



Title: FINAL WELL REPORT
WELL 30/6-27
PL 053

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7.4 Formation testing

The Schlumberger MDT wireline tool was used for formation pressure testing (run 1A and 1B) and fluid sampling (only run 1B). Pressure data was taken at several depths over the complete reservoir interval collecting data from both the hydrocarbon and the water zone. In all pressure pretests from run 1A and 1B are listed and remarks are included about the quality or type of test. A wireline MDT-GR correlation pass was used as depth reference for the MDT pressure and fluid sampling. The pressure pretests were performed with the standard probe. Both quartz gauge and strain gauge data was collected. The large diameter probe was used for fluid sampling. Sampling was performed at 3352.5m (oil), 3202.5m (water), 3179.5m (oil showing on OFA), 3162.5 (oil), 3150.5m (oil), and 3129m MD RKB (gas). The pressure data is shown in and . The interpretation is discussed in the next section. Fluid sampling results are extensively discussed in the; "Formation Evaluation Report. 30/6-27" by Norsk Hydro.

Run 1A / 1B*	Depth (m MD RKB)	Depth (m TVDSS)	Drawdown mobility (mD/cp)	Initial mud Pressure CQG (bar)	Final mud Pressure CQG (bar)	Formation Pressure CQG (bar)	Test type/ Remarks
1	3126.50	3048.71					Lost seal
2	3126.50	3048.71	174	408.11	408.18	377.76	Drawdown
3	3129.00	3051.20	1244	408.42	408.49	377.81	Drawdown
4	3133.00	3055.19	1605	408.90	408.99	377.90	Drawdown
5	3136.00	3058.19	226	409.33	409.37	377.96	Drawdown
6	3141.00	3063.18	264	409.95		378.08	Drawdown
7	3142.50	3064.68	62	410.13	410.19	378.11	Drawdown
8	3144.00	3066.17	1420	410.26	410.37	378.14	Drawdown
9	3148.50	3070.66	15	410.77	410.89	378.36	Drawdown
10	3150.50	3072.66		411.04			Lost seal
11	3150.50	3072.66	35	411.07	411.08	378.48	Drawdown
12	3151.50	3073.66	1	411.11	411.21	378.54	Tight
13*	3159.50	3081.64	2.3	412.71	412.70	379.79	Drawdown
14	3160.00	3082.14	128	412.25	412.29	379.77	Drawdown
15*	3160.30	3082.44		412.06			Tight
16	3161.50	3083.64	274	412.42	412.49	379.81	Drawdown
17*	3162.50	3084.64	674	412.95	412.91	379.82	Drawdown
18	3163.50	3085.64	84	412.63	412.73	379.91	Drawdown
19	3169.50	3091.63	19	413.36	413.51	380.50	Drawdown
20	3179.50	3101.61	84	414.72	414.79	381.67	Drawdown
21	3185.50	3107.60	3.1	415.56	415.59	383.30	Drawdown



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Run 1A / 1B*	Depth (m MD RKB)	Depth (m TVDSS)	Drawdown mobility (mD/cp)	Initial mud Pressure CQG (bar)	Final mud Pressure CQG (bar)	Formation Pressure CQG (bar)	Test type/ Remarks
22	3202.50	3124.57	65	417.69	417.76	384.33	Drawdown
23*	3205.50	3127.56		420.20			Tight
24	3208.00	3130.06	24	418.40	418.45	384.86	Drawdown
25	3211.00	3133.06		418.68			Lost seal
26	3211.00	3133.06	7.1	418.71	418.77	385.28	Drawdown
27	3225.50	3147.53	19	420.51	420.57	386.95	Drawdown
28	3232.00	3154.02	24	421.38	421.41	389.20	Drawdown
29	3244.50	3166.50	0.8	422.95	423.01	391.48	Tight
30	3248.50	3170.50	39	423.50	423.51	391.85	Drawdown
31	3251.00	3172.99	17	425.27	423.83	392.10	Drawdown
32	3258.50	3180.48	107	425.91	424.79	392.83	Drawdown
33	3268.00	3189.97	39	426.06	426.01	393.75	Drawdown
34	3272.00	3193.97	37	426.34	426.45	394.10	Drawdown
35	3299.50	3221.43	63	430.00	430.02	401.70	Drawdown
36	3304.00	3225.93	66	430.50	430.58	401.80	Drawdown
37	3307.00	3228.92	60	431.00	431.33	402.11	Drawdown
38	3315.00	3236.92	73	432.04	432.03	402.90	Drawdown
39	3351.50	3273.38	38	436.79	436.83	404.10	Drawdown
40	3352.50	3274.38					Low draw.
41	3352.50	3274.38	204	436.88	436.92	404.16	Drawdown
42	3354.00	3275.88	10	437.00	437.05	404.25	Drawdown
43	3355.00	3276.88	82	437.09	437.13	404.31	Drawdown
44	3360.50	3282.37		438.30			Tight
45	3362.00	3283.88	25	437.97	437.88	405.45	Drawdown
46	3364.00	3285.87	8.6	438.17	438.23	405.64	Drawdown
47	3368.00	3289.87	24	438.71	438.74	406.98	Drawdown
48	3371.00	3292.87	3.1	438.08	439.09	406.48	Drawdown
49	3372.00	3293.87	3.7	439.20	439.19	406.43	Drawdown
50	3372.50	3294.36		439.26			Tight
51	3397.50	3319.35	39	442.46	442.48	410.10	Drawdown
52	3400.00	3321.85	46	442.79	442.79	410.36	Drawdown
53	3403.50	3325.35	20	443.23	443.22	410.68	Drawdown
54	3404.50	3326.35		443.35			Tight

Table 7.4.1: MDT formation pressure data

DAILY MUD PROPERTIES:RHEOLOGY PARAMETERS FOR WELL 30/6-27 PO: 1

Hole section : 36"		WATER BASED SYSTEM																
Date	Depth [m]		Mud Type	Funnel Visc [sec]	Dens [sg]	Mudtmp Out [DegC]	Fann Readings							Rheo Test [DegC]	PV [mPas]	YP [Pa]	Gel0 [Pa]	Gel10 [Pa]
	MD	TVD					600	300	200	100	60	30	6					
2001-10-08 23:59	210	210	BENTONITE MUD	115.0	1.05						0	0						
2001-10-09	490	490	BENTONITE MUD	116.0	1.05						0	0						

Hole section : 17 1/2"		WATER BASED SYSTEM																	
Date	Depth [m]		Mud Type	Funnel Visc [sec]	Dens [sg]	Mudtmp Out [DegC]	Fann Readings							Rheo Test [DegC]	PV [mPas]	YP [Pa]	Gel0 [Pa]	Gel10 [Pa]	
	MD	TVD					600	300	200	100	60	30	6						3
2001-10-10 17:00	1287	1287	GLYDRIL	58.0	1.40		59	43	37	28	0	0	11	10	50.0	16.0	13.5	5.5	8.0
2001-10-11 12:00	1287	1287	GLYDRIL	60.0	1.40		59	43	37	28	0	0	11	10	50.0	16.0	13.5	6.0	8.0
2001-10-12 13:00	1287	1287	GLYDRIL	60.0	1.40		59	43	37	28	0	0	11	10	50.0	16.0	13.5		

Hole section : 12 1/4"		OIL BASED SYSTEM																	
Date	Depth [m]		Mud Type	Funnel Visc [sec]	Dens [sg]	Mudtmp Out [DegC]	Fann Readings							Rheo Test [DegC]	PV [mPas]	YP [Pa]	Gel0 [Pa]	Gel10 [Pa]	
	MD	TVD					600	300	200	100	60	30	6						3
2001-10-13 21:00	2010	1977	VERSAVERT		1.45	43.0	76	47	36	25	0	0	11	10	50.0	29.0	9.0	6.0	9.5
2001-10-14 21:10	2978	2924	VERSAVERT	73.0	1.45	49.0	76	47	36	25	0	0	11	10	50.0	29.0	9.0	7.0	11.0
2001-10-15 20:00	3061	3007	VERSAVERT	73.0	1.50		78	48	36	24	0	0	11	10	50.0	30.0	9.0	7.0	11.0
2001-10-16 15:00	3061	3007	VERSAVERT	73.0	1.50		79	49	36	24	0	0	11	10	50.0	30.0	9.5	7.0	11.0

Hole section : 8 1/2"		OIL BASED SYSTEM																	
Date	Depth [m]		Mud Type	Funnel Visc [sec]	Dens [sg]	Mudtmp Out [DegC]	Fann Readings							Rheo Test [DegC]	PV [mPas]	YP [Pa]	Gel0 [Pa]	Gel10 [Pa]	
	MD	TVD					600	300	200	100	60	30	6						3
2001-10-17 23:50	3070	3016	VERSAVERT	65.0	1.35	41.0	60	37	27	19	0	0	8	7	50.0	23.0	7.0	5.5	10.0
2001-10-18 22:00	3160	3106	VERSAVERT	68.0	1.35		77	47	36	25	0	0	12	11	50.0	30.0	8.5	8.5	14.0
2001-10-19	3420	3366	VERSAVERT	68.0	1.36	40.0	73	45	35	25	0	0	11	10	50.0	28.0	8.5	9.0	15.0
2001-10-20 22:00	3432	3378	VERSAVERT	72.0	1.35	16.0	72	46	36	26	0	0	12	10	50.0	26.0	10.0	9.0	15.0
2001-10-21 20:00	3432	3378	VERSACLEAN	71.0	1.35	15.0	72	45	35	25	0	0	12	10	50.0	27.0	9.0	9.0	15.0
2001-10-22 22:00	3432	3378	VERSAVERT	71.0	1.35	14.0	71	45	35	24	0	0	12	10	50.0	26.0	9.5	9.0	14.5

DAILY MUD PROPERTIES : OTHER PARAMETERS FOR WELL 30/6-27 PO: 1

Hole section : 36"		WATER BASED SYSTEM																							
Date	Depth [m]		Mud Type	Dens [sg]	Filtrate		Filtcake		HPHT Press/Temp [bar/DegC]	pH	Alcalinity			Inhib Chem [Kg/m3]	K+ [mg/l]	CL- [mg/l]	Ca++ [mg/l]	Mg++ [mg/l]	Tot hard [mg/l]	Percentage Solid Oil Sand [%]			CEC [Kg/m3]	ASG [sg]	LGS [Kg/m3]
	MD	TVD			API [ml]	HPHT [ml]	API [mm]	HPHT [mm]			Pm [ml]	Pf [ml]	Mf [ml]							[%]	[%]	[%]			
2001-10-08 23:59	210	210	BENTONITE MUD	1.05					/																
2001-10-09	490	490	BENTONITE MUD	1.05					/																
Hole section : 17 1/2"		WATER BASED SYSTEM																							
Date	Depth [m]		Mud Type	Dens [sg]	Filtrate		Filtcake		HPHT Press/Temp [bar/DegC]	pH	Alcalinity			Inhib Chem [Kg/m3]	K+ [mg/l]	CL- [mg/l]	Ca++ [mg/l]	Mg++ [mg/l]	Tot hard [mg/l]	Percentage Solid Oil Sand [%]			CEC [Kg/m3]	ASG [sg]	LGS [Kg/m3]
	MD	TVD			API [ml]	HPHT [ml]	API [mm]	HPHT [mm]			Pm [ml]	Pf [ml]	Mf [ml]							[%]	[%]	[%]			
2001-10-10 17:00	1287	1287	GLYDRIL	1.40	4.4				/																
2001-10-11 12:00	1287	1287	GLYDRIL	1.40	4.4				/	8.0	0.1	0.5			90000	800			18.0		3.0			110	
2001-10-12 13:00	1287	1287	GLYDRIL	1.40					/																
Hole section : 12 1/4"		OIL BASED SYSTEM																							
Date	Depth [m]		Mud Type	Density [sg]	Filtrate HPHT [ml]	Filtcake HPHT [mm]	HPHT Press/Temp [bar/DegC]	Electrical stability [V]	Alcalinity Pm [ml]	CaCl2 [mg/l]	Oil/Water Ratio	Percentage			ASG [sg]	LGS [Kg/m3]									
	MD	TVD										Solid [%]	Oil [%]	Sand [%]											
2001-10-13 21:00	2010	1977	VERSAVERT	1.45	1.2	1	3400 /	1084		143	74/ 26	19.0	60.0	0.1	4.0	70									
2001-10-14 21:10	2978	2924	VERSAVERT	1.45	1.3	1	3400 /	1123		154	78/ 22	20.0	62.5	0.1	3.8	114									
2001-10-15 20:00	3061	3007	VERSAVERT	1.50	1.2	1	3400 /	1020		167	78/ 22	21.0	62.0	0.2	3.9	86									
2001-10-16 15:00	3061	3007	VERSAVERT	1.50	1.3	1	3400 /	1148		163	78/ 22	21.0	62.0	0.2	3.9	86									
Hole section : 8 1/2"		OIL BASED SYSTEM																							
Date	Depth [m]		Mud Type	Density [sg]	Filtrate HPHT [ml]	Filtcake HPHT [mm]	HPHT Press/Temp [bar/DegC]	Electrical stability [V]	Alcalinity Pm [ml]	CaCl2 [mg/l]	Oil/Water Ratio	Percentage			ASG [sg]	LGS [Kg/m3]									
	MD	TVD										Solid [%]	Oil [%]	Sand [%]											
2001-10-17 23:50	3070	3016	VERSAVERT	1.35	2.3	1	/	865		158	79/ 21	16.0	66.0	0.1	4.0	58									
2001-10-18 22:00	3160	3106	VERSAVERT	1.35	2.3	1	/	1122		146	79/ 21	16.0	66.0	0.1	4.0	58									
2001-10-19	3420	3366	VERSAVERT	1.36	2.4	1	/ 280	1140		142	78/ 22	17.0	65.0	0.3	3.8	97									
2001-10-20 22:00	3432	3378	VERSAVERT	1.35	2.4	2	/ 260	1124		142	78/ 22	17.0	65.0	0.3	3.8	113									
2001-10-21 20:00	3432	3378	VERSACLEAN	1.35	2.4	2	/ 250	1112		142	78/ 22	17.0	65.0	0.3	3.8	113									
2001-10-22 22:00	3432	3378	VERSAVERT	1.35	2.4	2	/ 250	1102		142	78/ 22	17.0	65.0	0.3	3.8	113									

TOTAL CONSUMPTION OF MUD ADDITIVES ON WELL 30/6-27 PO: 1

Section	Product/ Additive	Unit	Total Amount Used
36"	BARITE	kg	90000.00
	BENTONITE	kg	25000.00
	CMC EHV	kg	75.00
17 1/2"	BARITE	kg	160000.00
	BENTONITE	kg	52000.00
	CMC EHV	kg	950.00
	GLYDRIL MC	l	160000.00
	PACSEAL LV	kg	875.00
12 1/4"	BARITE	kg	200000.00
	CALCIUM CHLORIDE	kg	3200.00
	EDC 95/11	l	144000.00
	LIME	kg	3320.00
	VERSAMOD	kg	675.00
	VERSAVERT F	l	549.00
	VERSAVERT PE	l	5000.00
	VERSAVERT SE	l	2613.00
	VERSAVERT VIS	kg	2675.00
8 1/2"	BARITE	kg	60000.00
	EDC 95/11	l	21000.00
	LIME	kg	800.00
	VERSAMOD	kg	325.00
	VERSAVERT PE	l	2000.00
	VERSAVERT SE	l	1000.00
	VERSAVERT VIS	kg	1400.00
0.0	EDC 95/11	l	6000.00