

329361

HYDRAULICS CALCULATIONS

PLASTIC VISCOSITY	26.00 cP
YIELD POINT	23.00 lb/cft <sup>2</sup>
POWER LAW k	1.1077
POWER LAW n	.6141
DEPTH	3746.60 m (12,293')
VERTICAL DEPTH	3746.18 m
DEPTH OF RETURNS	3741.00 m
CUTTINGS BULK DENSITY	2.50 spc grv
MUD DENSITY	9.90 lb/gal
ACTIVE SURFACE MUD VOLUME	350 bbl
FLOW RATE	220 gal/min
BOOSTER FLOW	0 gal/min
PUMP PRESSURE	420 psi
PUMP gal/stk	4.96 gal/stk
BIT NOZZLES	21, 21, 21

CALCULATED RESULTS:

FROM m	TO m	LENGTH m	ANNULUS/PIPE in	ANN VELO. ft/min	CRIT VELO ft/min	FLOW REGIME	PRESS LOSS psi
0.00	104.55	104.55	18.750/ 5.000	16.5	252.6	LAMINAR	.2
104.55	1651.4	1546.9	12.347/ 5.000	42.3	336.7	LAMINAR	14.6
1651.4	3432.9	1781.5	12.250/ 5.000	43.1	338.8	LAMINAR	17.4
3432.7	3600.3	167.38	12.250/ 5.000	43.1	338.8	LAMINAR	1.6
3600.0	3746.6	146.35	12.250/ 8.000	62.7	432.1	LAMINAR	4.2

Annulus Diam	Pipe		
	j.d.	o.d.	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	8.000	2.875

MUD HYDROSTATIC	9.89 lb/gal
FLOW CONTRIBUTION	.06 lb/gal
CUTTINGS CONTRIBUTION	.03 lb/gal
EQUIVALENT CIRCULATING DENSITY	9.98 lb/gal

SURFACE PRESSURE LOSS	7 psi	NOZZLE VELOCITY	69.6 ft/sec
PIPEBORE PRESSURE LOSS	294 psi	HYDRAULIC POWER	5.5 hp
ANNULAR PRESSURE LOSS	38 psi	JET IMPACT FORCE	78.4 lbs
BIT PRESSURE LOSS	43 psi	% OF PRESS LOSS AT BIT	11
TOTAL CALC. PRESS LOSS	381 psi		

VOLUMES:	gal	bbl	Strokes	Minutes @ 44 s.p.m.
1) Pipe Capacity	8765	209	1767	39.8
2) Pipe Displacement	4906	117	989	22.3
3) Total Annulus	64609	1538	13026	293.7 ← LAG
4) Mud in active pits	14683	350	2960	66.7
Circulation (1) + (3)	73373	1747	14793	333.5
Hole Volume (1)+(2)+(3)	78280	1864	15782	355.8
Total Mud Circulation	88057	2097	17753	400.3
HOLE OUT OF GAUGE:				
CIRCULATION CORRECTION FACTOR =	1.0631			
Corrected Annulus	69240	1649	13960	314.7 ← LAG
Corrected Hole	82911	1974	16716	376.9

