

329346

AMOCO AUST. Tilana No.1  
Date : 10 Oct 85 Time : 00:53

NB#15 : 3066m T.D. 10 Oct '85

HYDRAULICS CALCULATIONS

PLASTIC VISCOSITY 24.00 cP  
YIELD POINT 17.00 lb/cft<sup>2</sup>  
POWER LAW k .6777  
POWER LAW n .6648  
DEPTH 3066.00 m (10,060)  
VERTICAL DEPTH 3065.60 m  
DEPTH OF RETURNS 3065.00 m  
CUTTINGS BULK DENSITY 2.50 spc grv  
MUD DENSITY 9.30 lb/gal  
ACTIVE SURFACE MUD VOLUME 430 bbl  
FLOW RATE 612 gal/min  
BOOSTER FLOW 0 gal/min  
PUMP PRESSURE 2880 psi  
PUMP gal/stk 4.96 gal/stk  
BIT NOZZLES 14, 14, 14

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	45.9	205.2	LAMINAR	.2
104.55	1651.4	1546.9	12.347/ 5.000	117.7	283.3	LAMINAR	19.9
1651.4	2752.3	1100.9	12.250/ 5.000	119.9	285.2	LAMINAR	14.7
2752.0	2919.7	167.38	12.250/ 5.000	119.9	285.2	LAMINAR	2.2
2919.4	3066.0	146.35	12.250/ 8.000	174.3	374.7	LAMINAR	6.0

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 9.30 lb/gal  
FLOW CONTRIBUTION .08 lb/gal  
CUTTINGS CONTRIBUTION .01 lb/gal  
EQUIVALENT CIRCULATING DENSITY 9.39 lb/gal

SURFACE PRESSURE LOSS 44 psi NOZZLE VELOCITY 435.4 ft/sec  
PIPEBORE PRESSURE LOSS 1366 psi HYDRAULIC POWER 562.0 hp  
ANNULAR PRESSURE LOSS 43 psi JET IMPACT FORCE 1282.6 lbs  
BIT PRESSURE LOSS 1574 psi % OF PRESS LOSS AT BIT 52  
TOTAL CALC. PRESS LOSS 3027 psi

VOLUMES:	gal	bbl	Strokes	Minutes @ 123 s.p.m.
1) Pipe Capacity	7099	169	1431	11.6
2) Pipe Displacement	4224	101	852	6.9
3) Total Annulus	53286	1269	10743	87.1 ← LAG
4) Mud in active pits	18060	430	3641	29.5
Circulation (1) + (3)	60385	1438	12174	98.7
Hole Volume (1)+(2)+(3)	64609	1538	13026	105.6
Total Mud Circulation	78445	1868	15816	128.2
HOLE OUT OF GAUGE:				
CIRCULATION CORRECTION FACTOR =	1.0280			
Corrected Annulus	54976	1309	11084	89.8 ← LAG
Corrected Hole	66300	1579	13367	108.3

