

329349

AMOCO AUST. Tilana No. 1
Date: 13 Oct 85 Time: 04:38

NB#16; 13 Oct '85: 3155-

HYDRAULICS CALCULATIONS

PLASTIC VISCOSITY 27.00 cP
 YIELD POINT 21.00 lb/cft²
 POWER LAW k .9030
 POWER LAW n .6439
 DEPTH 3155.00 m (10,352')
 VERTICAL DEPTH 3154.60 m
 DEPTH OF RETURNS 3150.00 m
 CUTTINGS BULK DENSITY 2.50 spc grv
 MUD DENSITY 9.30 lb/gal
 ACTIVE SURFACE MUD VOLUME 505 bbl
 FLOW RATE 617 gal/min
 BOOSTER FLOW 0 gal/min
 PUMP PRESSURE 2910 psi
 PUMP gal/stk 4.96 gal/stk
 BIT NOZZLES 14, 14, 14

CALCULATED RESULTS:

| FROM m | TO m | LENGTH m | ANNULUS/PIPE in | ANN VELO. ft/min | CRIT VELO ft/min | FLOW REGIME | PRESS LOSS psi |
|-----------|---------|-------------|--------------------|---------------------|---------------------|----------------|-------------------|
| 0.00 | 104.55 | 104.55 | 18.750/ 5.000 | 46.3 | 243.0 | LAMINAR | .3 |
| 104.55 | 1651.4 | 1546.9 | 12.347/ 5.000 | 118.7 | 330.5 | LAMINAR | 24.8 |
| 1651.4 | 2841.3 | 1189.9 | 12.250/ 5.000 | 120.9 | 332.6 | LAMINAR | 19.8 |
| 2841.0 | 3008.7 | 167.38 | 12.250/ 5.000 | 120.9 | 332.6 | LAMINAR | 2.8 |
| 3008.4 | 3155.0 | 146.35 | 12.250/ 8.000 | 175.7 | 431.6 | LAMINAR | 7.3 |

| Annulus Diam | Pipe | | |
|-----------------|-------|-------|-------|
| | j.d. | o.d. | i.d. |
| 18.750 | 6.375 | 5.000 | 4.276 |
| 12.347 | 6.375 | 5.000 | 4.276 |
| 12.250 | 6.375 | 5.000 | 4.276 |
| 12.250 | 6.375 | 5.000 | 3.000 |
| 12.250 | 8.000 | 8.000 | 2.875 |

MUD HYDROSTATIC 9.29 lb/gal
 FLOW CONTRIBUTION .10 lb/gal
 CUTTINGS CONTRIBUTION .03 lb/gal
 EQUIVALENT CIRCULATING DENSITY 9.42 lb/gal

SURFACE PRESSURE LOSS 45 psi NOZZLE VELOCITY 438.9 ft/sec
 PIPEBORE PRESSURE LOSS 1444 psi HYDRAULIC POWER 575.9 hp
 ANNULAR PRESSURE LOSS 55 psi JET IMPACT FORCE 1303.7 lbs
 BIT PRESSURE LOSS 1600 psi % OF PRESS LOSS AT BIT 51
 TOTAL CALC. PRESS LOSS 3144 psi

| VOLUMES: | gal | bbl | Strokes | Minutes @ 124 s.p.m. |
|---------------------------------|--------|------|---------|----------------------|
| 1) Pipe Capacity | 7317 | 174 | 1475 | 11.9 |
| 2) Pipe Displacement | 4314 | 103 | 870 | 7.0 |
| 3) Total Annulus | 54766 | 1304 | 11042 | 88.8 ← IAG |
| 4) Mud in active pits | 21202 | 505 | 4275 | 34.4 |
| Circulation (1) + (3) | 62083 | 1478 | 12517 | 100.6 |
| Hole Volume (1)+(2)+(3) | 66397 | 1581 | 13387 | 107.6 |
| Total Mud Circulation | 83285 | 1983 | 16791 | 135.0 |
| HOLE OUT OF GAUGE: | | | | |
| CIRCULATION CORRECTION FACTOR = | 1.0280 | | | |
| Corrected Annulus | 56505 | 1345 | 11392 | 91.6 ← IAG |
| Corrected e | 68135 | 1622 | 13737 | 110.4 |

