

RFT RESULTS

31/4-6

RUN 1					RUN 1						
DEPTH M.(KB)	PHI	PF	PHA	PERM.	DEPTH M.(KB)	PHI	PF	PHA	PERM.		
1/1	2138.5	4005	0	4006	TIGHT	20/1	2351.0	4400	0	4397	TIGHT
2/1	2145.5	4018	0	4018	TIGHT	21/1	2350.0	4398	3392	4398	VERY GOOD
3/1	2149.5	4024	0	4026	TIGHT	22/1	2358.0	4413	3403	4414	EXCELLENT
4/1	2153.5	4030	0	4033	TIGHT	23/1	2364.0	4423	3412	4425	EXCELLENT
5/1	2157.5	4038	3121	4040	LOW	24/1	2372.5	4439	3423	4440	VERY GOOD
6/1	2160.0	4043	3120	4045	VERY GOOD	25/1	2377.0	4447	3430	4448	EXCELLENT
7/1	2161.5	4046	3121	4047	VERY GOOD	SAMPLING RUN 1.					
8/1	2163.0	4052	3126	4054	GOOD	26/1	2160.0	4043	3123	0	PLUGGED
9/1	2165.2	4056	3128	4058	VERY GOOD	27/1	2160.5	4044	3126	4043	SAMPLE
10/1	2166.5	4059	3129	4060	VERY GOOD	Took segregated sample at 2160.5 m. Recovered 200.8 cu ft of gas, 8 litres of 36.7° API oil and 14 litres of water/filtrate.					
11/1	2168.0	4060	3130	4062	VERY GOOD	SAMPLING RUN 2					
12/1	2169.5	4063	3132	4063	LOW	1/2	2166.5	4059	3129	4056	SAMPLE
13/1	2171.5	4065	3133	4066	GOOD	Took segregated sample at 2166.5 m. Recovered 210 cu ft at gas, 9 litres of 35.6° API oil, and 11 litres of water/filtrate.					
14/1	2173.0	4068	3137	4070	LOW						
15/1	2175.0	4073	3143	4074	LOW						
16/1	2183.0	4088	3168	4088	LOW						
17/1	2190.0	4101	3168	4102	POOR						
18/1	2194.0	4109	3176	4110	POOR						
19/1	2220.5	4162	3204	4156	GOOD						

DST RESULTS

DST No. 1

Perforated interval: 2159.5 - 2163.5 m and 2165.0 - 2168.0 m.

Oil rate: 2841 STB/D

Oil gravity: 34.4° API

Gas rate: 1352 MSCF/D

Gas gravity: 0.727

G.O.R.: 476 SCF/STB.

Choke: 36/64"

WHP: 864 psig

WHT: 110° F

B.S. + W.: Tr

Co₂: Tr



DRILLING MUD RECAP

Contractor Golar Nor OPERATOR Norsk Hydro LEGAL DESCRIPTION _____
 Rig No. Nortrym Well Name 31/4-6 Field _____ COUNTRY Norway
 Promud a/s Warehouse TANANGER Spud Date 28/2 No. Drilling Days To T.D. _____ DATE T.D. REACHED _____ TOTAL DEPTH _____ TOTAL COST \$ _____

DATE (18 82)	TIME	DEPTH meters	WT (ppg)	PV API	PV cp	YIELD POINT (lb/100ft ²)	GELS (lb/100ft ²) 0/10	pH	FILTRATE (ml/30 min)			Cake (3rd in)	Alkalinity		Chloride (ppm)	Calcium (ppm)	Sand (% by Vol.)	Solids (% by Vol.)	Oil (% by Vol.)	Water (% by Vol.)	Methy. (Bus. /m ³ mud)	Circ. Volume (bbl)	REMARKS
									API	HT-HP	DF		P _m	P _i / M _i									
28/2	2400	187	1.04	91		23	14/31	8.8	N/C					800	240								
1/3	2400					NO MUD CHECK																	
						END OF 30" HOLE SECTION									2800	90	TR	4	0	96			
2/3	2400	243	1.04	146	15	69	45/52	10.8	N/C														
3/3	2400	880	1.11	32	2	6	2/5	7.6	N/C					18200	2400	.25	6	0	94				
4/3	2400	400	1.07	37	2	3	2/2	8.0	N/C					20000	1960	.25	4	0	96				
5/3	2400	790	1.12	35	5	9	9/13	7.5	N/C					19000	2200	TR	5	0	95				
6/3	2400	790	1.12	35	5	9	9/13	7.5	N/C					19000	2200	TR	5	0	95				
7/3	2400	790	1.10	34	4	7	8/9	7.5	N/C					19000	1600	TR	5	0	95				
8/3	2400	927	1.11	38	5	16	12/18	7.5	N/C					18000	1400	.25	5	0	95				
9/3	2400	927	1.10	38	5	16	13/18	7.5	N/C							.25	5	0	95				End of 26" hole.
10/3	2400	927	1.03	42	11	3	1/2	10.5	12.0		2	1.4	15/12	22000	600	0	TR	0	99				
11/3	2400	927																					Mixing SST mud.
12/3	2300	927	1.03	41	9	2	2/2	10.8	14.0		2	1.8	7/17	19000	400	0	TR	0	99				
13/3	2400	1238	1.10	42	8	2	5/8	10.8	14		2	.75	25/9	19000	360	1/4	4	0	96				1874
14/3	2200	1510	1.25	50	20	12	2/11	10.5	9.8		2	.7	16/15	19000	240	1/4	9	0	91	4.0			2288
15/3	2200	1716	1.35	56	20	21	7/27	10.7	10.0		2	.9	8/21	19000	320	1/4	12	0	88	8			2286
16/3	0600	1765	1.24	63	21	23	11/30	11	8.8		2	1.0	5/24	19000	320	1/4	12	0	88	8			2408
17/3	1500	1865	1.25	81	30	37	21/56	11	9.2		2	1	95/23	19000	290	1	12	0	87	8.5			2561
18/3	2230	1865	1.24	107	31	42	19/47	10.7	9.1		2	1.1	8/20	19000	290	1	12	0	87	8.6			2451
19/3	2200	1865	1.25	110	32	40	17/49	10.8	9.1		2	1.1	8/20	19000	290	1	12	0	87	8.5			2451
20/3	2100	1844	1.32	70	26	31	7/21	10.3	11		2	.9	45/13	19000	480	1	12	0	87	9			1450
21/3	2100	1844	1.32	70	25	32	8/25	10.3	10.3		1	1	45/13	19000	360	1	9	0	90	8.5			1480
22/3	1400	1872	1.31	77	21	29	7/22	10.4	9.7		2	1	4/25	19000	300	1	9	0	90	8			1465
23/3	2400	2068	1.27	64	25	26	10/31	10.3	7.7		1	1.3	5/17	18600	230	1	9	0	90	9.5			1580
24/3	2300	2109	1.26	59	24	28	10/29	10.2	7.5		1	1.1	5/15	19000	210	TR	9	0	91	9.5			1583
25/3	2400	2132	1.25	58	24	27	9/28	10.1	7.6		1	1	5/16	19000	210	TR	9	0	91	9.5			1587
26/3	2300	2132	1.26	63	24	36	10/30	10.0	8.9		1	1	55/14	19000	330	TR	9	0	91	9.5			1587

Promud a/s _____ Date _____
 Technical Representative _____ District _____ Region _____ PAGE _____ OF _____

PROMUD LOGS



DRILLING MUD RECAP

Contractor Golar Nor OPERATOR NORSK HYDRO LEGAL DESCRIPTION _____
 Rig No. NORTRYM Well Name And No. 31/4-6 Field _____ COUNTRY NORWAY
 Promud a/s Warehouse Tanager Spud Date 28/2-82 No. Drilling Days To T.D. _____ DATE T.D. REACHED _____ TOTAL DEPTH _____ TOTAL COST \$ _____

DATE	TIME	DEPTH meters	WT (ppb)	FV API	PV CP @	YIELD POINT (lb/100ft ²)	GELS (lb/100ft ²) 0/10	PH	FILTRATE (ml/30 min)			Coke (32nd in)	ALKALINITY		Chloride (ppm)	Calcium (ppm)	Sand (% by Vol.)	Solids (% by Vol.)	Oil (% by Vol.)	Water (% by Vol.)	Methy. Bios (mg/ml mud)	Circ. Volume (bbl)	REMARKS
									API	HT-HP	OP		P _m	P _i / M _i									
27/3	2400	2148	1.27	56	25	20	4/23	9.8	8		1	.89	.4/1.2	18500	350	.35	10	TR	90	12.5	1648		
28/3	2400	2159	1.28	57	27	19	4/21	10.1	7.8		1	1.21	.6/1.6	18500	350	.50	10.5	TR	89.5	12.5	1622		
29/3	2400	2177	1.28	54	24	17	3/14	10.6	7.6		1	1.47	.8/2.0	19000	320	.35	10	TR	90	10	1655		
30/3	2400	2213	1.29	56	24	16	3/13	10.5	7.4		1	1.32	.8/2.0	19000	330	.25	11	0	89	15	1816		
31/3	2400	2213	1.29	57	25	15	4/14	10.7	7.8		1	1.51	.9/2.1	18500	340	.50	10.5	TR	89.5	12.5	1816		
1/4	2400	2321	1.29	54	21	16	4/18	10.5	7.4		1	1.23	.7/2.1	17500	350	.25	10	0	90	12.5	1870		
2/4	2400	2396	1.30	55	23	14	5/22	10.4	7.2		1	1.08	.7/1.8	16500	340	.15	11.5	TR	88.5	20	1897		
3/4	2400	2447	1.31	54	24	15	5/19	10.7	7.0		1	1.37	.8/2.1	16000	350	.15	12	TR	88	32.5	1872		
4/4	2400	2447	1.30	57	24	19	5/22	10.7	7.2		1	1.34	.8/2.1	16000	340	.15	11.5	TR	88.5	32.5	1852		
5/4	2400	2447	1.30	73	29	24	5/26	10.5	7.8		2	1.21	.6/1.9	15500	340	.25	12	TR	88	37.5	1852		
6/4	2400	2447	1.31	61	27	18	5/22	10.5	8.2		2	1.18	.6/1.9	16000	350	.35	11.5	TR	88.5	37.5	1852		
7/4	2400	2406	1.31	71	28	25	5/20	10.3	8.4		2	1.07	.6/1.7	15500	360	.25	12.5	TR	87.5	40	1252		
8/4	2400	2406	1.31	76	30	29	5/21	10.3	8.8		2	1.04	.5/1.7	14500	350	.25	12	TR	88	40	1282		
9/4	2400	2406	1.31	80	31	25	5/20	10.2	9.0		2	1.0	.5/1.7	14500	360	TR	12	TR	88	40	1091		
10/4	2400	2447	1.28	65	24	22	7/28	10.5	8.5		1	1.0	.5/1.8	12000	360	TR	12	TR	88	33	1100		
11/4	2400	2447	1.28	70	29	22	5/25	10.5	8.3		1	1.0	.5/1.8	12000	360	TR	12	TR	88	33	1100		
12/4	2400	2447	1.28	65	27	21	5/25	10.2	7.5		1	0.9	.4/1.7	12000	200	TR	12	TR	88	33	1100		
13/4	2400	2447	1.28	70	29	22	5/25	10.4	7.5		1	1.0	.5/1.7	12000	200	TR	12	TR	88	33	1110		
14/4	2400	2447	1.28	70	30	20	5/25	10.4	7.6		1	1.0	.5/1.7	12000	200	TR	12	TR	88	33	1075		
15/4	2400	2447	1.28	70	30	20	5/25	10.4	7.6		1	1.0	.5/1.7	12000	200	TR	12	TR	88	33	1075		
16/4	2400	2447	1.28	70	29	20	7/30	10.5	7.6		1	1.3	.6/2.2	12000	120	TR	12	TR	88	30	1200		
17/4	2400	2447	1.28	65	28	19	6/27	10.5	7.6		1	1.3	.6/2.2	12000	120	TR	12	TR	88	30	1140		
18/4	---																						

Date _____ Promud a/s Technical Representative _____ District _____ Region _____ PAGE _____ OF _____

MUD REPORT

36" Hole Section

The 36" hole was drilled down to 243 m using seawater/high viscouse pills with return to seabed. The casing was run and cemented without any problems.

26" Hole Section

17 1/2" pilot hole was drilled down to 920 m using spud mud. High viscous mud was spotted on each 3rd connection. Some problems appeared with sand plugging the shaker screens. Before the logs were run, a total of 600 bbls high viscous mud was spotted. The hole was then underreamed to 26". However, after underreaming the 26" hole, the riser was pulled and a 26" bit was run in the hole to TD. A 150 bbls high viscous pill was spotted together with 600 bbls mud before the 20" casing was run and cemented.

17 1/2" Hole Section

This section was drilled using the non-dispersed Shale Trol system. Mud from the previous section was diluted and converted to a Shale Trol system.

Down to 1400 m the mud weight was increased to 1,25 to combat sloughing shales in the top part of the section. At approx. 1500 m the flowline and bell nipple became completely plugged with gumbo. The ROP had to be controlled around 1550 m because of bad hole cleaning.

Down to 1750 m the bell nipple was plugged again three times with gumbo. At 1740 m the mudweight was raised to 1,35 because of heavy gumbo accumulation.

Overpull was noticed at 1527 m and 952 m when POOH.

The hole was drilled to 1865 m and logged. The first log stood up at 927 m. Hence, the log was pulled out and a bit wiper trip to TD was performed. The hole was circulated clean before POOH. The rest of the logging could then be successfully completed before the casing was run and cemented without problems.

12 1/4" Hole Section

The mud system was then converted to a fully dispersed mud system by adding Unical and Ligcon. The 12 1/4" hole was drilled to 2132 m where cores were cut down to 2214 m and intermediate logs were run without any problems.

The hole was then drilled to 2447 m. After final logging, casing was successfully run and cemented.