

EXLOG

DATE: AUG 2 Oct 85 Time: 34:43

329337

HYDRAULICS CALCULATIONS

PLASTIC VISCOSITY 22.00 cP
 YIELD POINT 12.00 lb/cft²
 POWER LAW k .4300
 POWER LAW n .7199
 DEPTH 2567.33 m (8400')
 VERTICAL DEPTH 2567.16 m
 DEPTH OF RETURN 2555.23 m
 CUTTINGS BULK DENSITY 2.50 spc grv
 MUD DENSITY 9.60 lb/gal
 ACTIVE SURFACE MUD VOLUME 445 bbl
 FLOW RATE 490 gal/min
 BOOSTER FLOW 0 gal/min
 PUMP PRESSURE 2900 psi
 PUMP gal/stk 4.96 gal/stk
 BIT NOZZLES 14, 14, 5

CALCULATED RESULTS:

Assume one blocked nozzle.

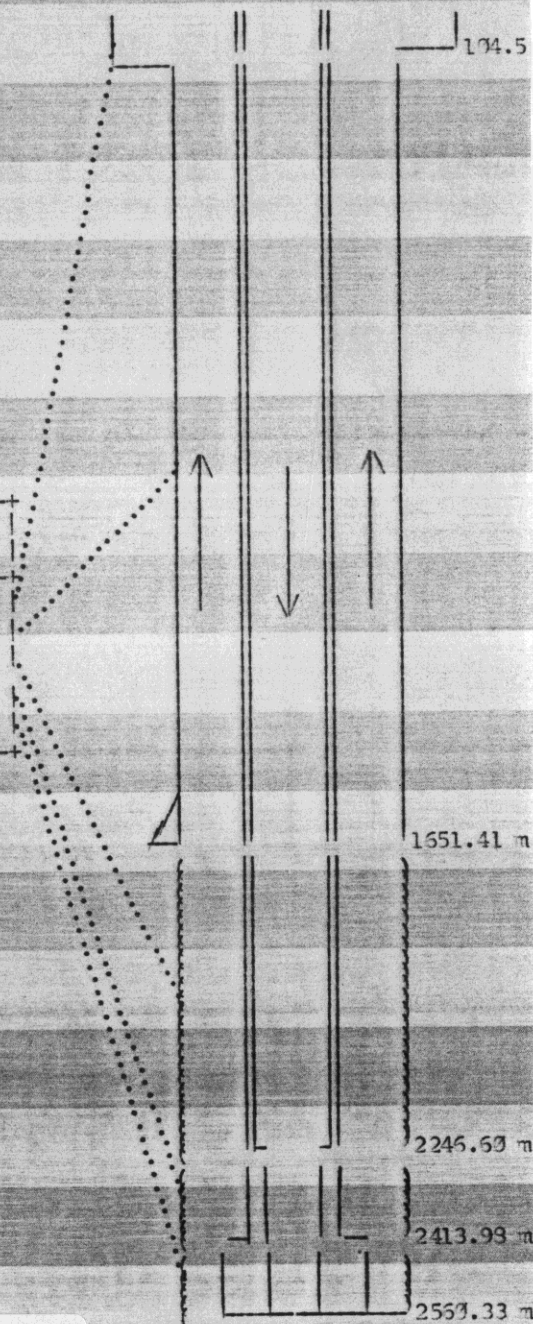
FROM	TO	LENGTH	ANNULUS/PIPE	ANN VELO.	CRIT VELO	FLOW	PRESS LOSS
m	m	m	in	ft/min	ft/min	REGIME	psi
0.00	134.55	134.55	13.750/ 5.000	35.3	149.3	LAMINAR	.1
134.55	1651.4	1516.9	12.347/ 5.000	94.2	214.7	LAMINAR	12.1
1651.4	2246.6	595.19	12.253/ 5.000	96.0	216.4	LAMINAR	4.3
2246.6	2414.0	167.33	12.253/ 5.000	96.0	216.4	LAMINAR	1.4
2413.7	2567.3	145.35	12.253/ 3.750	139.5	234.3	LAMINAR	3.3

Annulus	Pipe		
Diam	j.d.	o.d.	i.d.
13.750	6.375	5.000	4.276
12.347	6.375	5.000	4.276
12.253	6.375	5.000	4.276
12.253	6.375	5.000	3.333
12.253	3.000	3.000	2.375

MUD HYDROSTATIC 9.60 lb/gal
 FLOW CONTRIBUTION .05 lb/gal
 CUTTINGS CONTRIBUTION .33 lb/gal
 EQUIVALENT CIRCULATING DENSITY 9.67 lb/gal

SURFACE PRESSURE LOSS 30 psi NOZZLE VELOCITY 491.5 ft/sec
 PIPEBORE PRESSURE LOSS 359 psi HYDRAULIC POWER 592.0 hp
 ANNULAR PRESSURE LOSS 22 psi JET IMPACT FORCE 1196.3 lbs
 BIT PRESSURE LOSS 2371 psi % OF PRESS LOSS AT BIT 69
 TOTAL CALC. PRESS LOSS 2933 psi

VOLUMES:	gal	bbl	Strokes	Minutes @ 99 s.p.m.
1) Pipe Capacity	5362	140	1132	12.0
2) Pipe Displacement	3713	39	750	7.6
3) Total Annulus	44373	1068	9047	91.6 <- LAG
4) Mud in active pits	13728	446	3776	38.2
Circulation (1) + (3)	53735	1238	10229	103.5
Hole Volume (1)+(2)+(3)	54453	1296	10973	111.1
Total Mud Circulation	69463	1654	14335	141.3
HOLE OUT OF GAUGE:				
CIRCULATION CORRECTION FACTOR =	1.0135			
Corrected Annulus	45310	1091	9236	93.5 <- LAG
Corrected Hole	55399	1319	11167	113.0



5 cm