

HYDRAULICS CALCULATIONS

PLASTIC VISCOSITY 8.00 cP
 YIELD POINT 32.00 lb/cft²
 POWER LAW k 7.9053
 POWER LAW n .2630
 DEPTH 5451.9 ft (1661.7 m).
 VERTICAL DEPTH 5451.8 ft
 DEPTH OF RETURNS 5442.0 ft
 CUTTINGS BULK DENSITY 2.30 spc grv
 MUD DENSITY 9.10 lb/gal
 ACTIVE SURFACE MUD VOLUME 495 bbl
 FLOW RATE 697 gal/min
 BOOSTER FLOW 0 gal/min
 PUMP PRESSURE 2660 psi
 PUMP gal/stk 4.96 gal/stk
 BIT NOZZLES 11, 13, 13, 13

CALCULATED RESULTS:

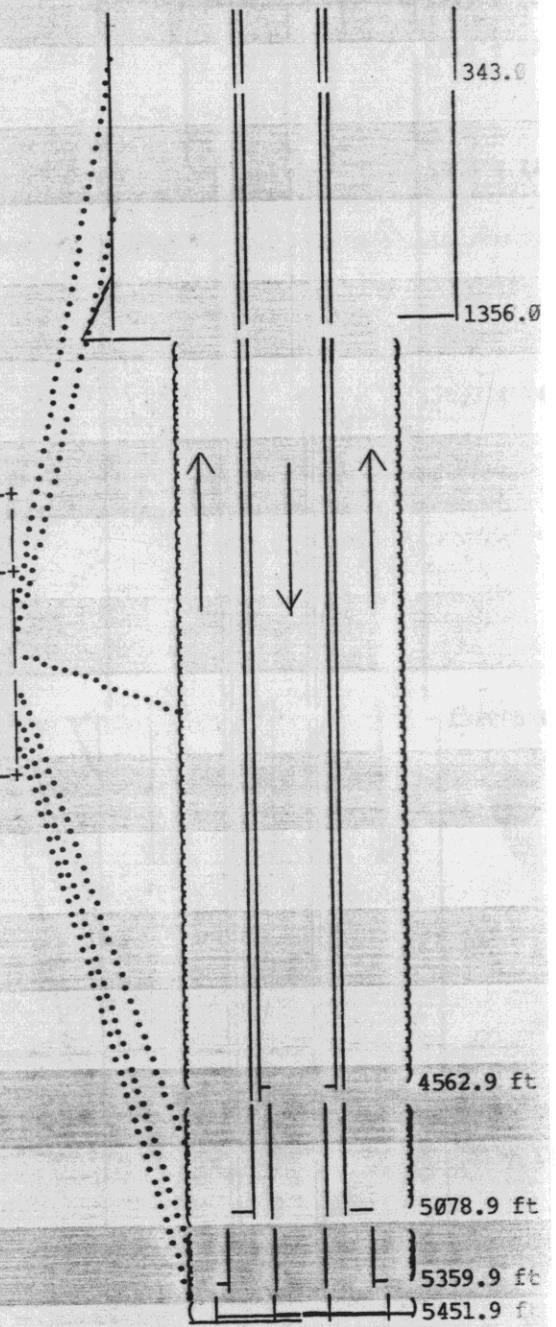
FROM ft	TO ft	LENGTH ft	ANNULUS/PIPE in	ANN VELO. ft/min	CRIT VELO ft/min	FLOW REGIME	PRESS LOSS psi
0.0	343.0	343.0	18.750/ 5.000	52.3	436.2	LAMINAR	1.4
343.0	1356.0	1013.0	18.730/ 5.000	52.4	436.3	LAMINAR	4.1
1356.0	4562.9	3206.9	12.250/ 5.000	136.6	483.5	LAMINAR	38.1
4562.0	5078.9	516.0	12.250/ 5.000	136.6	483.5	LAMINAR	6.1
5078.0	5359.9	281.0	12.250/ 8.000	198.5	526.7	LAMINAR	7.2
5359.0	5451.9	92.0	12.250/ 9.500	285.7	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 9.08 lb/gal
 FLOW CONTRIBUTION .22 lb/gal
 CUTTINGS CONTRIBUTION .03 lb/gal
 EQUIVALENT CIRCULATING DENSITY 9.34 lb/gal

SURFACE PRESSURE LOSS 53 psi NOZZLE VELOCITY 464.4 ft/sec
 PIPEBORE PRESSURE LOSS 528 psi HYDRAULIC POWER 712.7 hp
 ANNULAR PRESSURE LOSS 61 psi JET IMPACT FORCE 1524.9 lbs
 BIT PRESSURE LOSS 1752 psi % OF PRESS LOSS AT BIT 73
 TOTAL CALC. PRESS LOSS 2394 psi

VOLUMES:	gal	bbl	Strokes	Minutes @ 141 s.p.m.
1) Pipe Capacity	3722	89	750	5.3
2) Pipe Displacement	2690	64	542	3.9
3) Total Annulus	37988	904	7659	54.5 ← LAG
4) Mud in active pits	20790	495	4192	29.8
Circulation (1) + (3)	41710	993	8409	59.8
Hole Volume (1)+(2)+(3)	44399	1057	8951	63.7
Total Mud Circulation	62500	1488	12601	89.6
HOLE OUT OF GAUGE:				
CIRCULATION CORRECTION FACTOR =	1.0392			
Corrected Annulus	39623	943	7989	56.8 ← LAG
Corrected Hole	46034	1096	9281	66.0



5 cm