

HYDRAULICS CALCULATIONS

PLASTIC VISCOSITY	17.00	cp
YIELD POINT	7.00	lb/cft ²
POWER LAW k	.2343	
POWER LAW n	.7726	
DEPTH	2429.67	m (7992')
VERTICAL DEPTH	2429.54	m
DEPTH OF RETURNS	2427.72	m
CUTTINGS BULK DENSITY	2.10	spc grv
MUD DENSITY	9.20	lb/gal
ACTIVE SURFACE MUD VOLUME	454	bbbl
FLOW RATE	613	gal/min
BOOSTER FLOW	0	gal/min
PUMP PRESSURE	2393	psi
PUMP gal/stk	4.95	gal/stk
BIT NOZZLES	15, 15, 15	

CALCULATED RESULTS:

FROM	TO	LENGTH	ANNULUS/PIPE	ANN VELO.	CRIT VELO	FLOW	PRESS LOSS
m	m	m	in	ft/min	ft/min	REGIME	psi
0.00	104.55	104.55	18.750/ 5.000	45.3	99.0	LAMINAR	.1
104.55	1651.4	1546.9	12.347/ 5.000	117.3	148.6	LAMINAR	8.6
1651.4	2115.9	464.54	12.250/ 5.000	119.5	149.8	LAMINAR	2.7
2115.9	2233.3	117.4	12.250/ 5.000	119.5	149.8	LAMINAR	1.0
2233.3	2429.7	196.4	12.250/ 3.000	173.7	211.3	LAMINAR	2.9

Annulus	Pipe		
	j.d.	o.d.	i.d.
18.750	6.375	5.000	4.275
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	3.000	2.375

MUD HYDROSTATIC	9.19	lb/gal
FLOW CONTRIBUTION	.04	lb/gal
CUTTINGS CONTRIBUTION	.01	lb/gal
EQUIVALENT CIRCULATING DENSITY	9.24	lb/gal

SURFACE PRESSURE LOSS	43	psi	NOZZLE VELOCITY	378.0	ft/sec
PIPEBORE PRESSURE LOSS	1107	psi	HYDRAULIC POWER	417.8	hp
ANNULAR PRESSURE LOSS	15	psi	JET IMPACT FORCE	1098.1	lbs
BIT PRESSURE LOSS	1174	psi	% OF PRESS LOSS AT BIT	50	
TOTAL CALC. PRESS LOSS	2339	psi			

VOLUMES:	gal	bbbl	Strokes	Minutes @ 123 s.p.m.
1) Pipe Capacity	5542	132	1117	9.1
2) Pipe Displacement	3537	85	723	5.9
3) Total Annulus	42699	1017	8609	70.0 ← LAG
4) Mud in active pits	19072	454	3845	31.3
Circulation (1) + (3)	48241	1149	9726	79.1
Hole Volume (1)+(2)+(3)	51823	1234	10449	85.0
Total Mud Circulation	67314	1603	13571	110.4
HOLE OUT OF GAUGE:				
CIRCULATION CORRECTION FACTOR =	1.0135			
Corrected Annulus	43590	1038	8788	71.5 ← LAG
Corrected Hole	52719	1255	10629	86.4

