7 | | |
| 5 | 8.0 | 645.5 | 65.2 | | |
| 6 | 10.0 | 723.4 | 78.0 | | |
| 7 | 12.0 | 776.9 | 53.5 | | |
| 8 | 14.0 | 835.0 | 58.0 | | |
| 9 | 16.0 | 886.5 | 51.5 | | |
| 10 | 18.0 | 942.8 | 56.3 | | |
| 11 | 20.0 | 988.3 | 45.5 | | |
| 12 | 22.0 | 1031.1 | 42.8 | | |
| 13 | 24.0 | 1072.5 | 41.3 | | |
| 14 | 26.0 | 1130.6 | 58.1 | | |
| 15 | 28.0 | 1173.2 | 42.6 | | |
| C 16 | 29.7 | 1199.8 | 26.7 | | |
| **FIRST CLOSED-IN** | | | | | |
| C 1 | 0.0 | 1199.8 | | | |
| 2 | 1.0 | 3211.7 | 2011.8 | 0.9 | 1.497 |
| 3 | 2.0 | 3413.9 | 2214.1 | 1.9 | 1.204 |
| 4 | 3.0 | 3491.7 | 2291.9 | 2.7 | 1.035 |
| 5 | 4.0 | 3540.4 | 2340.5 | 3.5 | 0.923 |
| 6 | 5.0 | 3572.5 | 2372.7 | 4.3 | 0.844 |
| 7 | 6.0 | 3598.2 | 2398.4 | 5.0 | 0.772 |
| 8 | 7.0 | 3616.6 | 2416.8 | 5.6 | 0.722 |
| 9 | 8.0 | 3631.9 | 2432.0 | 6.3 | 0.674 |
| 10 | 9.0 | 3644.1 | 2444.2 | 6.9 | 0.633 |
| 11 | 10.0 | 3656.1 | 2456.2 | 7.5 | 0.599 |
| 12 | 12.0 | 3671.9 | 2472.1 | 8.5 | 0.541 |
| 13 | 14.0 | 3685.9 | 2486.0 | 9.5 | 0.495 |
| 14 | 16.0 | 3699.4 | 2499.5 | 10.4 | 0.456 |
| 15 | 18.0 | 3709.2 | 2509.4 | 11.2 | 0.423 |
| 16 | 20.0 | 3716.7 | 2516.9 | 12.0 | 0.395 |
| 17 | 22.0 | 3724.4 | 2524.6 | 12.6 | 0.371 |
| 18 | 24.0 | 3731.7 | 2531.9 | 13.3 | 0.349 |
| 19 | 26.0 | 3738.6 | 2538.7 | 13.9 | 0.331 |
| 20 | 28.0 | 3744.8 | 2544.9 | 14.4 | 0.314 |
| 21 | 30.0 | 3750.1 | 2550.3 | 14.9 | 0.299 |
| 22 | 35.0 | 3763.4 | 2563.6 | 16.1 | 0.267 |
| 23 | 40.0 | 3775.6 | 2575.8 | 17.1 | 0.241 |
| 24 | 45.0 | 3785.7 | 2585.9 | 17.9 | 0.220 |
| 25 | 50.0 | 3794.3 | 2594.4 | 18.6 | 0.203 |
| 26 | 55.0 | 3801.8 | 2601.9 | 19.3 | 0.188 |
| D 27 | 59.4 | 3808.8 | 2609.0 | 19.8 | 0.176 |
| **SECOND FLOW** | | | | | |
| E 1 | 0.0 | 1135.0 | | | |

| REF | MINUTES | PRESSURE | ΔP | $\frac{t \times \Delta t}{t + \Delta t}$ | $\log \frac{t + \Delta t}{\Delta t}$ |
|---|---|---|---|---|---|
| SECOND FLOW - CONTINUED | | | | | |
| 2 | 5.0 | 1218.3 | 83.3 | | |
| 3 | 10.0 | 1340.8 | 122.4 | | |
| 4 | 15.0 | 1451.7 | 111.0 | | |
| 5 | 20.0 | 1551.1 | 99.3 | | |
| 6 | 25.0 | 1634.4 | 83.3 | | |
| 7 | 30.0 | 1703.5 | 69.1 | | |
| 8 | 35.0 | 1772.2 | 68.7 | | |
| 9 | 40.0 | 1864.4 | 92.2 | | |
| 10 | 45.0 | 1943.0 | 78.6 | | |
| 11 | 50.0 | 2007.2 | 64.2 | | |
| 12 | 55.0 | 2068.7 | 61.5 | | |
| 13 | 60.0 | 2124.2 | 55.5 | | |
| 14 | 65.0 | 2175.5 | 51.4 | | |
| 15 | 70.0 | 2225.8 | 50.3 | | |
| 16 | 75.0 | 2269.7 | 43.9 | | |
| 17 | 80.0 | 2322.4 | 52.7 | | |
| 18 | 85.0 | 2373.5 | 51.2 | | |
| 19 | 90.0 | 2421.1 | 47.5 | | |
| F 20 | 91.5 | 2429.2 | 8.2 | | |
| **SECOND CLOSED-IN** | | | | | |
| F 1 | 0.0 | 2429.2 | | | |
| 2 | 1.0 | 3113.8 | 684.5 | 1.0 | 2.079 |
| 3 | 2.0 | 3184.7 | 755.5 | 2.0 | 1.788 |
| 4 | 3.0 | 3234.0 | 804.7 | 2.9 | 1.618 |
| 5 | 4.0 | 3271.1 | 841.9 | 3.9 | 1.494 |
| 6 | 5.0 | 3289.9 | 860.6 | 4.8 | 1.405 |
| 7 | 6.0 | 3304.9 | 875.7 | 5.7 | 1.327 |
| 8 | 7.0 | 3318.9 | 889.6 | 6.6 | 1.262 |
| 9 | 8.0 | 3327.5 | 898.2 | 7.5 | 1.210 |
| 10 | 9.0 | 3338.4 | 909.2 | 8.4 | 1.160 |
| 11 | 10.0 | 3347.7 | 918.5 | 9.3 | 1.117 |
| 12 | 12.0 | 3362.1 | 932.9 | 10.9 | 1.045 |
| 13 | 14.0 | 3373.9 | 944.7 | 12.5 | 0.985 |
| 14 | 16.0 | 3383.8 | 954.6 | 14.1 | 0.934 |
| 15 | 18.0 | 3393.9 | 964.7 | 15.7 | 0.888 |
| 16 | 20.0 | 3401.4 | 972.2 | 17.2 | 0.848 |
| 17 | 22.0 | 3409.2 | 979.9 | 18.6 | 0.814 |
| 18 | 24.0 | 3416.7 | 987.5 | 20.1 | 0.781 |
| 19 | 26.0 | 3423.8 | 994.6 | 21.4 | 0.753 |
| 20 | 28.0 | 3430.0 | 1000.8 | 22.7 | 0.727 |
| 21 | 30.0 | 3436.3 | 1007.0 | 24.1 | 0.702 |
| 22 | 35.0 | 3449.6 | 1020.4 | 27.2 | 0.649 |
| 23 | 40.0 | 3459.9 | 1030.7 | 30.1 | 0.606 |
| 24 | 45.0 | 3471.1 | 1041.9 | 32.8 | 0.568 |
| 25 | 50.0 | 3478.4 | 1049.2 | 35.4 | 0.535 |
| 26 | 55.0 | 3485.7 | 1056.5 | 37.8 | 0.506 |
| 27 | 60.0 | 3491.3 | 1062.1 | 40.1 | 0.480 |
| 28 | 70.0 | 3502.1 | 1072.8 | 44.4 | 0.436 |
| 29 | 80.0 | 3512.4 | 1083.1 | 48.2 | 0.400 |
| 30 | 90.0 | 3521.8 | 1092.6 | 51.6 | 0.371 |
| 31 | 100.0 | 3530.9 | 1101.6 | 54.8 | 0.345 |

REMARKS:

| TICKET NO: 50588300 |
|---|
| CLOCK NO: 27306 HOUR: 24 |

| GAUGE NO: 5618 |
|---|
| DEPTH: 10967.0 |

| REF | MINUTES | PRESSURE | ΔP | $\frac{t \times \Delta t}{t + \Delta t}$ | $\log \frac{t + \Delta t}{\Delta t}$ |
|---|---|---|---|---|---|
| | SECOND CLOSED-IN - CONTINUED | | | | |
| | 32 110.0 | 3539.0 | 1109.8 | 57.7 | 0.323 |
| | 33 120.0 | 3547.2 | 1118.0 | 60.3 | 0.303 |
| | 34 135.0 | 3558.8 | 1129.6 | 63.9 | 0.278 |
| | 35 150.0 | 3569.8 | 1140.5 | 67.0 | 0.257 |
| | 36 165.0 | 3579.4 | 1150.2 | 69.9 | 0.238 |
| G | 37 180.4 | 3588.9 | 1159.7 | 72.5 | 0.223 |

| REF | MINUTES | PRESSURE | ΔP | $\frac{t \times \Delta t}{t + \Delta t}$ | $\log \frac{t + \Delta t}{\Delta t}$ |
|---|---|---|---|---|---|

REMARKS:

| TICKET NO: 50588300 | GAUGE NO: 5619 |
|---|---|
| CLOCK NO: 23339 HOUR: 24 | DEPTH: 11 22.0 |

| REF | | MINUTES | PRESSURE | ΔP | $\frac{t \times \Delta t}{t + \Delta t}$ | $\log \frac{t + \Delta t}{\Delta t}$ |
|---|---|---|---|---|---|---|
| | | | **FIRST FLOW** | | | |
| B | 1 | 0.0 | 658.2 | | | |
| | 2 | 2.0 | 713.1 | 54.9 | | |
| | 3 | 4.0 | 684.0 | -29.1 | | |
| | 4 | 6.0 | 696.8 | 12.8 | | |
| | 5 | 8.0 | 777.5 | 80.7 | | |
| | 6 | 10.0 | 847.4 | 69.8 | | |
| | 7 | 12.0 | 877.1 | 29.7 | | |
| | 8 | 14.0 | 925.4 | 48.4 | | |
| | 9 | 16.0 | 978.2 | 52.7 | | |
| | 10 | 18.0 | 1024.8 | 46.7 | | |
| | 11 | 20.0 | 1065.5 | 40.6 | | |
| | 12 | 22.0 | 1105.9 | 40.4 | | |
| | 13 | 24.0 | 1138.2 | 32.3 | | |
| | 14 | 26.0 | 1194.1 | 55.9 | | |
| | 15 | 28.0 | 1232.8 | 38.7 | | |
| C | 16 | 29.7 | 1260.3 | 27.5 | | |
| | | | **FIRST CLOSED-IN** | | | |
| C | 1 | 0.0 | 1260.3 | | | |
| | 2 | 1.0 | 1873.1 | 612.8 | 1.0 | 1.493 |
| | 3 | 2.0 | 3141.7 | 1881.4 | 1.9 | 1.200 |
| | 4 | 3.0 | 3407.3 | 2147.0 | 2.7 | 1.043 |
| | 5 | 4.0 | 3497.0 | 2236.7 | 3.5 | 0.926 |
| | 6 | 5.0 | 3543.2 | 2282.9 | 4.2 | 0.845 |
| | 7 | 6.0 | 3574.2 | 2313.9 | 5.0 | 0.775 |
| | 8 | 7.0 | 3602.4 | 2342.1 | 5.7 | 0.717 |
| | 9 | 8.0 | 3620.5 | 2360.2 | 6.3 | 0.672 |
| | 10 | 9.0 | 3633.8 | 2373.5 | 6.9 | 0.634 |
| | 11 | 10.0 | 3646.0 | 2385.7 | 7.5 | 0.599 |
| | 12 | 12.0 | 3668.0 | 2407.7 | 8.6 | 0.540 |
| | 13 | 14.0 | 3681.9 | 2421.6 | 9.5 | 0.494 |
| | 14 | 16.0 | 3693.6 | 2433.3 | 10.4 | 0.456 |
| | 15 | 18.0 | 3704.3 | 2444.0 | 11.2 | 0.423 |
| | 16 | 20.0 | 3713.9 | 2453.6 | 12.0 | 0.395 |
| | 17 | 22.0 | 3722.0 | 2461.7 | 12.6 | 0.371 |
| | 18 | 24.0 | 3727.8 | 2467.5 | 13.3 | 0.350 |
| | 19 | 26.0 | 3734.6 | 2474.3 | 13.9 | 0.331 |
| | 20 | 28.0 | 3739.6 | 2479.3 | 14.4 | 0.314 |
| | 21 | 30.0 | 3746.2 | 2485.9 | 14.9 | 0.299 |
| | 22 | 35.0 | 3760.5 | 2500.2 | 16.1 | 0.267 |
| | 23 | 40.0 | 3772.2 | 2511.9 | 17.1 | 0.241 |
| | 24 | 45.0 | 3782.5 | 2522.2 | 17.9 | 0.220 |
| | 25 | 50.0 | 3791.3 | 2531.0 | 18.6 | 0.203 |
| | 26 | 55.0 | 3798.9 | 2538.7 | 19.3 | 0.188 |
| D | 27 | 59.4 | 3803.6 | 2543.4 | 19.8 | 0.176 |
| | | | **SECOND FLOW** | | | |
| E | 1 | 0.0 | 1146.4 | | | |

| REF | | MINUTES | PRESSURE | ΔP | $\frac{t \times \Delta t}{t + \Delta t}$ | $\log \frac{t + \Delta t}{\Delta t}$ |
|---|---|---|---|---|---|---|
| | | | SECOND FLOW - CONTINUED | | | |
| | 2 | 5.0 | 1221.3 | 74.8 | | |
| | 3 | 10.0 | 1333.0 | 111.7 | | |
| | 4 | 15.0 | 1443.6 | 110.6 | | |
| | 5 | 20.0 | 1548.2 | 104.6 | | |
| | 6 | 25.0 | 1628.7 | 80.5 | | |
| | 7 | 30.0 | 1702.9 | 74.2 | | |
| | 8 | 35.0 | 1772.8 | 69.9 | | |
| | 9 | 40.0 | 1864.2 | 91.5 | | |
| | 10 | 45.0 | 1948.4 | 84.1 | | |
| | 11 | 50.0 | 2016.8 | 68.4 | | |
| | 12 | 55.0 | 2076.5 | 59.7 | | |
| | 13 | 60.0 | 2128.9 | 52.4 | | |
| | 14 | 65.0 | 2185.4 | 56.5 | | |
| | 15 | 70.0 | 2238.2 | 52.8 | | |
| | 16 | 75.0 | 2282.7 | 44.5 | | |
| | 17 | 80.0 | 2340.2 | 57.6 | | |
| | 18 | 85.0 | 2398.2 | 58.0 | | |
| | 19 | 90.0 | 2437.1 | 38.9 | | |
| F | 20 | 91.5 | 2447.2 | 10.1 | | |
| | | | **SECOND CLOSED-IN** | | | |
| F | 1 | 0.0 | 2447.2 | | | |
| | 2 | 1.0 | 3140.8 | 693.6 | 1.0 | 2.068 |
| | 3 | 2.0 | 3209.4 | 762.2 | 2.0 | 1.783 |
| | 4 | 3.0 | 3253.9 | 806.8 | 2.9 | 1.615 |
| | 5 | 4.0 | 3285.0 | 837.8 | 3.9 | 1.492 |
| | 6 | 5.0 | 3300.0 | 852.8 | 4.8 | 1.406 |
| | 7 | 6.0 | 3315.7 | 868.5 | 5.7 | 1.328 |
| | 8 | 7.0 | 3325.7 | 878.5 | 6.6 | 1.265 |
| | 9 | 8.0 | 3337.3 | 890.1 | 7.5 | 1.206 |
| | 10 | 9.0 | 3348.0 | 900.8 | 8.4 | 1.158 |
| | 11 | 10.0 | 3355.7 | 908.6 | 9.3 | 1.117 |
| | 12 | 12.0 | 3366.7 | 919.5 | 10.9 | 1.045 |
| | 13 | 14.0 | 3378.2 | 931.1 | 12.6 | 0.985 |
| | 14 | 16.0 | 3386.2 | 939.0 | 14.2 | 0.932 |
| | 15 | 18.0 | 3393.5 | 946.3 | 15.7 | 0.888 |
| | 16 | 20.0 | 3399.9 | 952.7 | 17.2 | 0.849 |
| | 17 | 22.0 | 3405.5 | 958.3 | 18.6 | 0.813 |
| | 18 | 24.0 | 3412.3 | 965.1 | 20.0 | 0.782 |
| | 19 | 26.0 | 3420.0 | 972.8 | 21.4 | 0.754 |
| | 20 | 28.0 | 3425.4 | 978.2 | 22.8 | 0.726 |
| | 21 | 30.0 | 3430.7 | 983.6 | 24.0 | 0.703 |
| | 22 | 35.0 | 3445.1 | 997.9 | 27.2 | 0.650 |
| | 23 | 40.0 | 3461.6 | 1014.4 | 30.1 | 0.606 |
| | 24 | 45.0 | 3473.0 | 1025.8 | 32.8 | 0.567 |
| | 25 | 50.0 | 3481.3 | 1034.1 | 35.4 | 0.535 |
| | 26 | 55.0 | 3487.5 | 1040.4 | 37.8 | 0.506 |
| | 27 | 60.0 | 3492.9 | 1045.7 | 40.1 | 0.480 |
| | 28 | 70.0 | 3503.8 | 1056.6 | 44.4 | 0.436 |
| | 29 | 80.0 | 3513.3 | 1066.1 | 48.2 | 0.401 |
| | 30 | 90.0 | 3522.7 | 1075.5 | 51.6 | 0.370 |
| | 31 | 100.0 | 3532.8 | 1085.6 | 54.8 | 0.345 |

REMARKS:

| TICKET NO: 50588300 |
| --- |
| CLOCK NO: 28339 HOUR: 24 |

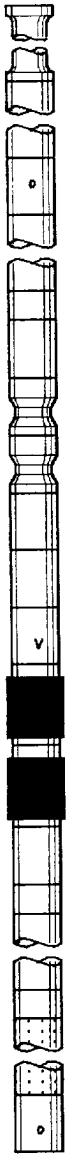
| GAUGE NO: 5619 |
| --- |
| DEPTH: 11122.0 |

| REF | MINUTES | PRESSURE | ΔP | $\frac{t \times \Delta t}{t + \Delta t}$ | $\log \frac{t + \Delta t}{\Delta t}$ |
| --- | --- | --- | --- | --- | --- |
| | SECOND CLOSED-IN - CONTINUED | | | | |
| 32 | 110.0 | 3541.1 | 1093.9 | 57.7 | 0.323 |
| 33 | 120.0 | 3542.4 | 1095.2 | 60.3 | 0.303 |
| 34 | 135.0 | 3553.8 | 1106.6 | 63.9 | 0.278 |
| 35 | 150.0 | 3572.2 | 1125.0 | 67.0 | 0.257 |
| 36 | 165.0 | 3581.8 | 1134.7 | 69.9 | 0.239 |
| G 37 | 180.4 | 3589.3 | 1142.2 | 72.5 | 0.223 |

| REF | MINUTES | PRESSURE | ΔP | $\frac{t \times \Delta t}{t + \Delta t}$ | $\log \frac{t + \Delta t}{\Delta t}$ |
| --- | --- | --- | --- | --- | --- |

REMARKS:

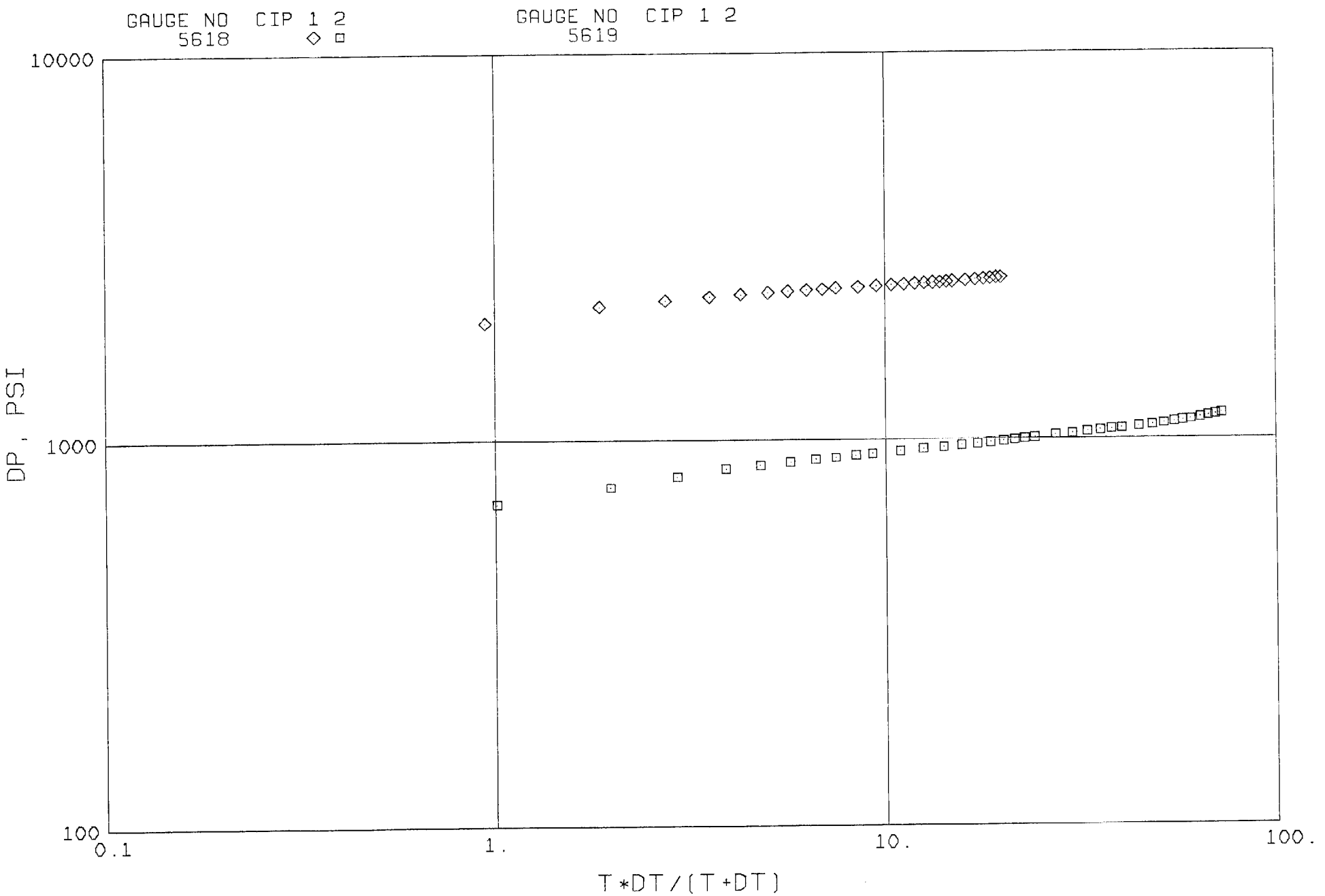
TICKET NO. 50588300



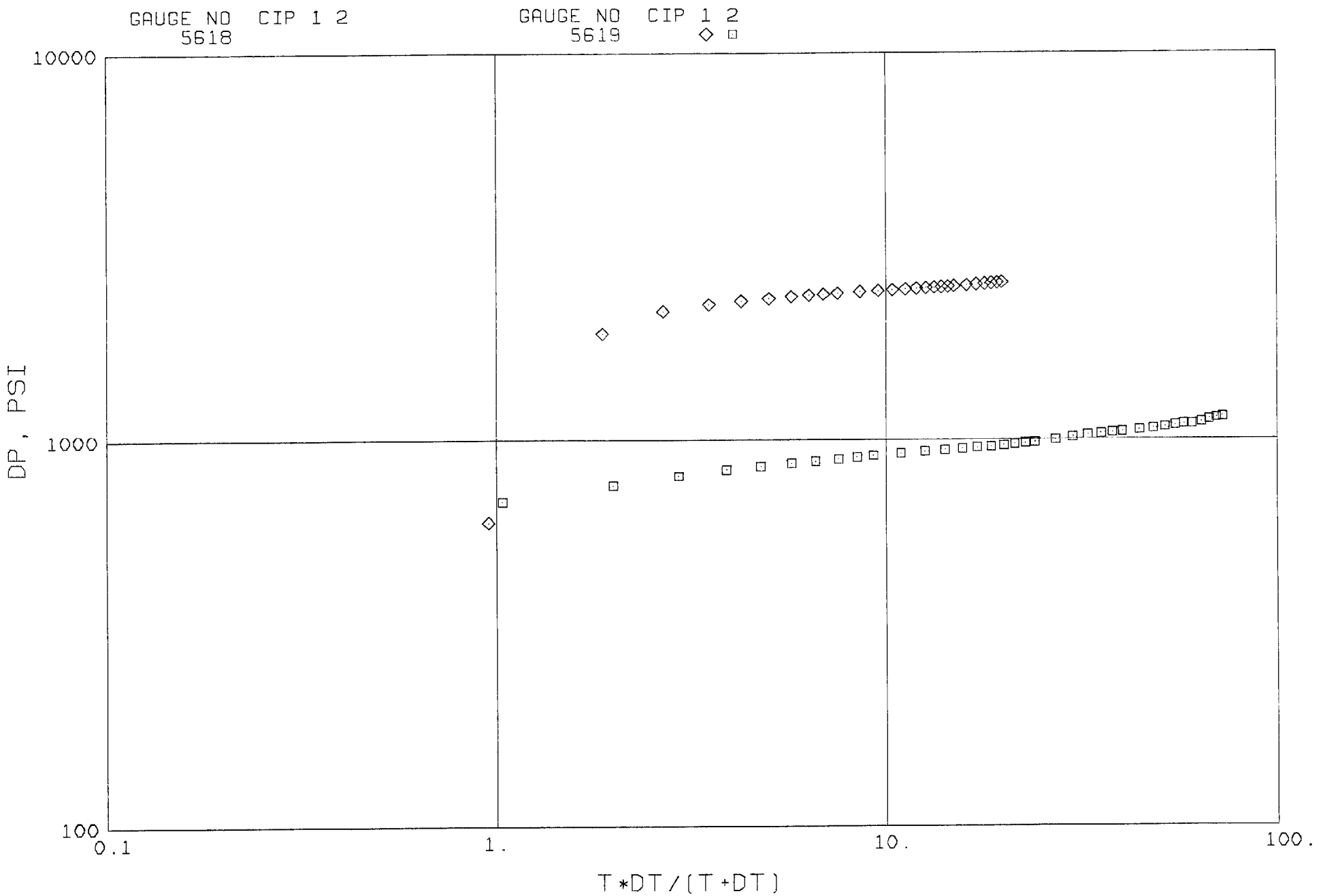
| | | O.D. | I.D. | LENGTH | DEPTH |
|---|---|---|---|---|---|
| 1 | DRILL PIPE | 4.500 | 3.826 | 10548.0 | |
| 3 | DRILL COLLARS | 6.000 | 2.500 | 277.0 | |
| 50 | IMPACT REVERSING SUB | 2.700 | 5.750 | 1.0 | 10825.0 |
| 3 | DRILL COLLARS | 6.000 | 2.500 | 120.0 | |
| 5 | CROSSOVER | 6.000 | 2.180 | 1.0 | |
| 62 | MULTIPLE CIP SAMPLER | 5.000 | 0.750 | 9.0 | 10952.0 |
| 14 | EXTENSION JOINT | 5.000 | 0.870 | 5.0 | |
| 14 | EXTENSION JOINT | 5.000 | 0.870 | 5.0 | |
| 80 | AP RUNNING CASE | 5.000 | 2.250 | 4.0 | 10967.0 |
| 15 | JAR | 5.000 | 1.750 | 5.0 | |
| 16 | VR SAFETY JOINT | 5.000 | 1.000 | 3.0 | |
| 70 | OPEN HOLE PACKER | 7.000 | 1.530 | 5.0 | 10980.0 |
| 70 | OPEN HOLE PACKER | 7.000 | 1.530 | 5.0 | 10985.0 |
| 19 | ANCHOR PIPE SAFETY JOINT | 5.750 | 1.500 | 5.0 | |
| 5 | CROSSOVER | 5.880 | 2.880 | 1.0 | |
| 3 | DRILL COLLARS | 6.000 | 2.500 | 93.0 | |
| 5 | CROSSOVER | 5.600 | 2.500 | 1.0 | |
| 20 | FLUSH JOINT ANCHOR | 5.750 | 3.000 | 33.0 | |
| 81 | BLANKED-OFF RUNNING CASE | 5.750 | | 4.0 | 11122.0 |
| | TOTAL DEPTH | | | | 11125.0 |

# EQUIPMENT DATA

TICKET NO 50588300



TICKET NO 50588300



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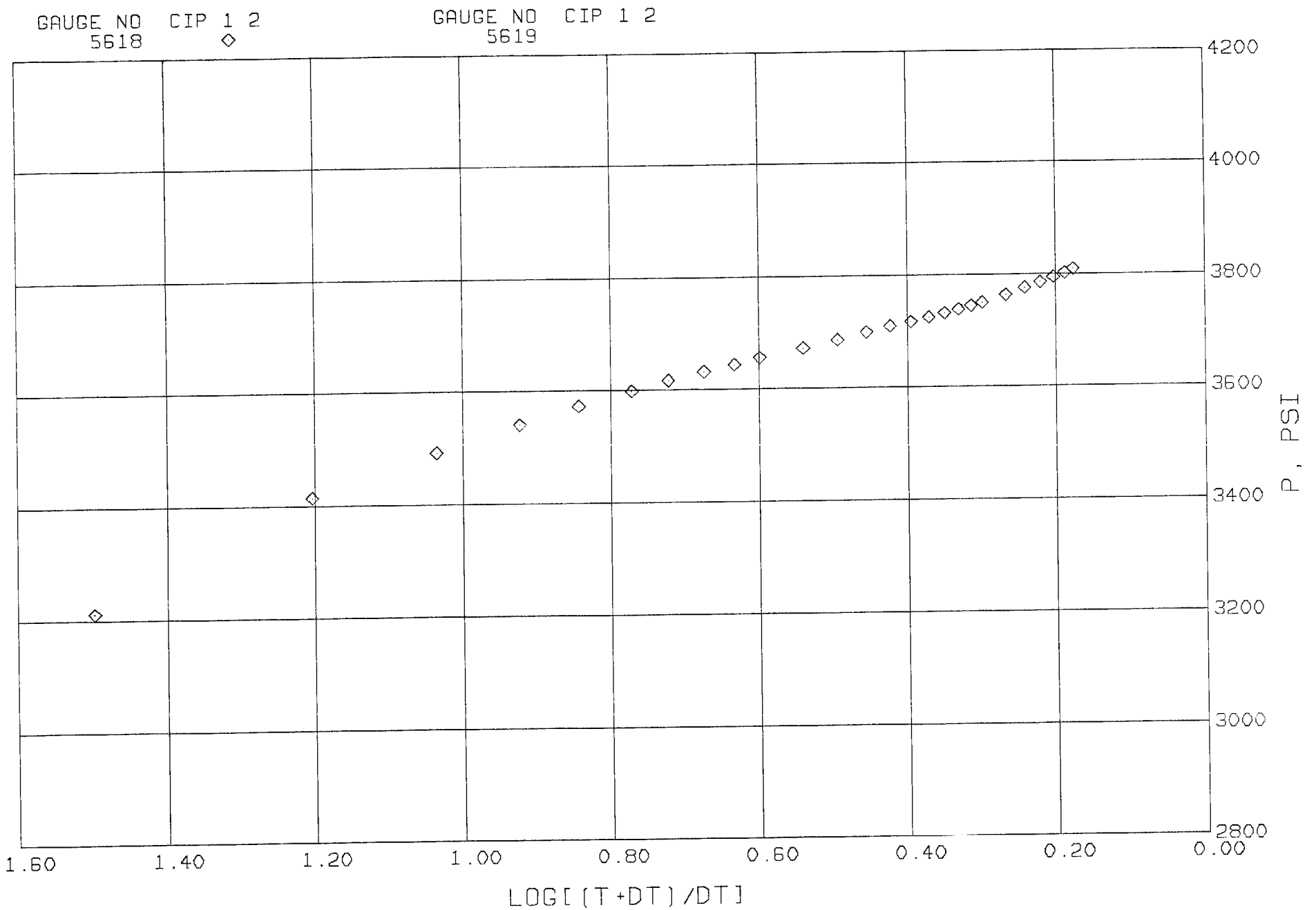

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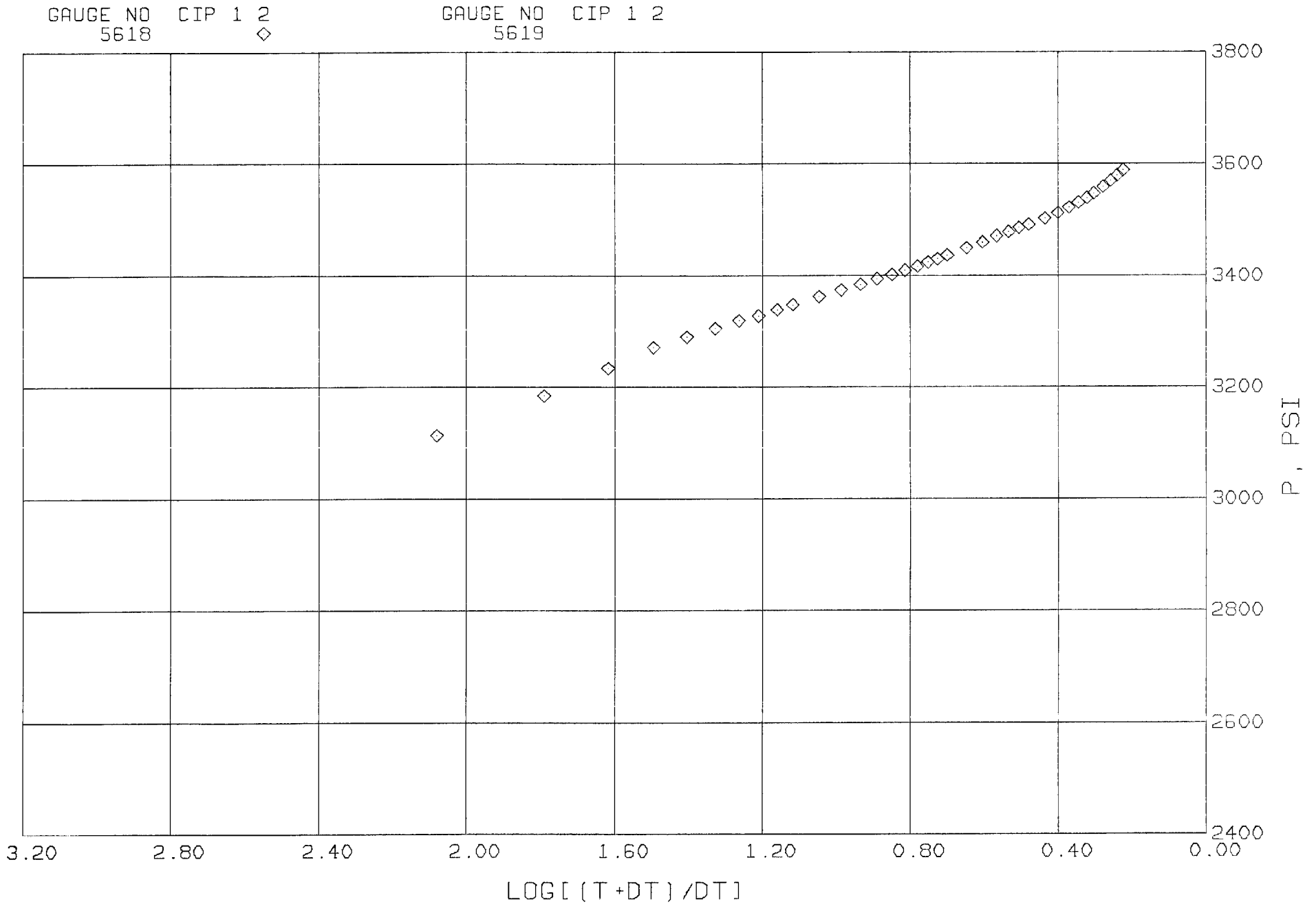

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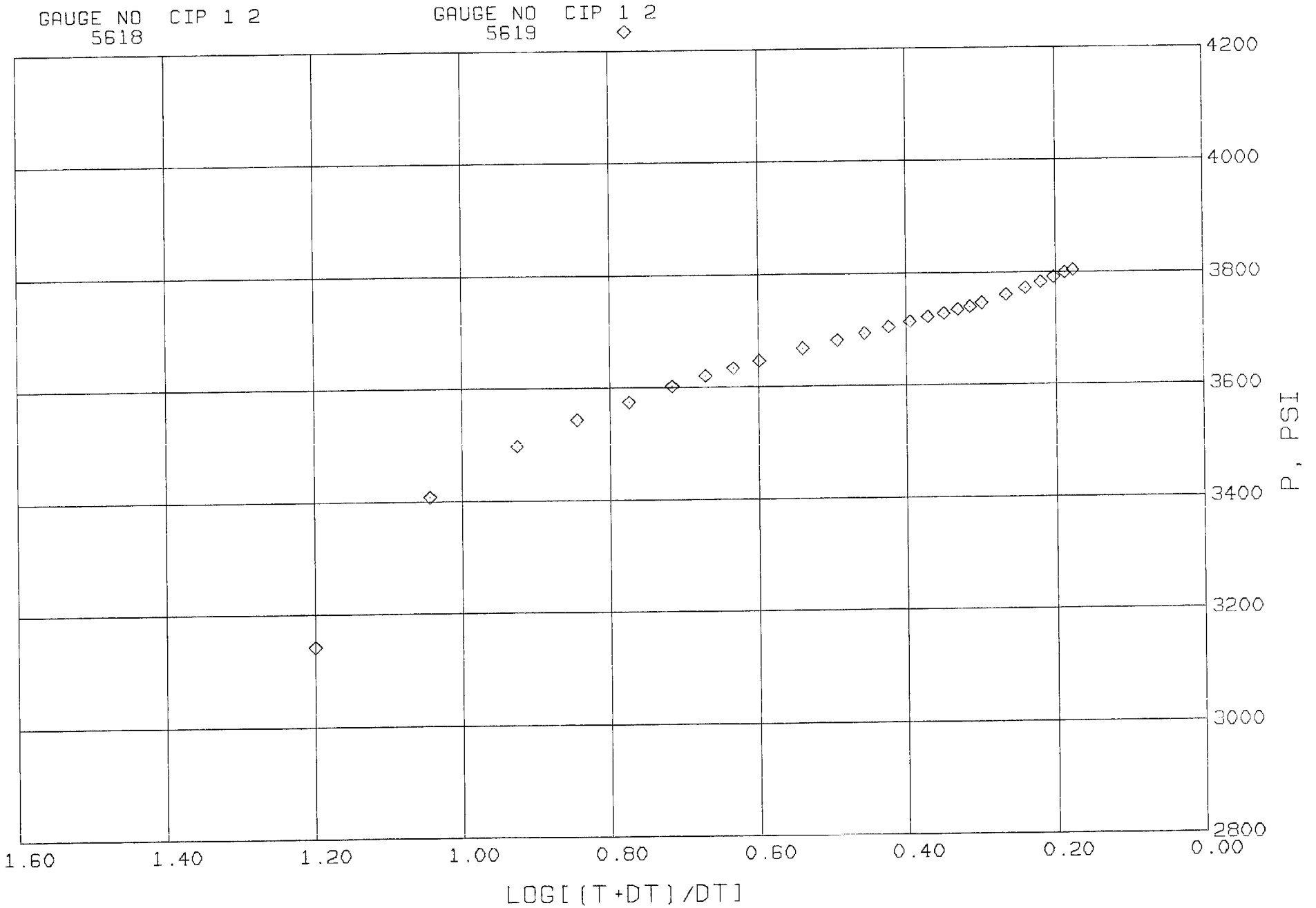

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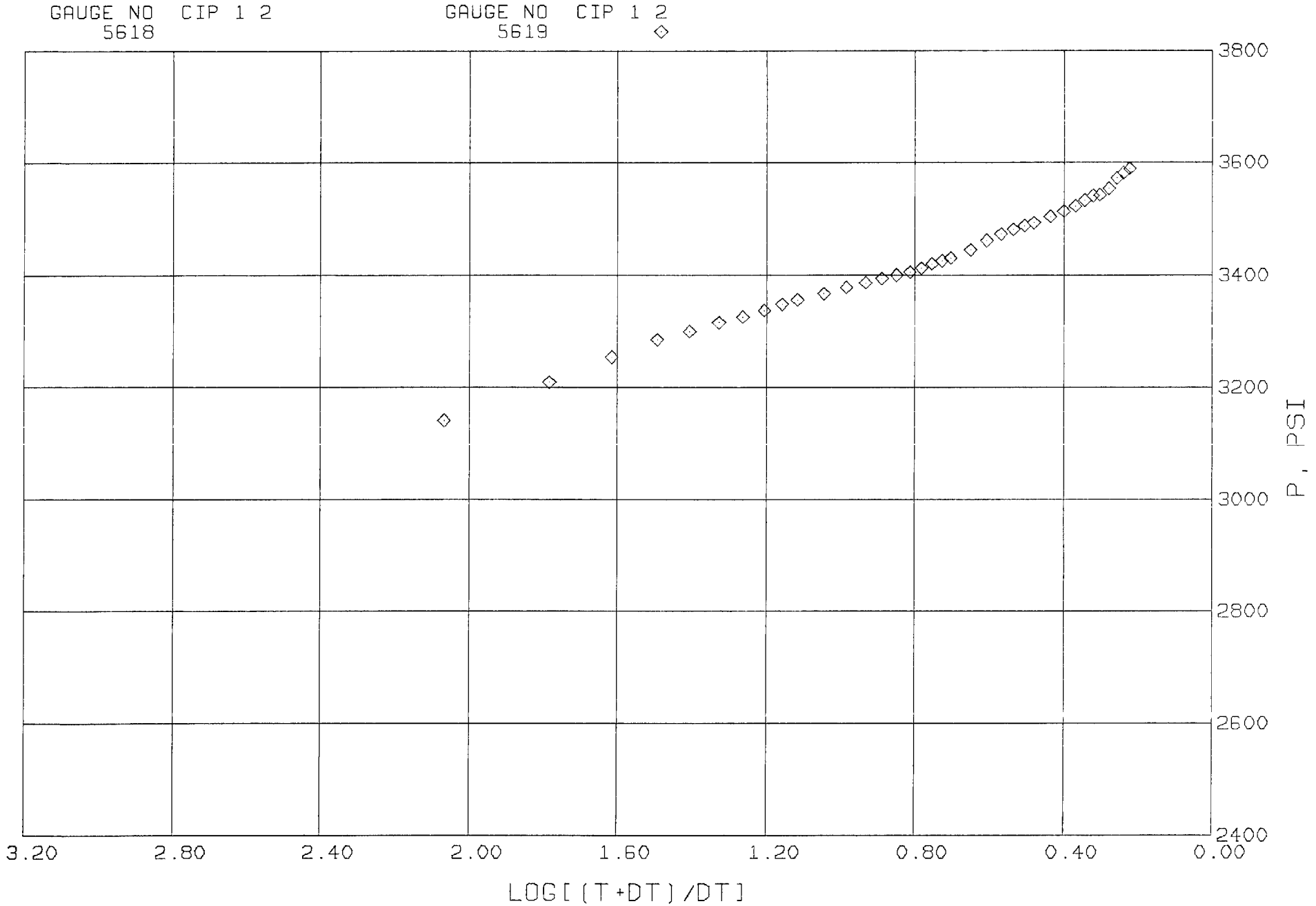

TICKET NUMBER 50388300

# SUMMARY OF RESERVOIR PARAMETERS

## USING HORNER METHOD FOR LIQUID WELLS

OIL GRAVITY 43.5 °API@60 °F
WATER SALINITY 6.9 % SALT
GAS GRAVITY 0.700
FLUID GRADIENT 0.3504 psi/ft
GAS/OIL RATIO 381.0 SCF/STB
FLUID PROPERTIES AT 3704.4 psig
TEMPERATURE 136.0 °F
VISCOSITY 0.944 cp
NET PAY 17.0 ft
FMT VOL FACTOR 1.213 Rvol/Svol
POROSITY 10.0 % SYSTEM COMPRESSIBILITY 7.45 $\times 10^{-6}$ vol/vol/psi
PIPE CAPACITY FACTORS 0.00607 0.01422 bbl/ft

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| GAUGE NUMBER | | 5618 | 5618 | 5619 | 5619 | | | |
| GAUGE DEPTH | | 10967.0 | 10967.0 | 11122.0 | 11122.0 | | | |
| FLOW AND CIP PERIOD | | 1 | 2 | 1 | 2 | | | UNITS |
| FINAL FLOW PRESSURE | $P_f$ | 1199.8 | 2429.2 | 1260.3 | 2447.2 | | | psig |
| TOTAL FLOW TIME | t | 29.7 | 121.2 | 29.7 | 121.2 | | | min |
| EXTRAPOLATED PRESSURE | P* | | | | | | | psig |
| ONE CYCLE PRESSURE | | | | | | | | psig |
| PRODUCTION RATE | Q | | | | | | | BPD |
| TRANSMISSIBILITY | $kh/\mu$ | | | | | | | $\frac{md-ft}{cp}$ |
| FLOW CAPACITY | kh | | | | | | | md-ft |
| PERMEABILITY | k | | | | | | | md |
| SKIN FACTOR | S | | | | | | | |
| DAMAGE RATIO | DR | | | | | | | |
| POTENTIAL RATE | $Q_1$ | | | | | | | BPD |
| RADIUS OF INVESTIGATION | $r_i$ | | | | | | | ft |

REMARKS: THE PLOTS INDICATE THE POSSIBLE EXISTENCE OF MULTIPLE ZONES WITHIN THE 140 FEET OF TESTED INTERVAL. DISCUSSION WITH HALLIBURTON FIELD PERSONNEL CONFORMED THIS POSSIBILITY. A QUANTITATIVE ANALYSIS WAS NOT PERFORMED DUE TO THE INTERACTION OF MULTIPLE ZONES.

THE DECLINE IN RECORDED PRESSURES BETWEEN THE INITIAL AND FINAL CLOSED IN PERIODS MAY INDICATE A POSSIBLE LOSS OF RESERVOIR ENERGY FROM ONE OR MORE OF THE SUSPECTED ZONES.

THE PRESSURE CHANGE METHOD FOR CALCULATING A PRODUCTION RATE WAS USED FOR THE FLOW DATA FROM THE TOP CHART. TOTAL PRODUCTION RATES OF 1530 BBLS/DAY FOR THE FIRST FLOW PERIOD AND 705 BBLS/DAY FOR THE FINAL FLOW PERIOD WERE OBTAINED. THE REPORTED SAMPLER DATA INDICATES THAT APPROXIMATELY 80% OF THE TOTAL PRODUCTION IS OIL AND THE REMAINING 20% TO BE SALTWATER.