

Depth (m MD RKB)	Depth (m TVD RKB)	Formation pressure (bar)	Hyd. press. after test (bar)	Permeability/ Comments
Run 4A:				
3188.0	3184.8	448.39	473.43	Excellent perm.
3194.0	3190.8	448.58	473.57	a/a
3205.0	3201.8	448.87	475.95	a/a
3217.0	3213.6	449.14	477.23	a/a
3229.5	3226.0	-	479.32	Tight
3235.5	3232.0	-	480.40	a/a
3245.0	3241.4	449.89	481.38	Excellent
3257.0	3253.4	-	-	No seal
3265.0	3261.3	450.55	484.44	Excellent
3274.0	3270.2	-	-	Leak
3274.0	3270.2	-	-	No seal
3283.5	3279.6	-	-	a/a
3289.0	3285.1	452.88	487.89	Good permeability
3295.0	3291.0	-	-	No seal
3307.0	3302.9	-	-	Tight
3314.0	3309.9	453.54	491.78	Excellent
3321.0	3316.8	453.93	491.78	a/a
3328.5	3324.3	454.47	494.32	a/a
3339.0	3334.7	-	495.27	Tight
3348.5	3344.1	-	-	No seal
3357.5	3353.0	-	-	a/a
3362.0	3357.4	-	-	Tight
3368.0	3363.4	458.17	499.62	Excellent
3374.0	3369.3	459.20	500.60	?
3379.5	3374.7	459.18	501.20	Moderate
3387.0	3382.2	459.57	502.34	a/a
3392.0	3387.1	459.83	503.04	Good
3409.0	3403.9	461.47	505.25	Excellent
3414.0	3408.9	-	-	Tight
3291.8	3287.9	-	-	Leak
3292.5	3288.6	-	-	No seal
3302.0	3298.0	452.68	490.08	Excellent

Table 4.1 FMT-data

Depth (m MD RKB)	Depth (m TVD RKB)	Formation pressure (bar)	Hyd. press. after test (bar)	Permeability/ Comments
Run 5B:				
3188.0	3184.8	448.30	468.98	Very good perm.
3205.0	3201.8	448.82	471.08	a/a
3222.5	3219.1	449.29	473.97	a/a
3237.0	3233.5	449.71	476.20	a/a
3262.5	3258.8	450.41	479.83	a/a
3265.5	3261.9	450.61	480.60	a/a
3269.8	3266.1	450.66	481.09	a/a
3271.5	3267.8	450.66	481.29	a/a
3289 0	3285.1	451.91	483.58	Good
3295 0	3291.0	452.20	484.36	a/a
Run 5C:				
3301.5	3297.5	452.63	485.12	Good
3314.0	3309.9	453.42	-	Very good perm.
3314.0	3309.9	453.37	486.91	Sampling
3327.0	3322.8	454.21	488.77	Very good perm.
3373.0	3368.3	459.54	495.35	Very good perm.
3379.3	3374.5	458.86	496.09	a/a
3385.0	3380.2	459.17	496.94	a/a
3392.0	3387.1	459.66	497.81	a/a
3395.0	3390.1	459.91	498.28	Fair/low perm.
3343.3	3338.9	455.63	490.82	Good
3354.5	3350.0	457.00	492.21	Very good perm.
3363.5	3358.9	457.79	493.72	a/a
3368.0	3363.4	458.05	494.34	a/a
3373.0	3368.3	459.67	494.97	a/a
3406.0	3400.9	461.29	499.81	Good
Run 5D:				
3368.0	3363.4	-	-	Seal failure
3368.0	3363.4	458.09	-	Good, sampling
3415.0	3409.8	-	-	No seal
3415.0	3409.8	-	-	a/a
3420.0	3414.8	-	-	a/a
3420.0	3414.8	-	-	a/a
3406.0	3400.9	461.27	505.00	Fair
3517.0	3510.0	480.70	-	Tight, seal failed
Run 5E:				
3406.2	3401.1	461.54	-	Low perm./att. samp.
3406.0	3400.9	461.64	-	Low perm./att. samp.

Table 4.2 FMT-data

Drill Stem Testing

Two production tests were performed in Ness Formation (Brent Group) in well 34/10-33. Both tests produced hydrocarbons. In addition two minifrac tests were performed, one in Ness Fm. sandstones and one in Heather Fm. shale.

The following intervals were tested:

Test	Perfortated intervals (m RKB MD)
1.1	3378.0 - 3394.0
1.2	3378.0 - 3394.0 & 3359.0 - 3374.0
Minifrac	3378.0 - 3394.0 & 3359.0 - 3374.0
2.1	3279.0 - 3307.0
2.2	3279.0 - 3307.0 & 3311.5 - 3329.0
Minifrac	3175.0 - 3177.0

In Table 4.3 main rates and pressures are listed.

**FLOW DATA 34/10-33**

Test no.	Formation	Perf. int. (mRKB)	Flow period #	Duration (min)	Choke diam. (mm)	Oil rate (Sm <sup>3</sup> /d)	Gas rate (Sm <sup>3</sup> /d)	GOR	Water rate (Sm <sup>3</sup> /d)	Oil dens <sub>3</sub> (kg/m <sup>3</sup> )	Gas sp.g. (air=1)	WHP (kPa)	BHP (kPa)	Res. temp. (C)	Res. press. (kPa)
1.1	Ness	3378-	1	15	11.1	170	-	-	-	-	-	3200	37808	~123	45954
	Fm.	3394	2	1605	12.7	289	51000	176	-	859	0.680	61000	21312		
1.2	Ness	3378-	1	247	7.9	350	66500	190	-	-	-	19700	40631	(at 3373)	
	Fm.	3394 &	2	59	4.8	171	32300	189	-	-	-	21300	43123		
		3359-	3	78	3.2	65	12500	192	-	-	-	22100	44293		
		3374	4	820	28.6	1318	211900	161	-	856	0.685	6600	29780		
		Minifr.		324	-	-	-	-	-	-	-	-	-		
2.1	Ness	3279-	1	8	6.4	-	-	-	-	-	-	6900	44852	~122	45263
	Fm.	3307	2	1564	19.1	850	376700	443	-	850	0.665	15100	31823		
			3	260	19.1	832	393600	473	-	-	-	15700	42871		
2.2	Ness	3279-	1	27	6.4	-	-	-	-	-	-	27300	44773	(at 3301.5)	
	Fm.	3307 &	2	105	19.1	-	-	-	-	-	-	18000	42709		
		3311.5-	3	117	19.1	1413	-	-	-	-	-	18500	44612		
		3329	4	595	19.1	1403	302100	215	-	851	0.660	19000	43539		
			5	310	6.4	242	56300	233	-	-	-	24900	44631		

All measurements are from stable conditions at the end of the flow periods.

\* GOR increased continuously through the last 12 hrs. of the flow.

\*\* From FMT-measurements.

Table 4.3

PRODUCT	UNIT	UNIT PRICE \$	36" SECTION \$	COST	26" SECTION \$	COST	17.5" SECTION \$	COST	12.25" SECTION \$	COST	8.5" SECTION \$	COST	6" SECTION \$	COST	TEST P & A \$	COST	TOTAL USED	TOTAL COST \$
BARITE	M.T.	79.00	143	11297.00	249	19671.00	96	7584.00	329	25991.00	518	40922.00	16	1264.00	155	12245.00	1506	118974.00
BENTONITE	M.T.	200.00	48	9600.00	25	5000.00		.00		.00	50	10000.00	6	1200.00	13	2600.00	142	28400.00
CAUSTIC SODA	25 KG	10.00	21	210.00	12	120.00	19	190.00		.00	225	2250.00	1	10.00	14	140.00	292	2920.00
BICARBONATE	50 KG	16.80		.00		.00		.00	17	285.60	7	117.60		.00		.00	24	403.20
SODA ASH	50 KG.	15.00	7	105.00	5	75.00	1	15.00		.00		.00		.00	2	30.00	15	225.00
GYPSUM	40 KG.	6.72		.00		.00	83	557.76	148	994.56		.00		.00		.00	231	1552.32
BENTONITE	50 KG.	13.20		.00		.00	36	475.20		.00		.00		.00		.00	36	475.20
BENTONITE	25 KG.	6.60		.00		.00		.00		.00		.00		.00		.00	0	.00
SODA ASH	30 KG.	9.00		.00		.00		.00		.00	19	171.00	1	9.00		.00	20	180.00
DRISPAC REG.	50 LBS.	79.50		.00	10	795.00	139	11050.50	100	7950.00		.00		.00		.00	249	19795.50
DRISPAC SLO.	50 LBS.	79.50		.00		.00	448	35616.00	294	23373.00	5	397.50		.00		.00	747	59386.50
GYPSUM	25 KG.	4.20		.00		.00	688	2889.60	294	1234.80		.00		.00		.00	982	4124.40
LIME	25 KG.	6.00		.00		.00		.00	10	60.00		.00		.00		.00	10	60.00
SPERCELL C	25 KG	11.00		.00		.00		.00		.00	832	9152.00	82	902.00	106	1166.00	1020	11220.00
DESCO	25 LBS.	33.60		.00		.00		.00	37	1243.20	81	2721.60	11	369.60	94	3158.40	223	7492.80
NACL	25 KG.	3.90		.00		.00		.00		.00	309	1205.10	42	163.80	97	378.30	448	1747.20
ANCOLIG C	25 KG.	15.00		.00		.00		.00		.00	369	5535.00	40	600.00	42	630.00	451	6765.00
NACL	50 KG.	7.80		.00		.00		.00		.00	25	195.00		.00		.00	25	195.00
MICA F	25 KG.	10.00		.00		.00		.00		.00	24	240.00		.00		.00	24	240.00
SOD.BICARBONAT	25 KG.	8.40		.00		.00		.00		.00		.00	14	117.60	20	168.00	34	285.60
NUT PLUG F	25 KG.	13.20		.00		.00		.00		.00	11	145.20		.00		.00	11	145.20
ANCO RESIN	25 KG	84.00		.00		.00		.00		.00	322	27048.00	31	2604.00		.00	353	29652.00
IMCOSPOT	50 LBS	90.00		.00		.00		.00		.00	50	4500.00		.00		.00	50	4500.00
ZINCCARBONATE	25 KG.	54.00		.00		.00	27	1458.00		.00		.00		.00		.00	27	1458.00
DEFOAMER	30 LIT	84.00		.00		.00		.00		.00	15	1260.00	2	168.00		.00	17	1428.00
ANCOIDE	25 LIT.	64.80		.00		.00	18	1166.40	12	777.60	4	259.20		.00		.00	34	2203.20
PIPELAX	200 L	160.00		.00		.00		.00		.00	2	320.00		.00		.00	2	320.00

TOTALS			21212.00	25661.00	61002.46	61909.76	106119.20	7408.00	20515.70	304148.12
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HOLE DRILLED (METRES)	63	241	1378	1317	615	94	3708
COST PR. METRE	336.70	106.48	44.27	47.01	172.55	78.81	82.02

TOTAL DAYS	4	3	12	11	27	5	21	83
COST PR. DAY	5303.00	8553.67	5083.54	5628.16	3930.34	1481.60	976.94	3664.44

MUD MIXED (CU.M)	591	1238	1292	810	782	65	183	4961
COST PR. CU.M	35.89	20.73	47.22	76.43	135.70	113.97	112.11	61.31
MUD MIXED PER METER DRILLED(M3/M)	9.38	5.14	.94	.62	1.27	.69	1.34	



DRILLING PROPERTIES RECORD

26" Section

MUD SYSTEM : SPUD MUD/GYP POLYMER/GEL-LIGN.

AREA  
RIG DYVI DELTA

DAY No.	DATE	DEPTH metre	N.W. sg	F.V. s/qt	A.V. cps	P.V. cps	Y.P.	GeI 0	GeI 10 Filt.	API 32nds Filt.	NPHT	pH	Chl.ppm *1000	Calc. mg/11t	Pf %011	%sol.	%Sand	HBT ppb	GYP ppb	
5	28.9	470	1.20	35	12	5	14	12	12	NC			8.9							
6	29.9	467	1.05	100									10.8							
7	30.9	466	1.05	100									10.5							

STATOIL WELL NO.34/10-33

17 1/2" Section

DRILLING MUD PROPERTIES RECORD

MUD SYSTEM :		AREA										RIG		DYVI DELTA							
DAY No.	DATE	DEPTH metre	M.W. sg	F.V. s/qt	A.V. cps	P.V. cps	Y.P. cps	Gal 0	Gal 10	API Filt.	Cake 32nds	MPHT Filt.	pH	Chl.ppm *1000	Calc. mg/11t	Pf	%Oil	%sol.	%Sand	MBT ppb	GYP ppb
8	1.10	466	1.10	60	15.5	13	5	1	1	9			9.5	20.00	4800	.15	4	TR	0	4.5	
9	2.10	466	1.10	60	15.5	13	5	1	1	9			9.5	20.00	4800	.15	4	TR	0	4.5	
10	3.10	466	1.10	60	15.5	13	5	1	1	9			9.5	20.00	4800	.15	4	TR	0	4.5	
11	4.10	466	1.10	60	15.5	13	5	1	1	9			9.5	20.00	4800	.15	4	TR	0	4.5	
12	5.10	574	1.10	56	15	12	6	1	1	4			9.4	21.00	4920	.1	4	.5	2.5	2.7	
13	6.10	1314	1.10	59	22.5	18	9	1	1	3.7			9.5	21.00	4680	.1	4	1	5.5	3.5	
14	7.10	1682	1.11	52	18	14	8	1	1	3.5			8.5	21.00	5000	0	4	.75	6.5	2.5	
15	8.10	1844	1.15	53	19	15	8	1	1	3.5			8.4	21.00	4800	.05	4	1	11	2.7	
16	9.10	1844	1.15	60	20.5	16	9	1	2	3.6			8.8	21.00	4920	.05	4	1	11.5	3	
17	10.10	1844	1.15	60	17.5	14	7	1	3	3.6			8.5	21.00	4700	0	4	1	12	2.8	
18	11.10	1844	1.15	48	15	12	6	1	1	3.4			8.5	20.00	4480	0	4	1	14	2.6	
19	12.10	1844	1.15	48	13.5	11	5	1	1	3.6			8.8	19.00	4200	.05	4	1	15	2.2	



12 1/4" Section

DRILLING MUD PROPERTIES RECORD

MUD SYSTEM : SPUD MUD/GYP POLYMER/GEL-LIGN.      AREA  
 RIG      DYVI DELTA

DAY No.	DATE 1988	DEPTH metre	M.W. sg	F.V. s/qt	A.V. cps	P.V. cps	Y.P. cps	Gal 0	Gal 10	API Filt.	Cake 32nds	NPHT Filt.	pH	Chl.ppm *1000	Calc. mg/lit	Pf %011	%sol.	%Sand	MBT ppb	GYP ppb
20	13.10	2153	1.25	50	18.5	15	7	1	2	5			9.7	19.00	3600	.1	7	.5	16	3
21	14.10	2322	1.25	50	18	15	6	1	7	4.8			9.1	19.50	3600	.05	8	.5	15	3.5
22	15.10	2608	1.25	53	23	18	10	2	12	4.8			8.3	19.50	3640	0	8	.25	20	2.1
23	16.10	2714	1.25	53	22.5	17	11	2	19	4.6			8.2	20.00	4200	0	8	.25	19	1.2
24	17.10	2939	1.28	50	21	16	10	1	20	4.5			8.3	20.00	4640	.05	10	.25	18	3.7
25	18.10	3014	1.34	52	24.5	18	13	2	28	5.3			8.4	20.00	4520	.05	12	.25	19	2.8
26	19.10	3114	1.40	52	32	23	18	6	41	5.4			8.3	20.00	4240	.05	14	.25	19	2.5
27	20.10	3161	1.45	58	32	24	16	3	31	5.2			8.2	20.00	4200	0	16	.25	19	2.2
28	21.10	3161	1.45	55	23.5	18	11	3	29	5.2			8.4	20.00	4400	0	16	.25	19	2.2
29	22.10	3161	1.45	63	24	18	12	3	29	5			8	20.00	4200	0	16	.25	19	2.2
30	23.10	3161	1.45	58	23	17	12	4	36	5.2			8.5	20.00	4120	.05	16	.25	19	2

8 1/2" Section

DRILLING MUD PROPERTIES RECORD

MUD SYSTEM : SPUD MUD/GYP POLYMER/GEL-LIGN. AREA RIG DVVI DELTA

DAY No.	DATE	DEPTH 1988 metre	M.W. sg	F.V. s/qt	A.V. cps	P.V. cps	Y.P.	Gal 0	Gal 10	API Filt.	Cake 32nds	HPHT Filt.	pH	Chl.ppm *1000	Calc. mg/11t	Pf %011	%sol.	%Sand	MBT ppb	GYP ppb	
31	24.10	3161	1.45	60	22.5	16	13	4	34	5.5			8.1	20.00	4200	0	16	.25	19	2	
32	25.10	3199	1.49	64	24.5	20	9	2	21	4.8		15.5	9.9	19.00	220	.5	17	.5	20		
33	26.10	3223	1.49	76	27	21	12	2	22	4.6		16	10	19.00	160	.8	16.5	.75	20		
34	27.10	3251	1.49	77	28	23	12	1	22	4.4		16	9.8	19.00	120	.7	17	.5	21		
35	28.10	3280	1.49	83	30	23	14	2	26	4.3		13	9.7	19.00	140	.6	17	.5	20		
36	29.10	3285	1.53	63	27.5	21	13	1	23	3.8		13	9.6	19.00	140	.7	18	.5	20		
37	30.10	3294	1.53	75	30	24	12	2	24	3.7		13	9.7	19.00	160	.6	18	.75	20		
38	31.10	3329	1.53	71	30.5	24	13	2	24	3.7		12.5	9.5	19.00	140	.6	18	.5	20		
39	1.11	3350	1.53	80	30.5	24	13	2	24	3.4		10.5	9.4	19.00	140	.6	18	.75	20		
40	2.11	3377	1.53	73	28	22	12	2	22	3.4		11	9.8	19.00	140	.8	18	.75	20		
41	3.11	3418	1.53	67	26	20	12	2	22	3.5		11.5	9.9	19.00	140	.9	18	.75	20		
42	4.11	3442	1.53	79	29	22	14	2	25	3.6		12	9.7	18.50	120	.8	18	.5	20		
43	5.11	3556	1.53	70	30.5	22	17	2	29	3.2		12	9.6	19.00	120	.7	18	.5	20		
44	6.11	3602	1.53	75	29.5	21	17	2	30	3.2		12	9.7	19.00	100	.8	18	.5	20		
45	7.11	3684	1.50	67	27.5	20	15	2	28	3.3		12	9.6	19.00	120	.7	18	.25	20		
46	8.11	3765	1.50	69	26	19	14	3	29	3.1		12	9.8	19.00	120	.9	17	.25	20		
47	9.11	3765	1.50	85	26.5	18	16	2	31	3		12	9.6	19.00	100	.9	17	.25	21		
48	10.11	3765	1.50	85	31.5	23	17	4	34	2.8		12	9.4	18.50	120	.5	17	.25	21		
49	11.11	3766	1.50	61	23.5	17	13	2	23	3		11	10.2	19.00	100	.7	17	.25	20		
50	12.11	3776	1.50	78	27.5	19	17	2	26	3		11	9.8	18.50	100	.7	17	.25	21		
51	13.11	3776	1.50	60	19.5	15	9	2	20	3.2		11	10.4	17.50	120	.8	17	.25	18		
52	14.11	3776	1.50	60	25.5	19	13	2	25	3		11	9.8	18.00	120	.7	tr	17	.25	20	
53	15.11	3776	1.50	69	23	17	12	2	24	3.3		11.5	9.8	19.00	160	.5	tr	17	.25	19	
54	16.11	3776	1.50	68	26	19	14	2	23	3.5		12	9.3	19.00	120	.4	tr	17	.25	19	
55	17.11	3776	1.50	60	24	18	12	2	20	3.3		12	9	18.00	120	.1	tr	17	.25	18	
56	18.11	3776	1.50	77	20	15	10	2	22	3.5		12	9	18.00	120	.2	tr	17	.25	18	
57	19.11	3776	1.50	73	24	19	10	1	19	4.3		14	10.3	17.00	240	.4	tr	17	1	18	

STATOIL WELL NO.34/10-33

6" Section

DRILLING MUD PROPERTIES RECORD

MUD SYSTEM :		AREA																		
SPUD MUD/GYP POLYMER/GEL-LIGN.		RIG DYVI DELTA																		
DAY No.	DATE	DEPTH metre	M.W. sg	F.V. s/qt	A.V. cps	P.V. cps	Y.P.	Ge1 0	Ge1 10	API F11t.	Cake 32nds	HPHT F11t.	pH	Ch1.ppm *1000	Calc. mg/11t	Pf %011	%so1.	%Sand	MBT ppb	GYP ppb
58	20.11	3796	1.40	85	28.5	22	13	1	21	4		13	11	16.50	200	.4	tr	14	.5	21
59	21.11	3815	1.40	91	28.5	23	11	1	18	3.4		12	10.9	17.50	300	.4	tr	14	.5	21
60	22.11	3839	1.40	75	24	19	10	1	16	3.5		11	10.8	18.00	240	.3	tr	14	.5	22
61	23.11	3870	1.40	65	27.5	22	11	1	17	3.7		11	10.2	18.00	240	.3	tr	14	.5	21
62	24.11	3870	1.40	88	27	22	10	2	21	3.8		11	9.8	18.50	280	.2	tr	14	.5	21

DRILLING MUD PROPERTIES RECORD

MUD SYSTEM : SPUD MUD/GYP POLYMER/GEL-LIGN. AREA RIG BYVI DELTA

DAY No.	DATE 1988	DEPTH metre	M.W. sg	F.V. s/qt	A.V. cps	P.V. cps	Y.P. cps	Ge1 0	Ge1 10	API Filt.	Cake 32nds	HPHT Filt.	pH	Chl.ppm *1000	Calc. mg/11t	Pf 4011	%sol.	%Sand	MBT ppb	GYP ppb
63	25.11	3619	1.50	65	25	21	8	1	20	4		13	10.2	18.50	200	.4	tr	17	.5	20
64	26.11	3619	1.50	77	26.5	22	9	1	21	3.9			9.8	18.50	180	.2	tr	17	.5	21
65	27.11	3619	1.50	82	27.5	23	9	1	20	3.8			9.4	18.50	220	.2	tr	17	.5	21
66	28.11	3619	1.50	60	20.5	17	7	1	17	4.2			9.3	19.00	280	.1	tr	17	.5	19
67	29.11	3619	1.50	58	20.5	17	7	1	18	4			9.4	19.00	260	.2	tr	17	.5	19
68	30.11	3619	1.50	60	20	14	10	1	17	4			9.4	19.00	280	.2	tr	17	.5	19
69	1.12	3619	1.50	60	21	17	8	1	18	4.2			9.4	19.00	280	.2	tr	17	.5	19
70	2.12	3619	1.50	61	21	17	8	1	17	4.2		12.5	9.4	19.00	280	.1	tr	17	.5	19
71	3.12	3619	1.50	63	22.5	18	9	1	18	4			9.6	18.50	240	.2	tr	17	.5	21
72	4.12	3354	1.50	70	23	18	10	1	20	4		11.5	10.1	19.00	200	.3	tr	17	.75	21
73	5.12	3348	1.50	55	18.5	15	7	1	15	4.3			10.2	18.50	220	.3	tr	17	.5	20
74	6.12	3348	1.50	59	18.5	15	7	1	14	4.2			10.1	18.50	240	.3	tr	17	.5	20
75	7.12	3348	1.50	61	19.5	16	7	1	15	4.2			10	18.50	220	.2	tr	17	.5	20
76	8.12	3348	1.50	62	20	16	8	1	15	4.3			10	18.50	240	.3	tr	17	.5	20
77	9.12	3348	1.50	65	22	18	8	1	17	4.1			9.8	18.50	220	.2	tr	17	.5	20
78	10.12	3348	1.50	65	22	18	8	1	18	4.1			9.8	18.50	200	.2	tr	17	.5	20
79	11.12	3348	1.50	54	19	16	6	1	13	4.5			9.7	18.50	200	.2	tr	17	.5	19
80	12.12	3240	1.50	55	21.5	17	9	2	20	4.5			9.6	18.50	200	.2	tr	17	.5	20
81	13.12	3240	1.50	72	24	19	10	2	20	4.3			9.7	18.00	300	.3	tr	17	.5	20
82	14.12	3240	1.50	63	22	18	8	1	18	4.5			9.6	18.00	320	.3	0	17	.5	20