

HYDRAULICS CALCULATIONS

PLASTIC VISCOSITY 23.93 sp
 FIELD POINT 21.71 lb/100ft²
 POWER LAW n 1.1232
 POWER LAW k .5215
 DEPTH 3704.57 m (12,155')
 VERTICAL DEPTH 3704.16 m
 DEPTH OF RETURNS 3509.54 m
 CUTTINGS BULK DENSITY 2.57 sp grv
 MUD DENSITY 9.35 lb/gal
 ACTIVE SURFACE (M) VOLUME 331 bbl
 FLOW RATE 561 gal/min
 BOOSTER FLOW 0 gal/min
 PUMP PRESSURE 3123 psi
 PUMP gal/sec 4.95 gal/sec
 BIT SPEEDS 14, 14, 11

CALCULATED RESULTS:

PROF	ID	LE	ANNULUS/PIPE	ANN VELD.	CRIT VELO	FLOW	PRESS LOSS
m	m	m	in	ft/min	ft/min	REGIM	psi
4.35	194.55	194.55	18.759/ 5.000	45.1	253.3	LAMINAR	.4
194.55	1651.4	1545.9	12.347/ 5.000	115.6	349.3	LAMINAR	23.2
1651.4	3393.8	1739.4	12.259/ 5.000	117.8	354.5	LAMINAR	32.8
3393.8	3558.2	157.38	12.259/ 5.000	117.8	354.5	LAMINAR	3.2
3557.9	3704.5	146.35	12.259/ 5.000	171.1	448.9	LAMINAR	3.1

MUD HYDROSTATIC 9.35 lb/gal
 FLOW CONTRIBUTION .12 lb/gal
 CUTTINGS CONTRIBUTION .03 lb/gal
 EQUIVALENT CIRCULATING DENSITY 9.99 lb/gal

SURFACE PRESSURE LOSS 45 psi NOZZLE VELOCITY 427.5 ft/sec
 PIPEBORE PRESSURE LOSS 1623 psi HYDRAULIC POWER 564.0 hp
 ANNULAR PRESSURE LOSS 73 psi JET IMPACT FORCE 1311.1 lbs
 BIT PRESSURE LOSS 1559 psi % OF PRESS LOSS AT BIT 43
 TOTAL CALC. PRESS LOSS 3345 psi

VOLUMES:	gal	bbl	Strokes	minutes @ 121 s.p.m.
1) Pipe Capacity	3562	236	1745	14.4
2) Pipe Displacement	4354	116	931	9.1
3) Total Annulus	53909	1522	12335	135.4 ← LAG
4) Mri in active pits	15981	331	3222	25.6
Circulation (1) + (3)	72571	1723	14631	123.9
Hole Volume (1)+(2)+(3)	77436	1844	15512	123.9
Total Mri Circulation	93552	2133	17353	147.4
HOLE OUT OF GAUGE:				
CIRCULATION CORRECTION FACTOR =	1.1531			
Corrected Annulus	68490	1631	13333	114.5 ← LAG
Corrected Hole	32016	1953	15336	136.5

Annulus	Pipe		
Diap	j.d.	o.d.	i.d.
18.759	6.375	5.000	4.275
12.347	6.375	5.000	4.275
12.259	6.375	5.000	4.275
12.259	6.375	5.000	3.000
12.259	8.000	8.000	2.375

