

MOCO AUST. Tilana No.1
 Date : 23 Sep 85 Time : 04:23

HYDRAULICS CALCULATIONS

PLASTIC VISCOSITY 24.33 cP
 YIELD POINT 21.07 lb/cft²
 POWER LAW k .9127
 POWER LAW n .5237
 DEPTH 7219.9 ft (2200.5 m)
 VERTICAL DEPTH 7219.6 ft
 DEPTH OF RETURNS 7235.4 ft
 CUTTINGS BULK DENSITY 2.67 spc grv
 MUD DENSITY 9.10 lb/gal
 ACTIVE SURFACE MUD VOLUME 454 bbl
 FLOW RATE 610 gal/min
 BOOSTER FLOW 0 gal/min
 PUMP PRESSURE 2327 psi
 PUMP gal/stk 4.96 gal/stk
 BIT NOZZLES 15, 15, 15

CALCULATED RESULTS:

FROM ft	TO ft	LENGTH ft	ANNULUS/PIPE in	ANN VELO. ft/min	CRIT VELO ft/min	FLOW REGIME	PRESS LOSS psi
0.0	343.0	343.0	13.753/ 5.000	45.3	243.5	LAMINAR	.3
343.0	5413.0	5070.0	12.347/ 5.000	117.3	323.6	LAMINAR	23.6
5413.0	6190.6	772.6	12.250/ 5.000	119.6	325.6	LAMINAR	3.7
6190.6	6739.3	549.1	12.250/ 5.000	119.6	325.6	LAMINAR	2.6
6739.3	7219.9	480.1	12.250/ 8.000	173.7	413.6	LAMINAR	6.9

Annulus Diam	Pipe j.i.	Pipe o.d.	Pipe i.d.
13.753	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 9.33 lb/gal
 FLOW CONTRIBUTION .13 lb/gal
 CUTTINGS CONTRIBUTION .04 lb/gal
 EQUIVALENT CIRCULATING DENSITY 9.22 lb/gal

SURFACE PRESSURE LOSS 43 psi NOZZLE VELOCITY 378.0 ft/sec
 PIPEBORE PRESSURE LOSS 1055 psi HYDRAULIC POWER 413.2 hp
 ANNULAR PRESSURE LOSS 37 psi JET IMPACT FORCE 1736.2 lbs
 BIT PRESSURE LOSS 1161 psi % OF PRESS LOSS AT BIT 51
 TOTAL CALC. PRESS LOSS 2296 psi

VOLUMES:	gal	bbl	Strokes	Minutes @ 123 s.p.m.
1) Pipe Capacity	4931	119	1034	8.2
2) Pipe Displacement	3353	80	677	5.5
3) Total Annulus	38999	926	7341	63.8 ← LAG
4) Mud in active pits	19501	464	3932	32.0
Circulation (1) + (3)	43870	1045	8345	71.9
Hole Volume (1)+(2)+(3)	47223	1124	9522	77.4
Total Mud Circulation	63371	1509	12776	103.9
HOLE OUT OF GAUGE:				
CIRCULATION CORRECTION FACTOR =	1.0135			
Corrected Annulus	39699	945	8034	65.1 ← LAG
Corrected Hole	43033	1144	9635	78.7

