

HYDRAULICS CALCULATIONS

PLASTIC VISCOSITY	8.00 cP
YIELD POINT	32.00 lb/cft <sup>2</sup>
POWER LAW k	7.9053
POWER LAW n	.2630
DEPTH	5203.1 ft (1585.8m).
VERTICAL DEPTH	5203.0 ft
DEPTH OF RETURNS	5149.8 ft
CUTTINGS BULK DENSITY	2.30 spc grv
MUD DENSITY	9.10 lb/gal
ACTIVE SURFACE MUD VOLUME	463 bbl
FLOW RATE	703 gal/min
BOOSTER FLOW	0 gal/min
PUMP PRESSURE	2720 psi
PUMP gal/stk	4.96 gal/stk
BIT NOZZLES	11, 13, 13, 13

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	52.8	436.2	LAMINAR	1.4
343.0	1356.0	1013.0	18.730/ 5.000	52.9	436.3	LAMINAR	4.1
1356.0	4314.1	2958.1	12.250/ 5.000	137.8	483.5	LAMINAR	35.2
4314.0	4830.1	516.0	12.250/ 5.000	137.8	483.5	LAMINAR	6.1
4830.0	5111.1	281.0	12.250/ 8.000	200.2	526.7	LAMINAR	7.2
5111.0	5203.1	92.0	12.250/ 9.500	288.1	563.2	LAMINAR	4.5

Annulus Diam	Pipe		
	j.d.	o.d.	i.d.
18.750	6.370	5.000	4.276
18.730	6.370	5.000	4.276
12.250	6.370	5.000	4.276
12.250	6.375	5.000	3.000
12.250	8.000	8.000	2.875
12.250	9.500	9.500	3.000

MUD HYDROSTATIC	9.01 lb/gal
FLOW CONTRIBUTION	.22 lb/gal
CUTTINGS CONTRIBUTION	.20 lb/gal
EQUIVALENT CIRCULATING DENSITY	9.42 lb/gal

SURFACE PRESSURE LOSS	54 psi	NOZZLE VELOCITY	468.3 ft/sec
PIPEBORE PRESSURE LOSS	518 psi	HYDRAULIC POWER	730.7 hp
ANNULAR PRESSURE LOSS	59 psi	JET IMPACT FORCE	1550.5 lbs
BIT PRESSURE LOSS	1782 psi	% OF PRESS LOSS AT BIT	74
TOTAL CALC. PRESS LOSS	2412 psi		

VOLUMES:	gal	bbl	Strokes	Minutes @ 142 s.p.m.
1) Pipe Capacity	3536	84	713	5.0
2) Pipe Displacement	2614	62	527	3.7
3) Total Annulus	36726	874	7405	52.2 <- LAG
4) Mud in active pits	19450	463	3921	27.7
Circulation (1) + (3)	40263	959	8117	57.3
Hole Volume (1)+(2)+(3)	42876	1021	8644	61.0
Total Mud Circulation	59713	1422	12039	84.9
HOLE OUT OF GAUGE:				
CIRCULATION CORRECTION FACTOR =	1.0392			
Corrected Annulus	38305	912	7723	54.5 <- LAG
Corrected Hole	44454	1058	8963	63.2

