

MOCO AUST. Tilana No.1  
 Date : 23 Sep 85 Time : 13:21

329326

CORE #1 5461-5599 ft.

HYDRAULICS CALCULATIONS

PLASTIC VISCOSITY 14.00 cP  
 YIELD POINT 12.00 lb/cft<sup>2</sup>  
 POWER LAW k .5616  
 POWER LAW n .6215  
 DEPTH 5519.0 ft (1682.1m)  
 VERTICAL DEPTH 5519.0 ft  
 DEPTH OF RETURNS 5461.0 ft  
 CUTTINGS BULK DENSITY 2.50 spc grv  
 MUD DENSITY 8.90 lb/gal  
 ACTIVE SURFACE MUD VOLUME 360 bbl  
 FLOW RATE 220 gal/min  
 BOOSTER FLOW 0 gal/min  
 PUMP PRESSURE 400 psi  
 PUMP gal/stk 4.96 gal/stk  
 BIT NOZZLES 19, 19, 19

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	18.750/ 5.000	16.5	169.4	LAMINAR	.1
343.0	4677.5	4334.5	12.347/ 5.000	42.3	227.0	LAMINAR	6.4
4677.0	5136.3	458.8	12.347/ 5.000	42.3	227.0	LAMINAR	.7
5136.0	5418.0	281.7	12.347/ 8.000	61.0	289.5	LAMINAR	1.2
5418.0	5461.0	43.0	12.250/ 8.000	62.7	292.5	LAMINAR	.2
5461.0	5519.0	58.0	8.500/ 8.000	653.6	768.8	LAMINAR	36.4

Annulus Diam	Pipe j.d.	Pipe o.d.	Pipe i.d.
18.750	6.375	5.000	4.276
12.347	6.375	5.000	4.276
12.347	6.375	5.000	3.000
12.347	8.000	8.000	2.875
12.250	8.000	8.000	2.875
8.500	8.000	8.000	2.875

MUD HYDROSTATIC 8.81 lb/gal  
 FLOW CONTRIBUTION .16 lb/gal  
 CUTTINGS CONTRIBUTION .22 lb/gal  
 EQUIVALENT CIRCULATING DENSITY 9.18 lb/gal

SURFACE PRESSURE LOSS 6 psi NOZZLE VELOCITY 88.2 ft/sec  
 PIPEBORE PRESSURE LOSS 134 psi HYDRAULIC POWER 7.9 hp  
 ANNULAR PRESSURE LOSS 45 psi JET IMPACT FORCE 89.4 lbs  
 BIT PRESSURE LOSS 62 psi % OF PRESS LOSS AT BIT 25  
 TOTAL CALC. PRESS LOSS 247 psi

VOLUMES:	gal	bbl	Strokes	Minutes @ 44 s.p.m.
1) Pipe Capacity	3787	90	763	17.2
2) Pipe Displacement	2612	62	527	11.9
3) Total Annulus	30232	720	6095	137.4 ← LAG
4) Mud in active pits	15120	360	3048	68.7
Circulation (1) + (3)	34018	810	6859	154.6
Hole Volume (1)+(2)+(3)	36631	872	7385	166.5
Total Mud Circulation	49138	1170	9907	223.4

