

DRILLING FLUID PROPERTIES RECORD

WELL NAME: 3/7-5 36" HOLE

AREA: NORWAY

A/S NORSKE SHELL

RIG: DYVI STENA

CONTRACTOR: STENA DRILLING

WATER BASED MUD

FLUID SYSTEM: BENTONITE SPUD

IDF MUD ENGINEERS: NORDBY/MILDE

DAY No.	DATE	DEPTH M	WEIGH S.G	TEMP	FV	AV	PV	YP	GELS 10s	FLUID 10m	LOSS API	CAKE HTHP	pH	Pf	Mf	Pm	TOT HARD	CL- G/L	OIL %	SOLS %	SAND %	MBT Kg/M3	BAR % v/v	BAR % v/v	LGS Kg/M3	LGS % v/v	K+ XS	OR GYP	REMARKS
1	05/12/91	92	1.05	0	200	0.0	0	0	1	1	0.0	0.0	0	9.3	0.00	0.00	0.00	0	0.0	0	3	0.0	0.0	5.3	0.1	74.9	2.9	0.0	ANCHOR/PREP. TO SPUD
2	06/12/91	92	1.05	0	200	0.0	0	0	1	1	0.0	0.0	0	9.3	0.00	0.00	0.00	0	0.0	0	3	0.0	0.0	5.3	0.1	74.9	2.9	0.0	DRLG.9 7/8" P.HOLE
3	07/12/91	154	1.05	0	200	0.0	0	0	1	1	0.0	0.0	0	9.3	0.00	0.00	0.00	0	0.0	0	3	0.0	0.0	5.3	0.1	74.9	2.9	0.0	SET 30" CASING

DRILLING FLUID PROPERTIES RECORD

WELL NAME: 3/7-5 26" HOLE

AREA: NORWAY

A/S NORSKE SHELL

RIG: DYVI STENA

CONTRACTOR: STENA DRILLING

WATER BASED MUD

FLUID SYSTEM: BENTONITE SPUD

IDF MUD ENGINEERS: NORDBY/MILDE

DAY No.	DATE	DEPTH M	WEIGHT S.G.	TEMP	FV	AV	PV	YP	GELS 10s 10m	FLUID LOSS API	LOSS HTHP	CAKE	pH	Pf	Mf	Pm	TOT HARD	CL- G/L	OIL %	SOLS %	SAND %	MBT	BAR Kg/M3	BAR % v/v	LGS Kg/M3	LGS % v/v	K+ XS	OR GYP	REMARKS
4	08/12/91	460	1.05	0	200	0.0	0	0	1	1	0.0	0.0	0	9.3	0.00	0.00	0.00	0	0.0	0	3	0.0	0.0	5.3	0.1	74.9	2.9	0.0	DRLG 26" HOLE
5	09/12/91	610	1.05	0	200	0.0	0	0	1	1	0.0	0.0	0	9.3	0.00	0.00	0.00	0	0.0	0	3	0.0	0.0	5.3	0.1	74.9	2.9	0.0	RUN 20" CASING

DRILLING FLUID PROPERTIES RECORD

WELL NAME: 3/7-5 17.5" HOLE

AREA: NORWAY

A/S NORSKE SHELL

RIG: DYVI STENA

CONTRACTOR: STENA DRILLING

WATER BASED MUD

FLUID SYSTEM: POLYMER/GYPSUM

IDF MUD ENGINEERS: MILDE/BULGER/MAIN

DAY No.	DATE	DEPTH M	WEIGHT S.G.	TEMP	FV	AV	PV	YP	GELS 10s	FLUID 10m	LOSS API	CAKE HTHP	pH	Pf	Mf	Pm	TOT HARD	CL- G/L	OIL %	SOLS %	SAND %	MBT Kg/M3	BAR % v/v	BAR Kg/M3	LGS % v/v	LGS Kg/M3	K+ OR XS	REMARKS	
6	10/12/91	610	1.25	0	68	34.5	26	17	1	1	4.2	0.0	1	9.0	0.10	0.30	0.60	4400	20.0	0	9	0.0	0.0	295.3	7.0	15.0	0.6	0.0	RUN 20" STACK
7	11/12/91	610	1.25	0	68	34.5	26	17	1	1	4.2	0.0	1	9.0	0.10	0.30	0.60	4400	20.0	0	9	0.0	0.0	295.3	7.0	15.0	0.6	0.0	TESTING
8	12/12/91	670	1.25	19	61	28.0	21	14	1	2	3.0	0.0	1	8.8	0.20	0.60	0.40	4040	19.0	0	10	0.3	29.0	252.2	6.0	70.0	2.7	0.0	DRLG 17.5" HOLE
9	13/12/91	914	1.3	28	54	30.5	24	13	1	2	2.5	0.0	1	8.3	0.00	0.20	0.00	4000	21.0	0	12	0.3	43.0	300.8	7.1	89.2	3.4	0.0	DRLG 17.5" HOLE
10	14/12/91	1189	1.3	34	51	28.5	22	13	1	2	2.2	0.0	1	8.0	0.00	0.20	0.00	4040	19.0	0	12	0.5	52.0	299.2	7.1	93.8	3.6	0.0	DRLG 17.5" HOLE
11	15/12/91	1547	1.3	37	59	30.5	24	13	2	5	2.3	0.0	1	7.8	0.00	0.20	0.00	3960	21.0	0	12	0.8	43.0	288.1	6.8	105.0	4.0	0.0	DRLG 17.5" HOLE
12	16/12/91	1725	1.3	35	58	30.0	23	14	3	10	2.3	0.0	1	8.0	0.01	0.20	0.00	3760	19.0	0	13	0.5	58.0	278.1	6.6	120.1	4.6	0.0	T.D. 17.5" HOLE
13	17/12/91	1725	1.3	0	58	30.0	23	14	3	10	2.3	0.0	1	8.0	0.01	0.20	0.00	3760	19.0	0	13	0.5	58.0	278.1	6.6	120.1	4.6	0.0	LOGGING 17.5" HOLE.
14	18/12/91	1725	1.3	0	57	29.5	23	13	3	8	2.4	0.0	1	8.0	0.01	0.20	0.00	3760	19.0	0	13	0.5	58.0	278.1	6.6	120.1	4.6	0.0	RUNNING 13 3/8" CSG.
15	19/12/91	1725	1.3	22	55	29.0	23	12	3	7	2.4	0.0	1	7.9	0.01	0.20	0.00	3760	19.0	0	13	0.5	58.0	278.1	6.6	120.1	4.6	0.0	CEMENTED 13.375" CSG

DRILLING FLUID PROPERTIES RECORD

WELL NAME: 3/7-5 12.25" HOLE

AREA: NORWAY

A/S NORSKE SHELL

RIG: DYVI STENA

CONTRACTOR: STENA DRILLING

WATER BASED MUD

FLUID SYSTEM: POLYMER/GYPSUM

IDF MUD ENGINEERS: MAIN/MILDE/NORDBY

DAY No.	DATE	DEPTH M	WEIGHT S.G.	TEMP	FV	AV	PV	YP	GELS 10s 10m	FLUID LOSS API	LOSS HTHP	CAKE	pH	Pf	Mf	Pm	TOT HARD	CL- G/L	OIL %	SOLS %	SAND %	MBT Kg/M3	BAR % v/v	BAR Kg/M3	LGS % v/v	LGS Kg/M3	K+ XS	OR GYP	REMARKS
16	20/12/91	1725	1.3	19	64	30.5	24	13	3	6	2.4	0.0	1	8.0	0.01	0.20	0.00	3760	19.0	0	13	0.5	57.0	278.1	6.6	120.1	4.6	0.0	RAN GYROS, W.O.W.
17	21/12/91	1730	1.4	19	66	31.5	25	13	2	7	2.3	0.0	1	10.0	0.55	0.70	0.00	4400	20.0	0	14	0.2	17.0	499.7	11.9	7.5	0.3	0.0	DISP. TO NEW MUD
18	22/12/91	1972	1.4	33	53	30.0	23	14	2	5	2.6	0.0	1	8.5	0.15	0.30	0.00	4600	20.0	0	14	0.1	28.5	499.7	11.9	7.5	0.3	0.0	DRLG. AHEAD
19	23/12/91	2293	1.44	41	53	31.0	24	14	2	5	2.6	0.0	1	7.5	0.05	0.30	0.00	4480	20.0	0	15	0.2	57.0	541.5	12.9	21.3	0.8	0.0	DRLG. WIPER. WT-UP.
20	24/12/91	2667	1.45	41	62	35.5	28	15	4	14	2.7	0.0	1	8.0	0.05	0.35	0.00	4200	20.0	0	16	0.2	85.0	525.6	12.5	57.7	2.2	0.0	DRLG. WIPER. DRLG.
21	25/12/91	2737	1.44	37	56	32.0	25	14	3	12	2.4	0.0	1	8.0	0.10	0.35	0.00	3840	20.0	0	16	0.2	64.0	520.4	12.4	47.7	1.8	0.0	DRLG. AHEAD. POOH.
22	26/12/91	2781	1.44	37	59	35.0	27	16	3	5	2.5	0.0	1	7.5	0.05	0.25	0.00	3840	20.0	0	17	0.2	64.0	478.1	11.4	100.3	3.8	0.0	DRLG. AHEAD. POOH.
23	27/12/91	2781	1.48	31	61	36.0	28	16	3	5	2.5	0.0	1	7.5	0.05	0.25	0.00	3840	20.0	0	17	0.2	64.0	583.4	13.9	35.1	1.3	0.0	POOH. RIH.
24	28/12/91	2865	1.5	37	59	34.0	27	14	3	8	3.4	0.0	1	8.0	0.05	0.30	0.00	3960	20.0	0	17	0.1	50.0	614.9	14.6	28.9	1.1	0.0	POOH. RIH.
25	29/12/91	2992	1.5	37	62	34.5	27	15	3	11	2.7	0.0	1	8.0	0.10	0.35	0.00	3980	20.0	0	18	0.1	57.0	593.7	14.1	55.2	2.1	0.0	DRLG. AHEAD
26	30/12/91	3040	1.5	41	56	33.0	26	14	3	10	3.0	0.0	1	7.5	0.05	0.30	0.00	4240	20.5	0	18	0.1	57.0	573.0	13.6	80.4	3.1	0.0	DR/PUMP OUT OF HOLE
27	31/12/91	3040	1.51	31	62	38.0	30	16	4	16	2.6	0.0	1	8.0	0.50	0.35	0.00	4320	20.0	0	19	0.1	57.0	577.8	13.7	91.6	3.5	0.0	BIT TRIP.
28	01/01/92	3040	1.55	31	64	37.0	30	14	3	19	3.0	0.0	1	7.5	0.00	0.25	0.00	4000	19.5	0	20	0.1	64.0	619.2	14.7	106.4	4.1	0.0	REAM, KICKED OFF, TRIP
29	02/01/92	3085	1.56	40	66	42.0	34	16	4	18	2.6	0.0	1	7.5	0.00	0.25	0.00	4080	20.0	0	22	0.1	71.0	582.5	13.8	168.0	6.4	0.0	RIH, DRL TO TD.
30	03/01/92	3085	1.56	40	67	45.0	36	18	5	24	2.8	0.0	1	7.6	0.00	0.25	0.00	4080	20.0	0	22	0.1	71.0	582.5	13.8	168.0	6.4	0.0	LOGGING
31	04/01/92	3085	1.56	15	70	45.0	36	18	5	24	2.8	0.0	1	7.6	0.00	0.25	0.00	4080	20.0	0	22	0.1	71.0	582.5	13.8	168.0	6.4	0.0	LOGGING/RUN CSG.
32	05/01/92	3085	1.55	28	65	43.5	35	17	3	15	2.4	0.0	1	7.3	0.00	0.25	0.00	4000	20.0	0	22	0.1	71.0	556.2	13.2	184.3	7.1	0.0	RUN & CMT CASING.
33	06/01/92	3085	1.55	15	69	44.5	36	17	3	15	2.4	0.0	1	7.3	0.00	0.25	0.00	4000	20.0	0	22	0.1	71.0	556.2	13.2	184.3	7.1	0.0	CHANGE CSG. SEAL ASSY

DRILLING FLUID PROPERTIES RECORD

WELL NAME: 3/7-5 8.5" HOLE

AREA:

NORWAY

A/S NORSKE SHELL

RIG: DYVI STENA

CONTRACTOR:

STENA DRILLING

WATER BASED MUD

FLUID SYSTEM: POLYMER/GYPSUM

IDF MUD ENGINEERS:

NORDBY/MAIN/BULAGE

DAY No.	DATE	DEPTH M	WEIGHT S.G.	TEMP	FV	AV	PV	YP	GELS 10s	FLUID 10m	LOSS API	CAKE HTHP	pH	Pf	Mf	Pm	TOT HARD	CL- G/L	OIL %	SOLS %	SAND %	MBT Kg/M3	BAR % v/v	BAR Kg/M3	LGS % v/v	LGS Kg/M3	K+ XS	OR GYP	REMARKS
34	07/01/92	3085	1.55	15	70	44.0	36	16	3	14	2.3	0.0	1	7.5	0.00	0.25	0.00	4000	20.0	0	22	0.1	71.0	556.2	13.2	184.3	7.1	0.0	GYROS, PRES. TEST CSG.
35	08/01/92	3085	1.55	28	58	43.5	36	15	3	15	2.4	0.0	1	9.0	0.25	0.45	0.00	4200	20.0	0	22	0.1	71.0	556.2	13.2	184.3	7.1	0.0	DRLGCMT. WASHOUT. POOH
36	09/01/92	3093	1.55	29	63	38.0	31	14	3	6	2.6	0.0	1	8.0	0.10	0.25	0.00	4000	20.0	0	19	0.1	36.0	683.0	16.2	26.4	1.0	0.0	L.O.T. DISP. SYS. D/A
37	10/01/92	3147	1.55	39	56	34.5	28	13	3	5	2.5	0.0	1	7.5	0.05	0.20	0.00	4240	21.0	0	19	0.1	42.0	683.8	16.2	24.3	0.9	0.0	DRILLED AHEAD.
38	11/01/92	3199	1.55	42	65	41.5	33	17	3	20	2.3	0.0	1	7.5	0.00	0.25	0.00	4120	21.0	0	19	0.1	50.0	650.2	15.3	63.0	2.4	0.0	DRLG. AHEAD. POOH.
39	12/01/92	3208	1.55	38	65	40.5	32	17	3	19	2.4	0.0	1	7.8	0.10	0.20	0.00	4120	21.0	0	19	0.1	50.0	650.2	15.3	63.0	2.4	0.0	POOH. CHG./BHA. RIH.
40	13/01/92	3243	1.55	38	57	36.0	29	14	3	12	2.5	0.0	1	7.8	0.10	0.25	0.00	4240	21.5	0	19	0.1	42.0	671.3	15.8	36.0	1.4	0.0	D/A. WASHOUT. POOH.
41	14/01/92	3270	1.55	39	58	34.0	28	12	3	12	2.5	0.0	1	7.8	0.07	0.25	0.00	4400	21.5	0	19	0.1	39.0	663.0	15.6	46.4	1.8	0.0	C/BIT. RIH. D/AHEAD
42	15/01/92	3296	1.55	39	57	36.0	29	14	3	18	2.9	0.0	1	7.7	0.10	0.25	0.00	4280	21.0	0	19	0.1	42.0	650.2	15.3	63.0	2.4	0.0	D/A. TWST/OFF. C/FISH.
43	16/01/92	3307	1.55	37	63	39.0	31	15	3	9	2.2	0.0	1	7.7	0.10	0.30	0.00	4400	21.0	0	19	0.1	32.0	650.2	15.3	63.0	2.4	0.0	POOH. C/BIT. RIH. D/A
44	17/01/92	3336	1.55	42	61	35.0	29	12	3	10	2.2	0.0	1	8.6	0.10	0.30	0.00	4400	21.0	0	19	0.1	32.0	650.2	15.3	63.0	2.4	0.0	DRLG. AHEAD.
45	18/01/92	3383	1.55	39	58	41.5	33	17	3	8	2.2	0.0	1	8.0	0.10	0.30	0.00	4360	21.0	0	19	0.1	37.0	650.2	15.3	63.0	2.4	0.0	DRLG. AHEAD. POOH
46	19/01/92	3393	1.55	0	64	40.0	32	16	3	9	2.0	0.0	1	8.0	0.10	0.30	0.00	4360	21.0	0	19	0.1	43.0	638.5	14.8	74.7	2.9	0.0	DRLG. AHEAD. POOH
47	20/01/92	3439	1.55	40	57	35.5	29	13	3	10	2.2	0.0	1	7.5	0.10	0.30	0.00	4360	22.0	0	19	0.1	39.0	639.2	14.8	72.6	2.8	0.0	DRLG. AHEAD.
48	21/01/92	3508	1.57	43	61	38.0	31	14	3	9	2.0	0.0	1	7.5	0.10	0.25	0.00	4400	22.0	0	19	0.1	39.0	689.9	16.0	42.0	1.6	0.0	DRLG. AHEAD.
49	22/01/92	3576	1.57	44	58	38.5	31	15	3	19	2.5	0.0	1	8.0	0.10	0.30	0.00	4360	22.0	0	20	0.1	43.0	669.5	15.5	67.5	2.6	0.0	DRLG. AHEAD.
50	23/01/92	3644	1.57	42	53	34.5	26	17	4	24	2.8	0.0	1	8.0	0.10	0.30	0.00	4320	22.5	0	19	0.1	40.0	690.3	16.0	40.9	1.6	0.0	DRLG. AHEAD.
51	24/01/92	3666	1.57	45	52	30.0	23	14	3	25	2.8	0.0	1	7.8	0.05	0.35	0.00	9960	32.0	0	20	0.1	36.0	676.7	15.7	46.5	1.8	0.0	DRLG. AHEAD.
52	25/01/92	3666	1.57	25	72	30.0	23	14	3	25	3.0	0.0	1	8.0	0.05	0.35	0.00	10000	32.0	0	20	0.1	36.0	656.3	15.2	72.2	2.8	0.0	DRLG. AHEAD.
53	26/01/92	3666	1.57	33	52	28.0	22	12	3	10	2.8	0.0	1	8.0	0.05	0.35	0.00	14000	43.0	0	20	0.1	29.0	684.7	15.9	23.0	0.9	0.0	REAM/LOGGING HOLE
54	27/01/92	3666	1.57	0	58	30.0	24	12	3	15	3.0	0.0	1	8.0	0.05	0.30	0.00	13920	45.0	0	20	0.1	32.5	677.9	15.9	32.3	1.2	0.0	REAM/LOGGING HOLE
55	28/01/92	3666	1.57	0	54	28.5	23	11	3	14	3.1	0.0	1	8.0	0.05	0.30	0.00	13920	45.0	0	20	0.1	32.5	677.9	15.9	32.3	1.2	0.0	LOGGING
56	29/01/92	3666	1.57	39	53	29.0	23	12	3	15	5.6	0.0	1	7.2	0.00	0.10	0.00	17120	64.0	0	21	0.1	35.0	650.3	15.3	43.6	1.7	0.0	R/U & RUN ATLAS LOGS
57	30/01/92	3666	1.57	33	55	29.0	21	16	3	17	7.8	0.0	1	7.2	0.00	0.10	0.00	19480	62.0	0	21	0.1	35.0	648.8	15.2	48.0	1.8	0.0	P.O.O.H.
58	31/01/92	3666	1.57	34	54	30.0	22	16	4	19	9.0	0.0	1	7.8	0.05	0.20	0.00	19720	62.0	0	21	0.1	35.0	661.7	15.5	40.1	1.5	0.0	R.I.H
59	01/02/92	3666	1.58	20	51	30.0	21	18	9	26	10.8	0.0	1	8.0	0.05	0.30	0.00	19040	62.0	0	21	0.1	28.5	674.6	15.8	32.2	1.2	0.0	R.I.H
60	02/02/92	3666	1.57	0	47	29.0	23	12	3	13	20.0	0.0	2	9.0	0.15	0.50	0.00	19680	58.0	0	21	0.1	31.3	645.8	15.2	56.8	2.2	0.0	POH
61	03/02/92	3666	1.54	0	45	24.0	19	10	3	12	30.0	0.0	2	9.0	0.20	0.55	0.00	17200	46.0	0	20	0.1	32.5	622.0	14.6	51.3	2.0	0.0	L/D CSNG.
62	04/02/92	3666	1.48	0	44	17.0	12	10	3	11	30.0	0.0	2	9.5	0.20	0.55	0.00	10400	33.0	0	18	0.1	32.5	519.8	12.2	95.9	3.7	0.0	POOH
63	05/02/92	3666	1.44	0	46	19.5	14	11	3	13	30.0	0.0	2	9.0	0.15	0.45	0.00	8960	30.0	0	17	0.0	28.5	455.9	10.7	113.4	4.4	0.0	POOH

DRILLING FLUID PROPERTIES RECORD

WELL NAME: 3/7-5 8.5" HOLE

AREA: NORWAY

A/S NORSKE SHELL

RIG: DYVI STENA

CONTRACTOR: STENA DRILLING

WATER BASED MUD

FLUID SYSTEM: POLYMER/GYPSUM

IDF MUD ENGINEERS: NORDBY/MAIN/BULAGE

DAY No.	DATE	DEPTH M	WEIGHT S.G	TEMP	FV	AV	PV	YP	GELS		FLUID LOSS API	LOSS HTHP	CAKE	pH	Pf	Mf	Pm	TOT HARD	CL- G/L	OIL %	SOLS %	SAND %	MBT Kg/M3	BAR % v/v	BAR Kg/M3	LGS % v/v	LGS Kg/M3	K+ XS	OR GYP	REMARKS
									10s	10m																				
64	06/02/92	3666	1.44	0	46	19.5	14	11	3	13	30.0	0.0	2	9.0	0.15	0.45	0.00	8960	30.0	0	17	0.0	28.5	455.9	10.7	113.4	4.4	0.0	RIH	
65	07/02/92	3666	1.44	0	46	19.5	14	11	3	13	30.0	0.0	2	9.0	0.15	0.45	0.00	8960	30.0	0	17	0.0	28.5	455.9	10.7	113.4	4.4	0.0	CUT CSG.PULL ANCHORS	
66	08/02/92	3666	1.44	0	46	19.5	14	11	3	13	30.0	0.0	2	9.0	0.15	0.45	0.00	8960	30.0	0	17	0.0	28.5	455.9	10.7	113.4	4.4	0.0	MOVE OFF LOCATION.	

DRILLING FLU. VOLUME RECORD SHEET

A/S NORSKE SHELL

WATER BASED MUD

WELL

RIG:

FLUID SYSTEM:

3/7-5

DYVI STENA

BENTONITE SPUD

36" HOLE

AREA:

CONTRACTOR:

IDF MUD ENGINEERS:

NORWAY

STENA DRILLING

NORDBY/MILDE

DAY	DATE	DEPTH	VOLUME RECORD				DRILLING LOSSES						DAILY DRILL						COMMENTS						
			DAILY	CUM	REC'D	NET	TOTAL	SHALE	MUD	CENT	DE-	DE-	OTHER	DAILY	DAILY	CUM	CUM	LOSS		PER	LOST	OTHER	DAILY	CUM	
			BUILT	BUILT	B'LOAD	RECD	VOL	SHAKER	CLEANER	SILT	SAND	SUR.	LOSS	LOSS	LOSS	LOSS	M	HOLE		CIRC	CASING	LOSS	LOSS	LOSS	
1	05/12/91	92	129	129	0	0	129	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ANCHOR/PREP. TO SPUD
2	06/12/91	92	266	395	0	0	350	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0	0	45	45	45	DRLG.9 7/8" P.HOLE
3	07/12/91	154	20	415	0	0	339	0	0	0	0	0	0	0	0	0	0	0.00	0.76	0	0	31	31	76	SET 30" CASING

DRILLING FLUID VOLUME RECORD SHEET

A/S NORSKE SHELL

WATER BASED MUD

WELL NAME:

3/7-5

26" HOLE

AREA:

NORWAY

RIG:

DYVI STENA

CONTRACTOR:

STENA DRILLING

FLUID SYSTEM:

BENTONITE SPUD

IDF MUD ENGINEERS:

NORDBY/MILDE

DAY	DATE	DEPTH	VOLUME RECORD				DRILLING LOSSES					DAILY DRILL										COMMENTS			
			DAILY CUM	REC'D	NET	TOTAL	SHALE	MUD	CENT	DE-	DE-	OTHER	DAILY DRILL	DAILY SURFACE	CUM DRILL	CUM SURFACE	LOSS	PER	LOST	OTHER	DAILY		CUM		
			BUILT	BUILT	B'LOAD	RECD	VOL	SHAKER	CLEANER	SILT	SAND	SUR.	LOSS	LOSS	LOSS	LOSS	M	HOLE	CIRC	CASING	LOSS		LOSS	LOSS	
4	08/12/91	460	130	130	0	0	336	0	0	0	0	0	0	0	0	0	0.00	1.27	0	0	133	133	133	DRLG 26" HOLE	
5	09/12/91	610	114	244	0	0	110	0	0	0	0	0	0	0	87	0	87	0.00	6.61	0	0	253	253	386	RUN 20" CASING



DRILLING FLUID VOLUME RECORD SHEET

WELL N°

3/7-5

17.5" HOLE

AREA:

NORWAY

A/S NORSKE SHELL

RIG:

DYVI STENA

CONTRACTOR:

STENA DRILLING

WATER BASED MUD

FLUID SYSTEM:

POLYMER/GYPSUM

IDF MUD ENGINEERS:

MILDE/BULGER/MAIN

DAY	DATE	DEPTH	VOLUME RECORD				DRILLING LOSSES						DAILY DRILL				COMMENTS								
			DAILY	CUM	REC'D	NET	TOTAL	SHALE	MUD	CENT	DE-	DE-	OTHER	DAILY	DAILY	CUM		CUM	LOSS	PER	LOST	OTHER	DAILY	CUM	
			BUILT	BUILT	B'LOAD	RECD	VOL	SHAKER	CLEANER		SILT	SAND	SUR.	LOSS	LOSS	LOSS		LOSS	M	HOLE	CIRC	CASING	LOSS	LOSS	LOSS
6	10/12/91	610	136	136	0	0	246	0	0	0	0	0	0	0	0	0	0.00	0.00	0	0	0	0	0	0	RUN 20" STACK
7	11/12/91	610	63	199	0	0	309	0	0	0	0	0	0	0	0	0	0.00	0.00	0	0	0	0	0	0	TESTING
8	12/12/91	670	127	326	0	0	347	49	0	0	0	40	49	89	49	89	0.82	8.90	0	0	0	0	0	0	DRLG 17.5" HOLE
9	13/12/91	914	264	590	0	0	425	84	0	0	15	87	99	186	148	275	0.41	4.89	0	0	0	0	0	0	DRLG 17.5" HOLE
10	14/12/91	1189	459	1049	0	0	603	114	0	0	18	149	132	281	280	556	0.48	6.69	0	0	0	0	0	0	DRLG 17.5" HOLE
11	15/12/91	1547	284	1333	0	0	642	121	0	0	12	112	133	245	413	801	0.37	4.38	0	0	0	0	0	0	DRLG 17.5" HOLE
12	16/12/91	1725	81	1414	0	0	547	83	0	0	8	85	91	176	504	977	0.51	6.52	0	0	0	0	0	0	T.D. 17.5" HOLE
13	17/12/91	1725	5	1419	0	0	440	0	0	0	0	112	0	112	504	1089	0.00	0.00	0	0	0	0	0	0	LOGGING 17.5" HOLE.
14	18/12/91	1725	0	1419	0	0	424	3	0	0	0	13	3	16	507	1105	0.00	0.00	0	0	0	0	0	0	RUNNING 13 3/8" CSG.
15	19/12/91	1725	0	1419	0	0	314	1	0	0	0	97	1	98	508	1203	0.00	0.00	0	12	0	12	12	12	CEMENTED 13.375" CSG

DRILLING FLUID VOLUME RECORD SHEET

WELL NAME: 3/7-5 12.25" HOLE AREA: NORWAY

A/S NORSKE SHELL

RIG: DYVI STENA CONTRACTOR: STENA DRILLING

WATER BASED MUD

FLUID SYSTEM: POLYMER/GYPSUM IDF MUD ENGINEERS: MAIN/MILDE/NORDBY

DAY	DATE	DEPTH	VOLUME RECORD				DRILLING LOSSES					DAILY DRILL				COMMENTS									
			DAILY	CUM	REC'D	NET	SHALE	MUD	CENT	DE-	DE-	OTHER	DAILY	DAILY	CUM		CUM	LOSS	PER	LOST	OTHER	DAILY	CUM		
			BUILT	BUILT	B'LOAD	RECD	SHAKER	CLEANER		SILT	SAND	SUR.	LOSS	LOSS	LOSS		LOSS	M	HOLE	CIRC	CASING	LOSS	LOSS	LOSS	
16	20/12/91	1725	246	246	0	0	560	0	0	0	0	0	0	0	0	508	0	0.00	0.00	0	0	0	0	0	RAN GYROS, W.O.W.
17	21/12/91	1730	0	246	0	0	375	3	0	0	0	0	182	3	185	511	185	0.60	0.00	0	0	0	0	0	DISP. TO NEW MUD
18	22/12/91	1972	118	364	0	0	468	10	0	0	0	0	15	10	25	521	210	0.04	1.39	0	0	0	0	0	DRLG. AHEAD
19	23/12/91	2293	119	483	0	0	540	30	0	0	0	0	17	30	47	551	257	0.09	1.88	0	0	0	0	0	DRLG. WIPER. WT-UP.
20	24/12/91	2667	99	582	0	0	553	32	0	33	0	0	21	65	86	616	343	0.17	3.07	0	0	0	0	0	DRLG. WIPER. DRLG.
21	25/12/91	2737	105	687	0	0	569	55	0	0	0	0	34	55	89	671	432	0.79	14.83	0	0	0	0	0	DRLG. AHEAD. POOH.
22	26/12/91	2781	152	839	0	0	602	67	0	11	0	0	41	78	119	749	551	1.77	39.67	0	0	0	0	0	DRLG. AHEAD. POOH.
23	27/12/91	2781	16	822	0	0	590	28	0	0	0	0	0	28	28	777	546	0.00	0.00	0	0	0	0	0	POOH. RIH.
24	28/12/91	2865	92	914	0	0	586	12	0	84	0	0	0	96	96	873	642	1.14	16.00	0	0	0	0	0	POOH. RIH.
25	29/12/91	2992	0	914	0	0	513	8	0	54	0	0	11	62	73	935	715	0.49	7.30	0	0	0	0	0	DRLG. AHEAD
26	30/12/91	3040	9	923	0	0	445	5	0	72	0	0	0	77	77	1012	792	1.60	19.25	0	0	0	0	0	DR/PUMP OUT OF HOLE
27	31/12/91	3040	0	923	0	0	427	1	0	0	0	0	17	1	18	1013	810	0.00	0.00	0	0	0	0	0	BIT TRIP.
28	01/01/92	3040	9	932	0	0	381	39	0	0	0	0	9	39	48	1052	858	0.00	0.00	0	0	7	7	7	REAM, KICKED OFF, TRIP
29	02/01/92	3085	129	1061	0	0	478	32	0	0	0	0	0	32	32	1084	890	0.71	10.67	0	0	0	0	0	7 RIH, DRL TO TD.
30	03/01/92	3085	19	1080	0	0	478	3	0	0	0	0	16	3	19	1087	909	0.00	0.00	0	0	0	0	0	7 LOGGING
31	04/01/92	3085	0	1080	0	0	472	0	0	0	0	0	6	0	6	1087	915	0.00	0.00	0	0	0	0	0	7 LOGGING/RUN CSG.
32	05/01/92	3085	0	1080	0	0	377	18	0	0	0	0	0	18	18	1105	933	0.00	0.00	0	77	0	77	84	RUN & CMT CASING.
33	06/01/92	3085	1	1081	0	0	181	0	0	0	0	0	197	0	197	1105	1130	0.00	0.00	0	0	0	0	0	84 CHANGE CSG. SEAL ASSY



DRILLING FLUID VOLUME RECORD SHEET

WELL NAME: 3/7-5 8.5" HOLE AREA: NORWAY

A/S NORSKE SHELL

RIG: DYVI STENA CONTRACTOR: STENA DRILLING

WATER BASED MUD

FLUID SYSTEM: POLYMER/GYPSUM IDF MUD ENGINEERS: NORDBY/MAIN/BULAGE

DAY	DATE	DEPTH	VOLUME RECORD					DRILLING LOSSES					DAILY DRILL					COMMENTS						
			DAILY	CUM	REC'D	NET	TOTAL	SHALE	MUD	CENT	DE-	DE-	OTHER	DAILY	DAILY	CUM	CUM		LOSS	PER	LOST	OTHER	DAILY	CUM
			BUILT	BUILT	B'LOAD	RECD	VOL	SHAKER	CLEANER	SILT	SAND	SUR.	LOSS	LOSS	LOSS	LOSS	M		HOLE	CIRC	CASING	LOSS	LOSS	LOSS
64	06/02/92	3666	0	754	0	0	0	0	0	0	0	0	285	0	285	1404	908	0.00	0.00	0	0	0	0	27 RIH
65	07/02/92	3666	0	754	0	0	0	0	0	0	0	0	0	0	0	1404	908	0.00	0.00	0	0	0	0	27 CUT CSG.PULL ANCHORS
66	08/02/92	3666	0	754	0	0	0	0	0	0	0	0	0	0	0	1404	908	0.00	0.00	0	0	0	0	27 MOVE OFF LOCATION.

MATERIAL CONTAINED BY REPORT NUMBER

WELL NAME:

3/7-5 36" HOLE

AREA:

NORWAY

A/S NORSKE SHELL

RIG:

DYVI STENA

CONTRACTOR:

STENA DRILLING

WATER BASED MUD

FLUID SYSTEM:

BENTONITE SPUD

IDF MUD ENGINEERS:

NORDBY/MILDE

PRODUCT	1	2	3	TOTAL
WATER	124	241	20	385
BARITE		70		70
BENTONITE	12	14		26
IDF FLR				0
IDF FLR XL				0
IDF FLR-				0
IDF FLR-XL				0
IDVIS				0
LIME		2	1	3
SODA ASH	3	5		8
SODA BICARB				0
CAUSTIC SODA	2	5		7
GYPSUM		50		50
GYPSUM B.B.				0
IDCIDE L		3		3
LAMPAC LV		53		53
DRILLING DETERGENT				0
DEFOAMER				0
LAMPAC REG				0

MATERIAL CONSUMPTION BY REPORT NUMBER

WELL NAME:

3/7-5

26" HOLE

AREA:

NORWAY

A/S NORSKE SHELL

RIG:

DYVI STENA

CONTRACTOR:

STENA DRILLING

WATER BASED MUD

FLUID SYSTEM:

BENTONITE SPUD

IDF MUD ENGINEERS:

NORDBY/MILDE

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PRODUCT	4	5	TOTAL
WATER	126	110	236
BARITE			0
BENTONITE	9	16	25
IDF FLR			0
IDF FLR XL			0
IDF FLR-			0
IDF FLR-XL			0
IDVIS			0
LIME			0
SODA ASH	4	4	8
SODA BICARB			0
CAUSTIC SODA	2	2	4
GYP SUM			0
GYP SUM B.B.			0
IDCIDE L			0
LAMPAC LV			0
DRILLING DETERGENT			0
DEFOAMER			0
LAMPAC REG			0

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MATERIAL CONSUMPTION BY REPORT NUMBER

WELL NAME: 3/7-5 8.5" HOLE AREA: NORWAY  
 RIG: DYVI STENA CONTRACTOR: STENA DRILLING  
 FLUID SYSTEM: POLYMER/GYPSUM IDF MUD ENGINEERS: NORDBY/MAIN/BULAGE

A/S NORSKE SHELL

WATER BASED MUD

PRODUCT	64	65	66	TOTAL
WATER				0
BARITE				0
BENTONITE				0
IDF FLR				0
IDF FLR XL				0
IDF FLR-				0
IDF FLR-XL				0
IDVIS				0
LIME				0
SODA ASH				0
SODA BICARB				0
CAUSTIC SODA				0
GYPSUM				0
GYPSUM B.B.				0
IDCIDE L				0
LAMPAC LV				0
DRILLING DETERGENT				0
DEFOAMER				0
LAMPAC REG				0

8. **WIRELINE FORMATION TESTS**

Over the objective interval the formation pressure was assessed at 8 depth intervals (from 3382.5 m to 3445.0 m) using Western Atlas' FMT. In addition, one segregated formation fluid sample was taken at a depth of 3390.5 m.

The properties of the formation fluids recovered in the segregated chamber are reported in Appendix 4, together with the mudfiltrate properties, as measured by Geco-Prakla.

FMT Pressure and sample data

Depth (mbmsl)	Formation Pressure (bar)	Formation Gradient (sg)	Mug Gradient (sg)	Remarks
3357,5	487,08	1,47	1,57	Supercharged; 102 degC
3360,8	485,73	1,46	1,57	High perm; 102.7 degC
3365,5	486,05	1,46	1,57	Good perm; 103.0 degC
3365,5	486,12	1,46	1,57	10 ltr seg sample of formation water
3365,5	486,06	1,46	1,57	3.785 ltr formation water sample; 105.0 degC
3374,0	486,85	1,46	1,57	Good perm; 105.0 degC
3379,2	487,43	1,46	1,57	Good perm; 103.9 degC
3392,5			1,57	Seal failure
3392,7	492,96	1,47	1,57	Supercharged
3420,0	491,84	1,46	1,57	Good perm; 105.5 degC

Segregated sample formation water analysis:

	mg/l		mg/l
Sodium	2600	Barium	7,5
Potassium	4625	Iron	18
Calcium	12400	Chloride	73000
Magnesium	3675	Bicarbonate	225
Strontium	477	Sulfate	4500

Rmf = 0.0862 ohmm, Rw = 0.0720 ohmm at 20 degC

# APPENDIX 4

## MOLECULAR COMPOSITION AND PNA DISTRIBUTION

Component	Wt%	mol%	molwt.	LNG 1)
Nitrogen	36.50	32.24		
Carbon dioxide	25.78	14.49		
Methane	32.03	49.39		
Ethane	2.99	2.46		
Propane	2.20	1.23		45.3
iso-Butane	0.17	0.07		3.2
n-Butane	0.21	0.09		3.7
iso-Pentane	0.00	0.00		0.0
n-Pentane	0.00	0.00		0.0
Hexanes	0.00	0.00		
P	0.00	0.00		
N	0.00	0.00		
A	0.00	0.00		
Heptanes	0.08	0.02	85.0	1.2
P	0.02	0.00		
N	0.03	0.01		
A	0.03	0.01		
Octanes	0.04	0.01	103.0	0.5
Nonanes	0.00	0.00		
Decanes plus	0.00	0.00		
Sum	100.00	100.00		53.9
Average molecular weight :			24.74	
Gas gravity :			0.854	

1) Liquified natural gas as m<sup>3</sup> liquid/10<sup>6</sup>Sm<sup>3</sup> gas

A.S NORSKE SHELL  
WELL: 3/7-5  
FMT SAMPLE

## WATER ANALYSIS

Date sampled : 30.01.92

Sampled from : FMT 1 gal.Run 3A,@ 3390.5 m

Date analyzed : 19.02.92

Analysis no.: 214

Analyst : JV

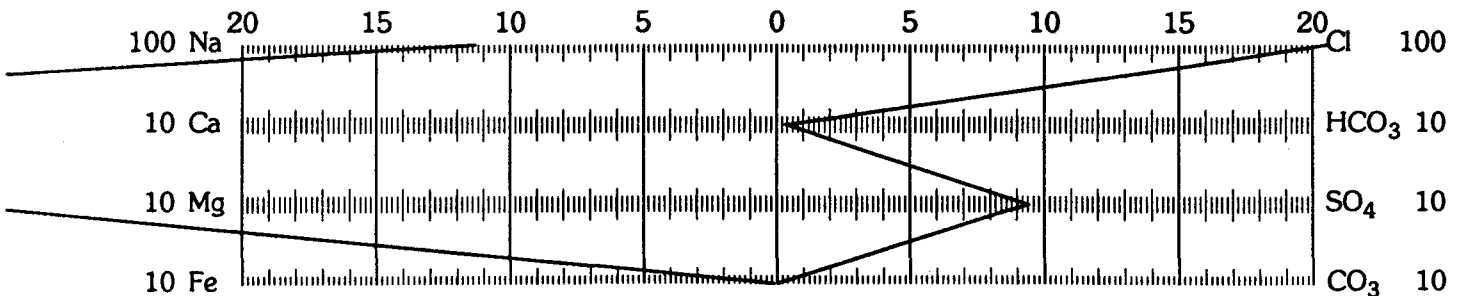
Density : 1.0948 g/cm<sup>3</sup> @ 15 °C      Total suspended solids : 810 mg/l

Resistivity : 0.0720 ohm-m @ 20 °C      Total dissolved solids : 124927.5mg/l

ph : 5.03 @ 20 °C

	mg/l	meq/l		mg/l	meq/l
Sodium	26000	1130	Chloride	73000	2056
Potassium	4625	118	Bicarbonate	225	4
Calcium	12400	618	Sulfate	4500	94
Magnesium	3675	302	Carbonate	-	
Strontium	477	11	Hydroxide	-	
Barium	7.5				
Iron	18	1			

Remarks: The sample was filtrated through a 0.45 micron filter prior to dilution and further analyses using ICP AES.  
pH and bicarbonate were determined on untreated sample.



### MUD FILTRATE ANALYSIS

**Date sampled : 30.01.92**                      **Sampled from : Mudfiltrate from mudsample.**

Date analyzed : 19.02.92                      Analysis no.: 215                      Analyst : JV

Density : 1.0824 g/cm<sup>3</sup> @ 15 °C                      Total suspended solids : -                      mg/l  
 Resistivity : 0.0862 ohm-m @ 20 °C                      Total dissolved solids : 108939 mg/l  
 ph : 7.0                      @ 20 °C

	mg/l	meq/l		mg/l	meq/l
Sodium	16000	696	Chloride	62000	1746
Potassium	6500	166	Bicarbonate	587	10
Calcium	13000	648	Sulfate	6000	125
Magnesium	4600	379	Carbonate	-	
Strontium	250	6	Hydroxide	-	
Barium	-				
Iron	2.0				

Remarks: The sample was filtrated through a 0.45 micron filter prior to dilution and further analyses using ICP AES.  
 pH and bicarbonate were determined on untreated sample.

