

HYDRAULICS CALCULATIONS

PLASTIC VISCOSITY	16.00	cp
YIELD POINT	13.00	lb/cft ²
POWER LAW k	.3637	
POWER LAW n	.6919	
DEPTH	6735.4	ft (2052.9m)
VERTICAL DEPTH	6735.3	ft
DEPTH OF RETURNS	6725.5	ft
CUTTINGS BULK DENSITY	2.50	spc grv
MUD DENSITY	9.00	lb/gal
ACTIVE SURFACE MUD VOLUME	231	bbbl
FLOW RATE	613	gal/min
BOOSTER FLOW	0	gal/min
PUMP PRESSURE	2300	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	18.750/ 5.000	46.4	138.4	LAMINAR	.1
343.0	5418.0	5075.0	12.347/ 5.000	118.8	194.9	LAMINAR	11.8
5418.0	5736.1	233.1	12.250/ 5.000	121.1	196.3	LAMINAR	.7
5736.0	6255.3	549.1	12.250/ 5.000	121.1	196.3	LAMINAR	1.3
6255.0	6735.4	480.1	12.250/ 8.000	175.0	262.2	LAMINAR	3.6

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
12.250	6.375	5.000	4.276
12.250	6.375	5.000	3.000
12.250	8.000	9.000	2.375

MUD HYDROSTATIC	8.99	lb/gal
FLOW CONTRIBUTION	.05	lb/gal
CUTTINGS CONTRIBUTION	.03	lb/gal
EQUIVALENT CIRCULATING DENSITY	9.07	lb/gal

SURFACE PRESSURE LOSS	43	psi	NOZZLE VELOCITY	392.9	ft/sec
PIPEBORE PRESSURE LOSS	948	psi	HYDRAULIC POWER	424.7	hp
ANNULAR PRESSURE LOSS	13	psi	JET IMPACT FORCE	1102.1	lbs
BIT PRESSURE LOSS	1173	psi	% OF PRESS LOSS AT BIT	54	
TOTAL CALC. PRESS LOSS	2197	psi			

VOLUMES:	gal	bbbl	Strokes	Minutes @ 125 s.p.m.
1) Pipe Capacity	4623	110	931	7.5
2) Pipe Displacement	3210	76	647	5.2
3) Total Annulus	35432	867	7345	59.0 ← LAG
4) Mud in active pits	11802	231	2379	19.1
Circulation (1) + (3)	41052	977	8277	66.4
Hole Volume (1)+(2)+(3)	44262	1054	8924	71.6
Total Mud Circulation	52854	1258	10656	85.5
HOLE OUT OF GAUGE:				
CIRCULATION CORRECTION FACTOR =	1.0250			
Corrected Annulus	37450	892	7552	60.6 ← LAG
Corrected Hole	45289	1078	9131	73.3

