

A summary of the drilling fluids used to drill well (25/10-8 (Hanz) is attached on the following:

- > DIMS Mud Summary Report
- > Anchor/M-I Drilling Fluids Drilling Fluid Well Summary for well 25/10-8 (Hanz)

Mud Summary Report

Legal Well Name: Hanz 25/10-8  
 Common Well Name: Hanz 25/10-8  
 Event Name: DRILLING  
 Contractor Name:  
 Rig Name:  
 Start: 13.01.1997  
 Rig Release:  
 Rig Number:  
 Spud Date: 07.04.1997  
 End:

Day	TMD (m)	Hole Sz. (in)	Mud Type	MW (ppg)	Visc. (s/qt)	PV (cp)	YP (lb/100ft <sup>2</sup> )	Gels 10s/10m/30m (lb/100ft <sup>2</sup> )	API WL (cc/30min)	HTHP WL (cc/30min)	HTHP T (°C)	pH	Cl- (mg/L)	Sand (%)	TS (%)	LGS (ppg)	MBT (ppb)	Oil (%)	Tot. Hard (ppm)	Tot. Vol. (bbl)
4	200	36,000	SPUD MUD	8,7	110						0	10,2								1 843
5	200	36,000	SPUD MUD	10,0	120						0	10,2								366
6	200	36,000	SPUD MUD	8,8	120						0	10,0								1 214
7	200	36,000	LOW SOLIDS	8,7	100						0	10,0								1 686
8	1 034	9,875	LOW SOLIDS	8,8	100						0	10,0								2 611
9	1 070	17,500	LOW SOLIDS	8,8							0	10,0								1 138
10	1 080	17,500	LOW SOLIDS	14,5							0	10,0								176
12	1 080	17,500	LOW SOLIDS								0									0
13	1 080	17,500	OIL (REGULAR)	11,7	100	36	24	19 / 34 / 0		1,8	212				17,0	11,7		58,0		0
14	1 080	17,500	OIL (REGULAR)	11,7	100	36	24	19 / 24 / 0		1,8	212				17,0	11,6		58,0		0
15	1 080	17,500	OIL (REGULAR)	11,7	100	36	24	19 / 34 / 0		1,8	212				17,0	11,7		58,0		1 535
16	1 083	12,250	OIL (REGULAR)	11,1	81	31	24	18 / 30 / 0		1,6	212				14,5	5,8		58,5		1 554
17	1 184	12,250	OIL (REGULAR)	11,0	76	32	21	18 / 32 / 0		1,6	212				15,5	26,2		56,5		1 812
18	1 492	12,250	OIL (REGULAR)	11,0	100	38	27	24 / 38 / 0		1,8	212				15,0	23,7		56,0		1 718
19	1 581	12,250	OIL (REGULAR)	11,0	88	34	26	21 / 36 / 0		2,0	212				15,5	29,4		58,5		1 541
20	1 770	12,250	OIL (REGULAR)	11,0	93	35	28	22 / 40 / 0		2,0	212				16,0	38,0		58,5		1 566
21	1 905	12,250	OIL (REGULAR)	11,0	93	33	28	22 / 38 / 0		1,8	212				16,0	36,8		59,0		2 058
22	2 080	12,250	OIL (REGULAR)	11,0	95	34	27	23 / 40 / 0		2,0	212				16,5	46,0		59,0		2 233
23	2 107	12,250	OIL (REGULAR)	11,0	100	30	26	20 / 34 / 0		2,0	212				16,0	35,3		60,0		2 164
24	2 109	12,250	OIL (REGULAR)	11,0	90	32	27	21 / 37 / 0		2,0	212				16,0	35,1		60,0		2 270
25	2 249	12,250	OIL (REGULAR)	11,0	90	32	29	23 / 42 / 0		2,2	212				16,0	33,7		61,0		2 271
26	2 386	8,500	OIL (REGULAR)	11,0	95	32	28	22 / 43 / 0		2,0	212				15,5	24,2		61,5		2 240
27	2 518	8,500	OIL (REGULAR)	11,0	100	32	28	22 / 43 / 0		2,2	212				16,0	33,7		61,0		2 221
28	2 546	8,500	OIL (REGULAR)	11,0	105	33	27	23 / 44 / 0		2,2	212				16,0	33,7		61,0		2 189
29	2 610	8,500	OIL (REGULAR)	11,0	97	31	28	22 / 39 / 0		2,0	212				15,5	23,0		62,0		2 233
30	2 612	8,500	OIL (REGULAR)	11,0	112	31	26	24 / 39 / 0		2,1	212				15,0	12,5		63,0		2 201
31	2 653	8,500	OIL (REGULAR)	11,0	97	30	28	23 / 41 / 0		1,9	212				15,5	23,2		62,0		2 208
32	2 653	8,500	OIL (REGULAR)	11,0	102	30	28	22 / 42 / 0		2,0	212				15,5	23,0		62,0		2 183
33	2 653	8,500	OIL (REGULAR)	11,0	106	30	29	23 / 42 / 0		2,0	212				15,5	23,2		62,0		2 158
34	2 653	8,500	OIL (REGULAR)	11,0	104	30	28	22 / 41 / 0		2,0	212				15,5	23,2		62,0		2 139
	2 653	8,500	OIL (REGULAR)	11,0	107	31	28	23 / 42 / 0		2,1	212				15,5	23,5		62,0		

Mud Summary Report

Legal Well Name: Hanz 25/10-8  
 Common Well Name: Hanz 25/10-8  
 Event Name: TEST  
 Contractor Name: Odfjell Drilling Stavanger  
 Rig Name: Deepsea Trym

Start: 19.03.1997  
 Rig Release: 27.04.1997  
 Rig Number:

Spud Date: 07.04.1997  
 End:

Day	TMD (m)	Hole Sz. (in)	Mud Type	MW (ppg)	Visc. (s/qt)	PV (cp)	YP (lb/100ft <sup>2</sup> )	Gels 10s/10m/30m (lb/100ft <sup>2</sup> )	API WL (cc/30min)	HTHP WL (cc/30min)	HTHP T (°C)	pH	Cl- (mg/L)	Sand (%)	TS (%)	LGS (ppg)	MBT (ppb)	Oil (%)	Tot. Hard (ppm)	Tot Vol (bbl)
35	2 653	8,500	OIL (REGULAR)	11,0	107	31	28	23 / 42 / 0		2,1	212				15,5	23,5		62,0		2 152
36	2 653	8,500	OIL (REGULAR)	11,0	90	28	25	21 / 36 / 0		2,1	212				15,0	11,7		64,0		2 145
37	2 653	8,500	OIL (REGULAR)	11,0	92	29	26	21 / 37 / 0		2,1	212				15,0	11,5		64,0		2 208
38	2 633	7,000	KCL BRINE	9,7							212									2 207
39	2 633	7,000	NACL BRINE	9,8							0									874
40	2 633	7,000	NACL BRINE	9,7							0									798
41	2 633	7,000	NACL BRINE	9,8							0									754
42	2 633	7,000	NACL BRINE	9,8							0									754
43	2 633	7,000	NACL BRINE	9,8							0									754
44	2 633	7,000	NACL BRINE	9,8							0									754
45	2 633	7,000	NACL BRINE	9,8							0									698
46	2 633	7,000	NACL BRINE	9,8							0									641
47	2 633	7,000	NACL BRINE	9,8							0									798
48	2 633	7,000	NACL BRINE	9,8							0									798
49	2 633	7,000	NACL BRINE	9,8							0									1 283
50	2 633	7,000	NACL BRINE	9,8							0									880
51	2 633	7,000	NACL BRINE	9,8							0									793
52	1 830	7,000	NACL BRINE	9,8							0									964
53	1 250	7,000	OIL (REGULAR)	11,0	86	27	19	14 / 25 / 0		2,4	212				14,5	8,0		60,0		1 573
54	1 250	7,000	OIL (REGULAR)	8,5							0				5,0	2,3		63,0		2 095

Mud Summary Report

Legal Well Name: Hanz 25/10-8  
 Common Well Name: Hanz 25/10-8  
 Event Name: DRILLING  
 Contractor Name: Odfjell Drilling Stavanger  
 Rig Name: Deepsea Trym

Start: 04.04.1997  
 Rig Release: 27.04.1997  
 Rig Number:

Spud Date: 07.04.1997  
 End:

Day	TMD (m)	Hole Sz. (in)	Mud Type	MW (ppg)	Visc. (s/qt)	PV (cp)	YP (lb/100ft <sup>2</sup> )	Gels 10s/10m/30m (lb/100ft <sup>2</sup> )	API WL (cc/30min)	HTHP WL (cc/30min)	HTHP T (°C)	pH	Cl- (mg/L)	Sand (%)	TS (%)	LGS (ppg)	MBT (ppb)	Oil (%)	Tot. Hard (ppm)	Tot. Vol. (bbl)
54	1 250	7,000	OIL (REGULAR)	11,1	90	31	19	14/27/0		2,0	212				15,0	14,5		58,0		2 095
55	991	12,250	OIL (REGULAR)	11,1	90	31	19	14/27/0		2,0	212				15,0	14,5		58,0		2 240
56	1 271	8,500	OIL (REGULAR)	11,5	93	34	24	17/31/0		2,2	212				17,0	24,2		56,5		2 264
57	1 997	8,500	OIL (REGULAR)	11,5	85	36	28	18/33/0		1,8	212				17,0	25,5		55,5		2 239
58	2 441	8,500	OIL (REGULAR)	11,5	96	38	29	19/37/0		2,0	212				17,0	33,1		55,5		2 214
59	2 948	8,500	OIL (REGULAR)	11,5	95	37	26	21/39/0		1,8	212				17,0	33,1		55,5		2 190
60	3 110	8,500	OIL (REGULAR)	11,5	89	37	28	21/39/0		1,8	212				17,0	32,0		56,0		2 221
61	3 110	8,500	OIL (REGULAR)	11,5	104	41	26	20/40/0		1,9	212				17,0	25,8		56,0		2 183
62	3 147	8,500	OIL (REGULAR)	11,5	102	39	26	19/40/0		2,0	212				17,0	32,0		56,0		2 296
63	3 165	8,500	OIL (REGULAR)	11,5	106	38	26	19/39/0		2,0	212				17,0	32,3		56,0		2 283
64	3 202	8,500	OIL (REGULAR)	11,5	106	35	24	18/36/0		2,0	212				17,5	41,0		56,5		2 277
65	3 423	8,500	OIL (REGULAR)	11,5	95	35	23	18/36/0		2,0	212				17,5	35,0		56,5		2 346
66	3 460	8,500	OIL (REGULAR)	11,5	108	39	25	21/39/0		2,0	212				17,5	33,7		57,5		2 303
67	3 460	8,500	OIL (REGULAR)	11,5	107	37	27	21/39/0		2,0	212				17,5	33,7		57,5		2 258
68	3 460	8,500	OIL (REGULAR)	12,0	107	35	28	19/37/0		2,7	212				19,0	32,3		57,0		2 252
69	3 460	8,500	OIL (REGULAR)	12,0	108	35	27	19/37/0		2,6	212				19,0	37,0		57,0		2 208
70	2 528	8,500	OIL (REGULAR)	12,1	110	42	26	20/36/0		2,2	212			0,10	19,5	41,0		56,5		2 277
71	2 465	8,500	OIL (REGULAR)	12,2	115	48	25	19/37/0		2,2	212			0,10	20,0	49,6		53,0		2 189

**Mud Summary Report**

Legal Well Name: Hanz 25/10-8  
 Common Well Name: Hanz 25/10-8  
 Event Name: DRILLING  
 Contractor Name:  
 Rig Name:

Start: 13.01.1997  
 Rig Release:  
 Rig Number:

Spud Date: 07.04.1997  
 End:

Day	TMD (m)	Hole Sz (in)	Mud Type	MW (ppg)	Visc. (s/qt)	PV (cp)	YP (lb/100ft <sup>2</sup> )	Gels 10s/10m/30m (lb/100ft <sup>2</sup> )	API WL (cc/30min)	HTHP WL (cc/30min)	HTHP T (°C)	pH	Cl- (mg/L)	Sand (%)	TS (%)	LGS (ppg)	MBT (ppb)	Oil (%)	Tot. Hard (ppm)	Tot Vol (bbl)
71	917	12,415	OIL (REGULAR)	12,2	125	46	26	19 / 37 / 0		2,2	212			0,10	20,0	49,6		53,0		2 661
72	170	12,415	OIL (REGULAR)	12,0	140	57	30	22 / 47 / 0		2,2	196			0,10	18,0	29,4		50,0		862

# Mud Properties, daily record

Well: 25/10-8

Operator: Esso

Anchor/M-I Drilling Fluids

FSR no	Date	Depth	M.W.	F.Vis	VG-meter readings @						A.V.	P.V.	Y.P.	Gel 10s	Gel 10m	pH	API	HTHP 100°C	Cl- 1000	Pf	Mf	Ca++	Solids	Oil	Sand	MBT	KCL	Glycol	PHPA	LGS		
*	*	m	sg	s/qt.	rpm	rpm	rpm	rpm	rpm	rpm	mPas	Pa				cc	cc	mg/l	ml	ml	mg/l	vol%	vol%	vol%	kg/m3	kg/m3	%	kg/m3	kg/m3			
<b>36" Hole Section: Seawater - Bentonite Sweeps</b>																																
1	16-2	202	1,04	100							0	0	0	-	-	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2	17-2	202	1,04	100							0	0	0	-	-	10,2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
3	18-2	202	1,04	100							0	0	0	-	-	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<b>Minimum Property</b>			1,04	100	0	0	0	0	0	0	0	0	0	0	0	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<b>Average Property</b>			1,04	100	0	0	0	0	0	0	0	0	0	0	0	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<b>Maximum Property</b>			1,04	100	0	0	0	0	0	0	0	0	0	0	0	10,2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<b>9 7/8 Pilot Hole/ 17 1/2" Hole Section: Prehydrated Bentonite / Seawater - Bentonite Sweeps</b>																																
4	19-2	202	1,04	100							0	0	0	-	-	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
5	20-2	1036	1,05	100							0	0	0	-	-	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
6	21-2	802	1,05	100							0	0	0	-	-	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
7	22-2	1081	1,14	100							0	0	0	-	-	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<b>Minimum Property</b>			1,04	100	0	0	0	0	0	0	0	0	0	0	0	10,0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Average Property</b>			1,07	100	0	0	0	0	0	0	0	0	0	0	0	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Maximum Property</b>			1,14	100	0	0	0	0	0	0	0	0	0	0	0	10,0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

# Mud Properties, daily record

Well: 25/10-8

Operator: Esso

Anchor/M-I Drilling Fluids

FSR no.	Date 1997	Depth m	M.W. sg	F.Vis s/qt.	VG-meter readings @ 600 rpm						A.V. rpm	P.V. rpm	Y.P. rpm	Gel 10s	Gel 10m	ES	HTHP 100°C	Mp ml	Excess Lime kg/m3	CaCl2 ppm 1000	Cl- Water mg/l	Water vol%	Solids vol%	Oil vol%	Sand vol%	OWR	HGS kg/m3	LGS kg/m3
<b>12 1/4" - 8 1/2" Hole Section: AncoVert</b>																												
23	10.mar	2270	1,32	96	81	52	42	30	16	15	41	29	23	20,0	36,0	1067	2,0	3,3	12,2	226,0	187,0	22,0	15,5	62,5	tr	74:26	486,0	64,0
23	10.mar	2332	1,32	98	95	62	49	36	18	17	48	33	29	22,0	42,0	1030	2,0	2,9	10,7	226,0	187,0	22,5	15,5	62,0	tr	73:27	482,0	66,0
23	10.mar	2360	1,32	95	92	60	49	36	18	16	46	32	28	22,0	43,0	1020	2,0	3,0	11,1	222,0	183,0	23,0	15,5	61,5	tr	73:27	478,0	69,0
24	11.mar	2411	1,32	90	96	63	52	38	19	17	48	33	30	23,0	44,0	1005	2,0	2,8	10,4	226,0	187,0	23,0	15,5	61,5	tr	73:27	477,0	68,0
24	11.mar	2518	1,32	86	93	60	49	36	18	17	47	33	27	23,0	44,0	1127	2,2	2,6	9,6	226,0	187,0	22,5	16,0	61,5	tr	73:27	458,0	94,0
25	12.mar	2518	1,32	95	94	61	49	35	17	16	47	33	28	22,0	43,0	1005	2,2	3,0	11,1	230,0	191,0	23,0	16,0	61,0	tr	73:27	452,0	95,0
25	12.mar	2545	1,32	105	93	60	50	35	17	16	47	33	27	23,0	44,0	990	2,2	2,9	10,7	226,0	187,0	23,0	16,0	61,0	tr	73:27	453,0	96,0
26	13.mar	2595	1,32	90	86	56	45	32	17	16	43	30	26	21,0	39,0	1060	2,0	3,0	11,1	231,0	191,0	23,0	15,5	61,5	tr	73:27	476,0	67,0
26	13.mar	2610	1,32	82	85	55	44	32	16	14	43	30	25	21,0	37,0	1124	1,8	2,6	9,6	226,0	186,0	22,0	15,5	62,5	tr	74:26	486,0	64,0
27	14.mar	2613	1,32	112	88	57	47	34	18	16	44	31	26	24,0	39,0	1060	2,1	3,0	11,1	230,0	191,0	22,0	15,0	63,0	tr	74:26	509,0	36,0
28	15.mar	2653	1,32	97	88	58	46	34	18	16	44	30	28	23,0	41,0	1130	1,9	2,8	10,4	226,0	187,0	22,5	15,5	62,0	tr	73:27	482,0	66,0
29	16.mar	2653	1,32	102	88	58	46	34	18	16	44	30	28	23,0	41,0	1130	1,9	2,8	10,4	226,0	187,0	22,5	15,5	62,0	tr	73:27	482,0	66,0
30	17.mar	2653	1,32	106	89	59	48	36	19	16	45	30	29	23,0	42,0	1070	2,0	2,9	10,7	226,0	187,0	22,5	15,5	62,0	tr	73:27	482,0	66,0
31	18.mar	2653	1,32	104	88	58	48	36	18	16	44	30	28	22,0	41,0	1090	2,0	2,9	10,7	226,0	187,0	22,5	15,5	62,0	tr	73:27	482,0	66,0
32	19.mar	2653	1,32	107	90	59	49	38	19	17	45	31	28	23,0	42,0	1060	2,1	2,8	10,4	222,0	182,0	22,5	15,5	62,0	tr	73:27	483,0	67,0
33	20.mar	2653	1,32	90	81	53	46	37	17	15	41	28	25	21,0	36,0	1080	2,1	3,0	11,1	221,0	181,0	21,0	15,0	64,0	tr	75:25	521,0	33,0
34	21.mar	2653	1,32	92	84	55	47	37	16	15	42	29	26	21,0	37,0	1095	2,1	2,9	10,7	216,0	176,0	21,0	15,0	64,0	tr	75:25	523,0	33,0
35	22.mar	2653	1,32	95	86	57	48	39	16	15	43	29	28	22,0	38,0	1085	2,1	2,9	10,7	212,0	172,0	21,5	15,0	63,5	tr	75:25	519,0	35,0
<b>Minimum Property</b>			1,32	82	81	52	42	30	16	14	41	28	23	20	36	990	2	3	10	212	172	21	15	61	0	0	452	33
<b>Average Property</b>			1,32	97	89	58	47	35	18	16	44	31	27	22	41	1068	2	3	11	225	185	22	15	62	0	0	485	64
<b>Maximum Property</b>			1,32	112	96	63	52	39	19	17	48	33	30	24	44	1130	2,2	3,3	12,2	231	191	23	16	64	0	0	523	96
<b>FSR #36 to #49: TESTING</b>																												
<b>8 1/2" Sidetrack Section: AncoVert</b>																												
50	06.apr	1250	1,32	86	73	46	36	25	12	11	37	27	19	14,0	25,0	680	2,4	2,6	9,6	213,0	173,0	25,5	14,5	60,0	tr	70:30	508,0	23,0
51	07.apr	1250	1,33	90	81	50	39	27	12	11	41	31	19	14,0	27,0	545	2,0	3,5	12,9	207,0	167,0	27,0	15,0	58,0	TR	68:32	498,0	41,0
52	08.apr	1250	1,33	90	81	50	39	27	12	11	41	31	19	14,0	27,0	545	2,0	3,5	12,9	207,0	167,0	27,0	15,0	58,0	TR	68:32	498,0	41,0
53	09.apr	1271	1,38	93	92	58	44	30	14	13	46	34	24	17,0	31,0	640	2,2	3,2	11,8	210,0	169,8	26,5	17,0	56,5	TR	68:32	537,0	69,0
54	10.apr	1995	1,38	93	92	58	44	30	14	13	46	34	24	17,0	31,0	640	2,2	3,2	11,8	210,0	169,8	26,5	17,0	56,5	TR	67:33	523,0	73,0
55	11.apr	2347	1,38	96	105	67	53	37	17	15	53	38	29	19,0	37,0	775	2,0	2,6	9,6	218,0	178,2	27,5	17,0	55,5	TR	67:33	490,0	94,0
56	12.apr	2943	1,38	95	100	63	50	35	16	14	50	37	26	21,0	39,0	939	1,8	2,6	9,6	221,5	181,8	27,5	17,0	55,5	TR	67:33	488,0	94,0
57	13.apr	3110	1,38	89	102	65	50	36	17	15	51	37	28	21,0	39,0	910	1,8	2,7	10,0	228,2	188,9	27,0	17,0	56,0	TR	67:33	491,0	91,0
58	14.apr	3110	1,39	104	108	67	53	35	15	13	54	41	26	20,0	40,0	947	1,9	2,8	10,4	235,0	196,3	27,0	17,0	56,0	TR	67:33	515,0	73,0
59	15.apr	3148	1,38	102	104	65	51	36	16	14	52	39	26	19,0	40,0	895	2,0	2,5	9,3	228,2	188,9	27,0	17,0	56,0	TR	67:33	491,0	91,0
60	16.apr	3168	1,38	106	102	64	50	35	16	13	51	38	26	19,0	39,0	860	2,0	2,5	9,2	224,7	185,2	27,0	17,0	56,0	TR	67:33	492,0	92,0
61	17.apr	3202	1,38	106	94	59	46	33	15	12	47	35	24	18,0	36,0	825	2,0	2,4	8,9	220,5	180,8	26,0	17,5	56,5	TR	68:32	478,0	117,0
62	18.apr	3426	1,38	95	93	58	45	31	14	13	47	35	23	18,0	36,0	870	2,0	2,8	10,4	224,2	184,6	26,0	17,5	56,5	TR	68:32	503,0	100,0
63	19.apr	3460	1,39	108	103	64	51	36	15	13	52	39	25	21,0	39,0	810	2,0	2,2	8,1	216,0	176,0	25,0	17,5	57,5	TR	70:30	515,0	96,0
64	20.apr	3460	1,39	107	101	64	50	36	15	13	51	37	27	21,0	39,0	800	2,0	2,3	8,5	216,0	176,0	25,0	17,5	57,5	TR	70:30	515,0	96,0
65	21.apr	3460	1,44	107	98	63	49	34	15	13	49	35	28	19,0	37,0	865	2,7	2,3	8,5	238,4	200,0	24,0	19,0	57,0	TR	70:30	577,0	92,0
66	22.apr	3460	1,44	108	97	62	48	34	15	13	49	35	27	19,0	37,0	845	2,6	2,2	8,1	234,6	195,8	24,0	19,0	57,0	TR	70:30	557,0	105,0
67	23.apr	2317	1,45	110	110	68	52	36	14	13	55	42	26	20,0	36,0	650	2,2	2,4	8,9	234,6	195,8	24,0	19,5	56,5	TR	70:30	560,0	117,0
68	24.apr	917	1,46	125	118	72	54	36	14	13	59	46	26	19,0	37,0	685	2,2	2,4	8,9	203,2	163,0	27,0	20,0	53,0	TR	66:34	548,0	141,0
69	25.apr	0	1,44	140	144	87	66	45	16	15	72	57	30	22,0	47,0	390	2,2	2,7	10,0	177,0	137,5	32,0	18,0	50,0	TR	61:39	560,0	84,0
<b>Minimum Property</b>			1,32	86	73	46	36	25	12	11	37	27	19	14	25	390	2	2	8	177	138	24	15	50	0	0	478	23
<b>Average Property</b>			1,39	103	100	63	49	34	15	13	50	37	25	19	36	756	2	3	10	218	179	26	17	56	0	0	517	87
<b>Maximum Property</b>			1,46	140	144	87	66	45	17	15	72	57	30	22	47	947	2,7	3,5	12,9	238,4	200	32	20	60	0	0	577	141

# Mud Properties, daily record

Well: 25/10-8

Operator: Esso

Anchor/M-I Drilling Fluids

FSR no.	Date 1997	Depth m	M.W. sg	F.Vis s/qt.	VG-meter readings @ 600 300 200 100 6 3 rpm rpm rpm rpm rpm rpm						A.V. mPas	P.V. < lbs / 100 ft2 >	Y.P.	Gel 10s	Gel 10 m	ES Volts	HTHP 100°C cc	Mp ml	Excess Lime kg/m3	CaCl2 ppm 1000	Cl- Water mg/l	Water vol%	Solids vol%	Oil vol%	Sand vol%	OWR	HGS kg/m3	LGS kg/m3								
<b>12 1/4" Hole Section: AncoVert</b>																																				
10	25.feb	1081	1,4	100	96	60	47	34	17	16	48	36	24	19,0	34,0	542	1,8	2,0	7,4	184,0	144,0	25,0	17,0	58,0	tr	70:30	611,0	33,0								
11	26.feb	1081	1,4	100	96	60	47	34	17	16	48	36	24	19,0	34,0	542	1,8	2,0	7,4	184,0	144,0	25,0	17,0	58,0	tr	70:30	611,0	33,0								
12	27.feb	1081	1,4	100	96	60	47	34	17	16	48	36	24	19,0	34,0	542	1,8	2,0	7,4	184,0	144,0	25,0	17,0	58,0	tr	70:30	611,0	33,0								
13	28.feb	1083	1,33	81	86	55	42	30	14	13	43	31	24	18,0	30,0	592	1,6	2,4	8,9	161,0	122,0	27,0	14,5	58,5	tr	68:32	538,0	17,0								
14	01.mar	1090	1,33	78	78	49	39	28	13	12	39	29	20	17,0	28,0	519	1,6	2,1	7,8	143,0	107,0	27,0	15,0	56,0	tr	66:34	505,0	52,0								
15	02.mar	1184	1,33	76	85	53	41	29	14	13	43	32	21	18,0	32,0	567	1,6	2,0	7,4	194,0	154,0	27,0	15,5	56,5	tr	67:33	470,0	75,0								
16	03.mar	1313	1,32	80	96	62	53	40	20	18	48	34	28	23,0	44,0	660	1,5	2,3	8,5	186,0	146,0	28,0	15,5	56,5	tr	67:33	446,0	92,0								
17	04.mar	1406	1,32	90	100	65	52	38	19	18	50	35	30	23,0	38,0	740	1,6	2,2	8,2	186,0	146,0	28,0	15,0	57,0	tr	67:33	470,0	64,0								
18	05.mar	1492	1,32	100	102	65	53	38	19	18	51	37	28	26,0	39,0	750	1,8	2,7	10,0	190,0	150,0	28,0	15,0	57,0	tr	67:33	468,0	63,0								
19	06.mar	1492	1,33	80	86	54	42	29	14	13	43	32	22	18,0	31,0	667	2,0	2,8	10,4	175,0	136,0	25,0	15,0	60,0	tr	71:29	525,0	36,0								
20	07.mar	1555	1,32	88	94	60	48	34	18	16	47	34	26	21,0	36,0	640	2,0	2,9	10,7	178,0	138,0	26,0	15,5	58,5	tr	69:31	465,0	84,0								
21	08.mar	1669	1,32	84	92	59	46	33	17	15	46	33	26	21,0	37,0	743	2,2	3,2	11,8	194,0	154,0	26,0	16,0	58,0	tr	69:31	436,0	111,0								
22	09.mar	1770	1,32	88	100	64	51	37	19	17	50	36	28	23,0	35,0	750	2,4	3,0	11,1	194,0	154,0	26,0	16,0	58,0	tr	69:31	436,0	111,0								
										0	0	0																								
<b>Minimum Property</b>			1,32	76	78	49	39	28	13	12	0	0	0	17	28	519	2	2	7	143	107	25	15	56	0	0	436	17								
<b>Average Property</b>			1,34	88	93	59	47	34	17	15	46	34	25	20	35	635	2	2	9	181	141	26	16	58	0	0	507	62								
<b>Maximum Property</b>			1,40	100	102	65	53	40	20	18	51	37	30	26	44	750	2,4	3,2	11,8	194	154	28	17	60	0	0	611	111								



## 5. DRILL STEM TEST AND PVT ANALYSIS

### 5.1 Drill Stem Test Results

A dual flow, dual shut-in well test carried out on March 29 and 30, 1997 using the Deep Sea Trym semi-submersible drilling rig and the Crystal Sea test vessel for processing and storage of produced crude.

The well was perforated on the March 29 at 08:15 from 2391.4 to 2398.4 m MDRKB and flowed for 7 minutes on a 12/64" choke followed by a 72 minute shut-in to obtain the initial pressure. A production rate could not be determined as the total line fillup to the Crystal Sea test vessel far exceeded what could be produced in 7 minutes. Following the initial build-up, the well was reopened for flow at 09:50. The well required a slow bean up since there was no kind of sand control device used. Significant sand production was observed on a 44/64" adjustable choke and the well was subsequently choked down to 40/64" fixed choke where the well was maintained for the remainder of the test. The production rate on the 44/64" adjustable was close to 5000 BPD.

Stabilized flow was established at approximately 13:30 hours on March 29 at a fixed choke setting of 40/64". The well was shut-in at 08:07 on March 30 when pressure was lost on the control line for the subsea test tree due to a leak. The well flowed approximately 4350 STB/D with a GOR of 650 during the stabilized flow period. The productivity index was 145 STB/D/psi at the time of shut-in. Separator fluid samples were taken during the test. No bottom hole fluid samples were recovered because entering the well was impossible after shut-in.

Parameter	Value
Tested Interval ( m )	7
Perforated Interval (m MDRKB )	2391.4 - 2398.4
Initial Reservoir Pressure ( psia )	3510
Initial Reservoir Pressure ( degrees C )	94
Formation Permeability ( D )	6
Skin	-0.9
Radius of investigation ( m )	2860
Productivity Index ( STB/D/psi )	145
Viscosity at Reservoir Cond. ( cp )	0.391
Density at Stocktank Cond. ( °API )	36.7
Formation Volume Factor ( RB/STB )	1.52
GOR ( SCF/STB )	650

<i>ESSO NORGE A/S</i>				Geologist: ARDAENS-MIDGLEY		
<i>PVT SAMPLES OVERVIEW</i>				<i>WELL 25/10-8</i>		
				17-18/03/97		
WELL	SOURCE	DEPTH (M)		CHAMBER		
		MD RKB	TVD RKB	NUMBER	SIZE	CONTENT
25/10-8	RCI	2373.5	2372.9	177693,00	600CC	GAS
25/10-8	RCI	2394,00	2393.39	177681,00	600CC	GAS/OIL?
25/10-8	RCI	2394,00	2393.39		10 LITERS	EMPTY (PISTON STUCK )
25/10-8	RCI	2436.2	2435.59	331584,00	4 LITERS	WATER
25/10-8	RCI	2404.5	2403.89	177695,00	600 CC	GAS/OIL?

19 March, 1997  
09:24

***FAX MESSAGE***

**To: Torunn Valheim, Operations Geologist.**

**From: John Midgley / Regis Ardaens, 25/10-8**

**Torunn**

**COMPOSITION OF 600CC SAMPLE AT 2<sup>4</sup>204.5M**

**500cc OF OIL 38 API AT 52° F (11° C)**

**1.4 CUBIC FEET OF GAS**

**OPENING PRESSURE 1500PSI**

GAS COMPOSITION ∴ 4 SUCCESSIVE SAMPLINGS 1 to 4

SAMPLE	C1	C 2	C3	iC4	nC4	iC5	nC5
1	749590	150540	104430	10720	20740	4320	130
2	764130	150120	100320	10010	15260	2070	570
3	722680	175460	89590	9950	13840	1770	430
4	740640	146810	95030	9580	12350	1720	270

REGARDS

**J R**

ESSO NORGE A/S WIRELINE TEST REPORT: OFFSHORE PRESSURE DATA									WELL 25/10 - 8		GEOLOGIST ARDAENS / MIDGLEY							
									KB ELEVATION AMSL 24,5 m		BIT SIZE 8 1/2"							
									WATER DEPTH 115 m		DATE 17 03 97							
RUN No	TEST No	DEPTH (M)		PRESSURE GAUGE	MUD DATA		PRE TEST DATA		SAMPLE DATA					MUD DATA		TEMP DF	MOBILITY ESTIMATE & COMMENTS	VC*
		MD RKB	TVD RKB		IHP BARS	SGE*	SIP BARS	SGE*	VOL	MAX DD	FINAL FP	TIME MIN	FSIP	FHP				
		BARS	SGE*											BARS	SGE*			
1	1	2372,6	2371,9		310,00	1,35	-							314,40	1,37	90,1	1,2 -aband	T
1	2	2373,0	2372,4		310,70	1,35	241,30	1,05						310,30	1,35	91,3	662,4	V
1	3	2373,5	2372,9		310,40	1,35	241,30	1,05						310,10	1,35	92,2	6,1	V
	3	2373,5	2372,9				241,30	1,05	600 cc GAS								1218,6	V
1	4	2374,5	2373,9		310,30	1,35	-							310,20	1,35	95,2		SF
1	5	2374,0	2373,3		310,20	1,35	241,57	1,05						310,20	1,35	95,6		SF
1	6	2373,5	2372,4		-	-	-	-						-	-			SF
1	7	2397,0	2396,4		314,00	1,35	241,60	1,04						314,00	1,35	96,4		SF
2	8	2374,5	2373,9		312,60	1,36	241,40	1,05						312,40	1,36	68,5	2,8	V
2	9	2377,1	2376,4		312,70	1,36	-							312,50	1,35	75,3	0,6 ? aband	T
2	10	2378,5	2377,9													79,9	4,2	V
	10	2378,5	2377,9		312,70	1,35	241,70	1,05						312,40	1,35		4,2	V
2	11	2380,0	2379,4													83,2	4,1	V
	11	2380,0	2379,4		312,80	1,35	241,70	1,05						312,40	1,35		4,1	V
2	12	2380,8	2380,2		312,70	1,35	241,60	1,05						312,30	1,35	85,5	4,6	V
2	13	2392,5	2391,9		314,20	1,35	242,30	1,04						313,80	1,35	88,4	471,3	V
2	14	2394,0	2393,4		314,20	1,35	242,30	1,04	600cc GAS					314,00	1,35	95,2	369,5	V
	14								10 liters empty		Piston failure							
2	15	2396,0	2395,4		314,20	1,35	-	-						313,90	1,35	95,7	29,3? aband	T
	15	2396,0	2395,4														61,5	T

GENERAL COMMENTS

M=mobility ratio (md/cp), qualitative measurement of permeability

\*VALIDITY CODE V=VALID T=TIGHT SC=SUPERCHARGED SF=SEAL FAILURE, I=INCOMPLETE SO=SAMPLE ONLY

A5-3

PRESS\_1B XLS03 07 97

ESSO NORGE A/S WIRELINE TEST REPORT: OFFSHORE PRESSURE DATA								WELL 25/10 - 8		GEOLOGIST ARDAENS / MIDDLEY								
								KB ELEVATION AMSL 24,5 m		BIT SIZE 8 1/2								
								WATER DEPTH 115 m		DATE 17 03 97								
RUN No	TEST No	DEPTH (M)		PRESSURE GAUGE	MUD DATA		PRE TEST DATA		SAMPLE DATA				MUD DATA		TEMP DF	MOBILITY ESTIMATE & COMMENTS	VC*	
		MD RKB	TVD RKB		IHP BARS	SGE*	SIP BARS	SGE*	VOL	MAX DD	FINAL FP	TIME MIN	FSIP	FHP BARS				SGE*
2	16	2395,50	2394,90		314,00	1,35								313,20	1,35	96,5	87,5? aband	T
2	17	2397,00	2396,40		313,50	1,35	242,44	1,04						313,1	1,35	96,6	8,0	V
2	18	2400,50	2399,90		313,70	1,35	-	-						313,30	1,35	97,1	3,9? aband	T
2	19	2400,20	2399,60		313,50	1,35	-	-						313,40	1,35	97,6	18 6? aband	T
2	20	2403,00	2402,40		314,00	1,35	-	-						313,80	1,35	97,2	18 8? aband	T
2	21	2404,50	2403,90		314,10	1,35	242,90	1,04	Pumped out 13 liters 600cc OIL				315,50	1,36	98,4	106,7	V	
2	22	2410,80	2410,20		316,40	1,35	-	-						315,70	1,36	99,1	17? aband	T
2	23	2428,50	2427,90		318,20	1,35	-	-						317,90	1,37	98,7	30,6? aband	T
2	24	2431,50	2430,90		320,00	1,36	-	-						320,00	1,38	98,6	12 4? aband	T
2	25	2436,40	2435,80		318,60	1,35	245,90	1,04	4 liters	WATER				318,10	1,37	102,1	168 9	V
2	26	2436,40	2435,80		318,40	1,35	245,90	1,04						318,30	1,37	102,4	2,9	V
2	27	2437,10	2436,50		318,70	1,35	-	-						318,4	1,37	102,5	38,2? aband	T
2	28	2439,50	2438,90		318,90	1,35	-	-						318,80	1,37	102,6	1,7? aband	T
2	29	2512,00	2511,40		329,70	1,35	254,40	1,04						329,30	1,41	101 8	2 1	V
2	30	2515,00	2514,40		329,70	1,35	254,30	1,04						329,50	1,41	102,0	107 4	V

GENERAL COMMENTS

M=mobility ratio (md/cp) qualitative measurement of permeability

\*VALIDITY CODE V=VALID, T=TIGHT, SC=SUPERCHARGED, SF=SEAL FAILURE, I=INCOMPLETE SO=SAMPLE ONLY

ESSO NORGE A/S WIRELINE TEST REPORT: OFFSHORE PRESSURE DATA									WELL 25/10 - 8		GEOLOGIST ARDAENS / MIDOLEY							
									KB ELEVATION AMSL 24,5 m		BIT SIZE 8 1/2"							
									WATER DEPTH 115 m		DATE 18 03 97							
RUN No	TEST No	DEPTH (M)		PRESSURE GAUGE	MUD DATA		PRE-TEST DATA		SAMPLE DATA					MUD DATA		TEMP DF	MOBILITY ESTIMATE & COMMENTS	VC*
		MD RKB	TVD RKB		IHP		SIP		VOL	MAX DD	FINAL FP	TIME MIN	FSIP	FHP				
					BARS	SGE*	BARS	SGE*						BARS	SGE*			
2	31	2520,00	2519,40		330,30	1,35	254,80	1,04						330,10	1,35	102,1	34,7	V
2	32	2526,50	2525,90		331,20	1,35	255,50	1,04						330,9	1,35	102,3	63,7	V
2	33	2528,60	2528,00		331,20	1,35	255,80	1,04						330,90	1,35	102,5	4,2	V
2	34	2404,60	2404,60		314,00	1,34	242,90	1,04						315,50	1,35	101,8	101,2	V
	34	2404,60	2404,60		314,00	1,34	242,90	1,04	600cc OIL					315,50	1,35			
2	35	2252,00	2251,40		294,50	1,35	232,73	1,07						294,50	1,35	98,6	10,8	V
2	36	2119,00	2118,50		277,30	1,35	-	-						277,40	1,35	95,6	No Seal	SF
2	37	2118,50	2118,00		277,40	1,35	-	-						277,50	1,35	94,7	No Seal	SF
2	38	2109,50	2108,90		276,30	1,35	-	-						276,30	1,35	92,2	No Seal	SF
2	39	2090,00	2089,50		273,80	1,35	-	-						273,80	1,35	92,0	No Seal	SF
2	40	2098,00	2097,50		275,00	1,35	-	-						275,00	1,35	91,8	No Seal	SF
2	41	2093,00	2092,50		274,20	1,35	-	-						274,20	1,35	91,6	No Seal	SF
2	42	2092,00	2091,50		274,10	1,35	-	-						274,10	1,35	91,3	9,2 aband	T
2	43	2086,00	2085,50		273,50	1,35	208,20	1,03						273,40	1,35	91,2	212,9	V
2	44	2078,00	2077,50		272,20	1,35	-	-						272,20	1,35	91,1	No Seal	SF
	45	2395,00	2394,40		314,80	1,35	242,30	1,04						314,60	1,35	92,2	42,5	V

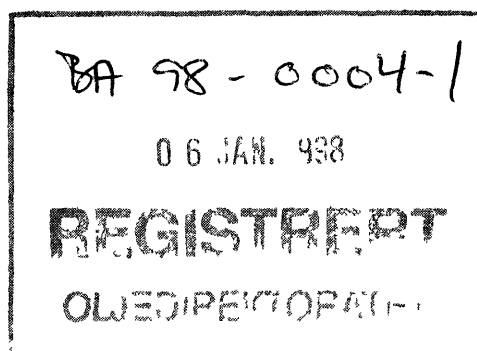
GENERAL COMMENTS:

M=mobility ratio (md/cp), qualitative measurement of permeability

\*VALIDITY CODE V=VALID, T=TIGHT, SC=SUPERCHARGED, SF=SEAL FAILURE, I=INCOMPLETE, SO=SAMPLE ONLY



**PETROLEUM GEOCHEMICAL  
EVALUATION OF THE  
SECTION 1900m TO 3460m  
OF WELL 25/10-8A,  
NORWEGIAN SECTOR,  
NORTH SEA**



*Report No. 7990/Ic*

*Project No. Ic/GN217*

Prepared by:  
**S Martin**

Of:  
**Robertson Research International Limited**  
Llandudno, North Wales LL30 1SA, United Kingdom

For:  
**Esso Norge AS**  
Postboks 60, N-4033 Forus, Grenseveien 6, Norway

DECEMBER 1997

**Robertson**



Well 25/10-8A, Norwegian Sector, North Sea

**CHAPTER 2****Introduction and Well Data**

Petroleum geochemical analyses have been undertaken on cuttings samples and core samples, between 1900m and 3460m of the 25/10-8A well, drilled offshore Norway. This work has been carried out on behalf of the operator Esso Norge AS. The results of the study are presented in this report.

Samples have been analysed to determine the thermal maturity and source potential of the well. The well has been drilled with oil-based mud which precludes the effective use of certain detailed geochemical analyses.

Samples have been received in two consignments, the details of which are shown below.

Consignment no.	Sample type	No. of samples	Depth range	Despatched by	Date of receipt	Comments
1	canned cuttings	44	1900m-3460m	Esso Norge	21-May-97	
	muds	2	3110m, 3164m			
2	core	5	323.2m-3182.5	Esso Norge	01-Aug-97	

The contract covering this work is based on Robertson proposal number 96/1c/011 and Esso Norge Service order 3-1-6-8062-00 (for analysis of 25/10-7S well) dated February 1996. This contract has been extended to cover the geochemical work programme for both the 25/10-8 and 25/10-8A wells. The programme for the 25/10-8A well has been carried out under Work order 130104 (drilling permit L889). A copy of the work programme is attached as Appendix 5.

The numbers of analyses carried out for the study are as follows:

Analysis	Number
Sample washing	35
Lithological description	35
Solvent clean up	29
Kerogen preparation	14
Spore colour index	14
Vitrinite reflectivity	15
Total organic carbon (TOC)	49
Rock-Eval pyrolysis	33
Pyrolysis gas chromatography	4
Airspace gas	1
Airspace gas isotopes	-
Gasoline fraction	-
Alkane gas chromatography-mass spectrometry	2

## CHAPTER 3

### Results

#### 3.1 SAMPLE PREPARATION

Well 25/10-8A has been drilled using oil-based mud and hence all the samples for analysis are contaminated with this product. Initially the samples were washed in warm water with powder and liquid detergent prior to carrying out visual lithological description. After further sample preparation involving sieving to remove cavings and fine recirculated silt, the samples were crushed for TOC analysis and sent as cuttings for kerogen preparation. The crushed particles were then submitted for non-quantitative solvent extraction to remove absorbed base oil prior to carrying out TOC and pyrolysis. Consequently all analyses (except for airspace gas, gasoline and isotope work) have been carried out on pre-extracted samples.

Examination of pyrolysis production indices indicates that these are generally low which suggests that removal of the oil-based mud has largely been successful. Three samples at 1900m, 2100m and 2200m have higher production indices of 0.40, 0.29 and 0.58 respectively, which may indicate that some oil-based mud contamination still remains in these samples, however, the S2 (potential yield) values for these 3 samples are very low which may tend to exaggerate the production indices.

COMPANY:

WELL: 25/10-8A

LOCATION: NORWAY

SAMPLE DEPTH (metres)	<i>n</i> -C <sub>1</sub> , %	<i>n</i> -C <sub>2</sub> , %	<i>n</i> -C <sub>3</sub> , %	<i>i</i> -C <sub>4</sub> , %	<i>n</i> -C <sub>4</sub> , %	<i>i</i> -C <sub>5</sub> , %	<i>n</i> -C <sub>5</sub> , %	C <sub>6+</sub> , %	TOTAL GAS, ppm	WET GAS (C <sub>2</sub> -C <sub>4</sub> ), %	<i>i</i> -C <sub>4</sub> / <i>n</i> -C <sub>4</sub>
3040	75.9	14.2	7.5	0.8	1.7				212	24.16	0.5

TABLE: 1 Airspace gas data for canned cuttings sample

GENERAL DATA			MATURITY DATA		KEROGEN COMPOSITION DATA							
SAMPLE DEPTH (Metres)	SAMPLE TYPE	ANALYSED LITHOLOGY	SPORE COLOUR INDEX	VITR. REFL. R oil av %	% (Visual, from microscopy)			% (Calculated)				
					INERTINITE	VITRINITE	SAPROPEL	INERT	VIT	ALG SAP	WXY SAP	
1900	Ctgs	MDST, med-dk gy+ 20% SH, med-dk gy+ mnr MDST, wht	3.5	.33(43)	Mnr?	100?	Mnr?					
2000	Ctgs	MDST, med-dk gy+ 20% SH, med-dk gy+ 20% MDST, wht+ mnr MDST, brn-gy+ tr MDST, pal yel-brn	3.5-4.0	.37(45)	10	90	Prt					
2100	Ctgs	MDST, brn-gy+ 20% MDST, med-dk gy+ 20% SH, med-dk gy+ tr MDST, wht	3.0-3.5 7.0 R	.36(37)	Prt	100	Prt					
2200	Ctgs	MDST, brn-gy+ 20% MDST, med-dk gy+ 20% SH, med-dk gy+ tr MDST, wht	3.5	.43(46)	Prt	100	Mnr					
2300	Ctgs	MDST, brn-gy+ 20% MDST, med-dk gy+ 20% SH, med-dk gy+ tr MDST, v pal orng	3.5 7.0 R	.40(48)	Prt	100	Mnr					
2420	Ctgs	MDST, brn-gy+ 20% MDST, v dsk red+ 20% SH, med-dk gy+ mnr MDST, med-dk gy+ tr MDST, v lt gy	4.0	.42(52)	Mnr	100	Mnr					
2540	Ctgs	MDST, brn-gy+ 20% MDST, med-dk gy+ 20% SH, med-dk gy+ mnr MDST, wht	4.0-4.5	.38(47)	Mnr	90	10					
2640	Ctgs	MDST, med-dk gy+ 20% SH, med-dk gy+ 20% MDST, v dsk red+ mnr MDST, med-lt gy+ tr MDST, wht	4.0-4.5	.41( 5)	Mnr	100	Mnr					
2820	Ctgs	MDST, med-dk gy+ 20% SH, med-dk gy+ 20% MDST, med-lt gy+ tr MDST, v lt gy+ tr MDST, brn-gy	4.0-4.5	.44( 5)	20	80	Mnr					
2860	Ctgs	MDST, med-lt gy+ 20% MDST, wht+ 20% SH, med-dk gy+ 10% MDST, med-dk gy+ tr MDST, dk gy	4.0-4.5	.44(30) .64( 9)R	60	40	Prt					

## MATURITY AND KEROGEN COMPOSITION DATA

TABLE : 2A

GENERAL DATA			MATURITY DATA		KEROGEN COMPOSITION DATA							
SAMPLE DEPTH (Metres)	SAMPLE TYPE	ANALYSED LITHOLOGY	SPORE COLOUR INDEX	VITR. REFL. R oil sv %	% (Visual, from microscopy)			% (Calculated)				
					INERTINITE	VITRINITE	SAPROPEL	INERT	VIT	ALG SAP	WXY SAP	
2980	Ctgs	LST, wht+ 20% MDST, med-lt gy+ tr SH, med-dk gy	4.0	.40( 4)	Prt	Prt	Prt					
3080	Ctgs	LST, wht+ 20% MDST, med-lt gy+ tr SH, med-dk gy	4.5-5.0	.44( 6)	Prt?	50?	50?					
3182.50	Core	No liths available										
	P	No liths available		.39(55)								
3222	Ctgs	MDST, med-dk gy+ 20% SH, med-dk gy+ 20% MDST, med-lt gy+ tr LST, wht	5.0	.47(26) .74(26)R	30?	35?	35?					
3260	Ctgs	MDST, med-dk gy+ 20% SH, lt gy+ 10% MDST, brn-gy+ tr LST, wht + tr MDST, brn-gy	4.5-5.0	.53(24) .33(13)L .83(11)R	20?	40?	40?					
3460.01		TD										

MATURITY AND KEROGEN COMPOSITION DATA

TABLE : 2 B

GENERAL DATA			CHEMICAL ANALYSIS DATA															
SAMPLE DEPTH (Metres)	SAMPLE TYPE	ANALYSED LITHOLOGY	TOC % OF ROCK	PYROLYSIS					SOLVENT EXTRACTION/FRACTIONATION									
				Tmax °C	HI	OI	PI	POT.YLD. (ppm)	EXTR. (ppm)	HC (ppm)	EXTR. % OC	HC %OC	ALK. %EX	ALK. %HC				
1900	Ctgs	MDST, med-dk gy+ 20% SH, med-dk gy+ mnr MDST, wht	1.01															
	Ctgs	After extraction	.54	412	54	150	.40	290										
2000	Ctgs	MDST, med-dk gy+ 20% SH, med-dk gy+ 20% MDST, wht + mnr MDST, brn-gy+ tr MDST, pal yel-brn	1.29															
	Ctgs	After extraction	.61	422	62	157	.12	380										
2100	Ctgs	MDST, brn-gy+ 20% MDST, med-dk gy+ 20% SH, med-dk gy+ tr MDST, wht	.64															
	Ctgs	After extraction	.42	413	29	112	.29	120										
2200	Ctgs	MDST, brn-gy+ 20% MDST, med-dk gy+ 20% SH, med-dk gy+ tr MDST, wht	.78															
	Ctgs	After extraction	.54	423	30	104	.58	160										
2300	Ctgs	MDST, brn-gy+ 20% MDST, med-dk gy+ 20% SH, med-dk gy+ tr MDST, v pal orng	1.77															
	Ctgs	After extraction	1.08	431	99	115	.04	1070										
2420	Ctgs	MDST, brn-gy+ 20% MDST, v dsk red+ 20% SH, med-dk gy+ mnr MDST, med-dk gy+ tr MDST, v lt gy	1.33															
	Ctgs	After extraction	.77	428	74	57	.17	570										
2540	Ctgs	MDST, brn-gy+ 20% MDST, med-dk gy+ 20% SH, med-dk gy+ mnr MDST, wht	2.38															
	Ctgs	After extraction	1.33	432	188	47	.04	2500										
2580	Ctgs	MDST, med-dk gy+ 20% SH, med-dk gy+ tr MDST, brn-gy+ tr MDST, wht	2.22															
	Ctgs	After extraction	1.20	429	161	58	.04	1930										
2640	Ctgs	MDST, med-dk gy+ 20% SH, med-dk gy+ 20% MDST, v dsk red+ mnr MDST, med-lt gy+ tr MDST, wht	.82															
	Ctgs	After extraction	.36	407	39	203	.18	140										

## SUMMARY OF CHEMICAL ANALYSIS DATA

TABLE : 3A

GENERAL DATA			CHEMICAL ANALYSIS DATA												
SAMPLE DEPTH (Metres)	SAMPLE TYPE	ANALYSED LITHOLOGY	TOC % OF ROCK	PYROLYSIS					SOLVENT EXTRACTION/FRACTIONATION						
				Tmax °C	HI	OI	PI	POT.YLD. (ppm)	EXTR. (ppm)	HC (ppm)	EXTR. % OC	HC %OOC	ALK. %HC		
2780	Ctgs	MDST, med-dk gy+ 20% SH, med-dk gy+ 20% MDST, v lt gy+ 10% MDST, med-lt gy+ tr MDST, brn-gy	1.16												
	Ctgs	After extraction	.55	401	75	84	.11	410							
2820	Ctgs	MDST, med-dk gy+ 20% SH, med-dk gy+ 20% MDST, med-lt gy+ tr MDST, v lt gy+ tr MDST, brn-gy	1.43												
	Ctgs	After extraction	.71	410	70	75	.14	500							
2860	Ctgs	MDST, med-lt gy+ 20% MDST, wht+ 20% SH, med-dk gy+ 10% MDST, med-dk gy+ tr MDST, dk gy	1.01												
	Ctgs	After extraction	.60	427	73	122	.12	440							
2980	Ctgs	LST, wht+ 20% MDST, med-lt gy+ tr SH, med-dk gy	.72												
	Ctgs	After extraction	.42	445	402	181	.01	1690							
3080	Ctgs	LST, wht+ 20% MDST, med-lt gy+ tr SH, med-dk gy	.89												
	Ctgs	After extraction	.55	442	376	175	.02	2070							
3100	Ctgs	MDST, med-lt gy+ 20% SH, med-dk gy+ tr LST, wht	2.26												
	Ctgs	After extraction	1.58	427	404	54	.02	6380							
3123.2	Core	SH, med gy+ 40% SH, med-dk gy	-							3310					
	Core	After extraction	2.26	421	396	17	.02	8940							
3135.4	Core	SH, med-dk gy+ 30% SH, med gy	-							5095					
	Core	After extraction	3.68	422	610	11	.01	22440							
3142.7	Core	SH, med-dk gy+ 10% SH, med gy	-							1985					
	Core	After extraction	2.59	420	431	12	.02	11170							
3169.0	Core	SH, med-dk gy+ 20% SH, med gy	-							1840					

## SUMMARY OF CHEMICAL ANALYSIS DATA

TABLE : 3B

GENERAL DATA			CHEMICAL ANALYSIS DATA											
SAMPLE DEPTH (Metres)	SAMPLE TYPE	ANALYSED LITHOLOGY	TOC % OF ROCK	PYROLYSIS					SOLVENT EXTRACTION/FRACTIONATION					
				Tmax °C	HI	OI	PI	POT.YLD. (ppm)	EXTR. (ppm)	HC (ppm)	EXTR. % OC	HC		ALK. %HC
				%OC	%EX									
3169.0	Core	After extraction	2.82	421	421	17	.02	11860						
3182.5	Core	LST, med gy+ 10% COAL	-											
3204	Ctgs	MDST, med-dk gy+ 20% MDST, brn-gy+ 10% SH, lt gy+ tr MDST, gn-gy+ tr LST, wht	-											
	Ctgs	After extraction	1.29	428	193	89	.06	2490						
3222	Ctgs	MDST, med-dk gy+ 20% SH, med-dk gy+ 20% MDST, med-lt gy+ tr LST, wht	2.91											
	Ctgs	After extraction	2.10	424	377	35	.02	7910						
3240	Ctgs	MDST, med-dk gy+ 20% SH, med-dk gy+ 20% MDST, med-lt gy+ mnr MDST, brn-gy+ tr LST, wht	2.70											
	Ctgs	After extraction	2.21	426	378	36	.02	8350						
3260	Ctgs	MDST, med-dk gy+ 20% SH, lt gy+ 10% MDST, brn-gy + tr LST, wht+ tr MDST, brn-gy	-											
	Ctgs	After extraction	1.98	428	305	46	.02	6030						
3280	Ctgs	MDST, brn-gy+ 10% MDST, med-dk gy+ tr SH, v lt gy	-											
	Ctgs	After extraction	2.04	427	361	135	.07	7360						
3300	Ctgs	SH, med-dk gy+ 10% MDST, brn-gy+ tr MDST, wht	-											
	Ctgs	After extraction	1.87	427	355	94	.06	6630						
3325	Ctgs	MDST, pal yel-brn+ tr MDST, brn-gy	-											
	Ctgs	After extraction	1.00	428	272	180	.07	2720						
3340	Ctgs	MDST, pal yel-brn+ 10% MDST, brn-gy+ 10% MDST, med-dk gy+ tr MDST, wht	-											
	Ctgs	After extraction	1.64	432	361	128	.06	5920						
3360	Ctgs	MDST, med-dk gy+ 10% MDST, brn-gy+ 10% MDST, pal yel-brn+ tr MDST, wht	-											
	Ctgs	After extraction	1.81	431	330	92	.05	5980						
3380	Ctgs	MDST, pal yel-brn+ 20% MDST, med-dk gy+ tr MDST wht	-											
	Ctgs	After extraction	.86	427	328	170	.11	2820						

## SUMMARY OF CHEMICAL ANALYSIS DATA

TABLE : 3C



COMPANY: ESSO

WELL: 25/10-8A

LOCATION: NORWAY

GENERAL DATA			CHEMICAL ANALYSIS DATA												
SAMPLE DEPTH (Metres)	SAMPLE TYPE	ANALYSED LITHOLOGY	TOC % OF ROCK	PYROLYSIS					SOLVENT EXTRACTION/FRACTIONATION						
				Tmax °C	HI	OI	PI	POT.YLD. (ppm)	EXTR. (ppm)	HC (ppm)	EXTR. % OC	HC %OC	ALK. %HC		
3400	Ctgs	MDST, med-dk gy+ tr MDST wht	-												
	Ctgs	After extraction	1.35	428	325	130	.07	4390							
3420	Ctgs	MDST, med-dk gy+ tr MDST wht	-												
	Ctgs	After extraction	1.12	430	279	116	.06	3120							
3440	Ctgs	MDST, brn-blk+ tr MDST, pal yel-brn	-												
	Ctgs	After extraction	1.86	431	285	89	.07	5310							
3460	Ctgs	MDST, brn-blk	-												
	Ctgs	After extraction	2.27	429	285	70	.05	6480							
3460.01		TD													

SUMMARY OF CHEMICAL ANALYSIS DATA

TABLE : 3D

GENERAL DATA			CHEMICAL ANALYSIS DATA									
SAMPLE DEPTH (Metres)	SAMPLE TYPE	ANALYSED LITHOLOGY	TOC % OF ROCK	P Y R O L Y S I S								
				S1 (ppm)	S2 (ppm)	S3 (ppm)	H1	O1	PI	Tmax °C	S2/S3	
1900	Ctgs	MDST, med-dk gy+ 20% SH, med-dk gy+ mnr MDST, wht	1.01									
	Ctgs	After extraction	.54	190	290	810	54	150	.40	412	.36	
2000	Ctgs	MDST, med-dk gy+ 20% SH, med-dk gy+ 20% MDST, wht+ mnr MDST, brn-gy+ tr MDST, pal yel-brn	1.29									
	Ctgs	After extraction	.61	50	380	960	62	157	.12	422	.40	
2100	Ctgs	MDST, brn-gy+ 20% MDST, med-dk gy+ 20% SH, med-dk gy+ tr MDST, wht	.64									
	Ctgs	After extraction	.42	50	120	470	29	112	.29	413	.26	
2200	Ctgs	MDST, brn-gy+ 20% MDST, med-dk gy+ 20% SH, med-dk gy+ tr MDST, wht	.78									
	Ctgs	After extraction	.54	220	160	560	30	104	.58	423	.29	
2300	Ctgs	MDST, brn-gy+ 20% MDST, med-dk gy+ 20% SH, med-dk gy+ tr MDST, v pal orng	1.77									
	Ctgs	After extraction	1.08	50	1070	1240	99	115	.04	431	.86	
2420	Ctgs	MDST, brn-gy+ 20% MDST, v dsk red+ 20% SH, med-dk gy+ mnr MDST, med-dk gy+ tr MDST, v lt gy	1.33									
	Ctgs	After extraction	.77	120	570	440	74	57	.17	428	1.30	
2540	Ctgs	MDST, brn-gy+ 20% MDST, med-dk gy+ 20% SH, med-dk gy+ mnr MDST, wht	2.38									
	Ctgs	After extraction	1.33	100	2500	630	188	47	.04	432	3.97	
2580	Ctgs	MDST, med-dk gy+ 20% SH, med-dk gy+ tr MDST, brn-gy+ tr MDST, wht	2.22									
	Ctgs	After extraction	1.20	90	1930	700	161	58	.04	429	2.76	
2640	Ctgs	MDST, med-dk gy+ 20% SH, med-dk gy+ 20% MDST, v dsk red + mnr MDST, med-lt gy+ tr MDST wht	.82									
	Ctgs	After extraction	.36	30	140	730	39	203	.18	407	.19	

## ORGANIC CARBON AND ROCK-EVAL PYROLYSIS DATA

TABLE : 4A

GENERAL DATA			CHEMICAL ANALYSIS DATA									
SAMPLE DEPTH (Metres)	SAMPLE TYPE	ANALYSED LITHOLOGY	TOC % OF ROCK	P Y R O L Y S I S								
				S1 (ppm)	S2 (ppm)	S3 (ppm)	HI	OI	PI	Tmax °C	S2/S3	
2780	Ctgs	MDST, med-dk gy+ 20% SH, med-dk gy+ 20% MDST, v lt gy+ 10% MDST, med-lt gy+ tr MDST, brn-gy	1.16									
	Ctgs	After extraction	.55	50	410	460	75	84	.11	401	.89	
2820	Ctgs	MDST, med-dk gy+ 20% SH, med-dk gy+ 20% MDST, med-lt gy + tr MDST, v lt gy+ tr MDST, brn-gy	1.43									
	Ctgs	After extraction	.71	80	500	530	70	75	.14	410	.94	
2860	Ctgs	MDST, med-lt gy+ 20% MDST, wht + 20% SH, med-dk gy+ 10% MDST, med-dk gy+ tr MDST, dk gy	1.01									
	Ctgs	After extraction	.60	60	440	730	73	122	.12	427	.60	
2980	Ctgs	LST, wht+ 20% MDST, med-lt gy + tr SH, med-dk gy	.72									
	Ctgs	After extraction	.42	20	1690	760	402	181	.01	445	2.22	
3080	Ctgs	LST, wht+ 20% MDST, med-lt gy + tr SH, med-dk gy	.89									
	Ctgs	After extraction	.55	50	2070	960	376	175	.02	442	2.16	
3100	Ctgs	MDST, med-lt gy+ 20% SH, med-dk gy+ tr LST, wht	2.26									
	Ctgs	After extraction	1.58	130	6380	850	404	54	.02	427	7.51	
3123.20	Core	SH, med gy+ 40% SH, med-dk gy										
	Core	After extraction	2.26	180	8940	390	396	17	.02	421	22.92	
3135.40	Core	SH, med-dk gy+ 30% SH, med gy										
	Core	After extraction	3.68	220	22440	400	610	11	.01	422	56.10	
3142.70	Core	SH, med-dk gy+ 10% SH, med gy										
	Core	After extraction	2.59	250	11170	320	431	12	.02	420	34.91	
3169.00	Core	SH, med-dk gy+ 20% SH, med gy										
	Core	After extraction	2.82	240	11860	470	421	17	.02	421	25.23	
3204	Ctgs	MDST, med-dk gy+ 20% MDST, brn-gy+ 10% SH, lt gy+ tr MDST gn-gy+ tr LST, wht										
	Ctgs	After extraction	1.29	170	2490	1150	193	89	.06	428	2.17	
3222	Ctgs	MDST, med-dk gy+ 20% SH, med-dk gy+ 20% MDST, med-lt gy + tr LST, wht	2.91									

## ORGANIC CARBON AND ROCK-EVAL PYROLYSIS DATA

TABLE : 4B

GENERAL DATA			CHEMICAL ANALYSIS DATA								
SAMPLE DEPTH (Metres)	SAMPLE TYPE	ANALYSED LITHOLOGY	TOC % OF ROCK	P Y R O L Y S I S							
				S1 (ppm)	S2 (ppm)	S3 (ppm)	HI	OI	PI	Tmax °C	S2/S3
3222	Ctgs	After extraction	2.10	150	7910	740	377	35	.02	424	10.69
3240	Ctgs	MDST, med-dk gy+ 20% SH, med-dk gy+ 20% MDST, med-lt gy + mnr MDST, brn-gy+ tr LST, wht	2.70								
	Ctgs	After extraction	2.21	170	8350	800	378	36	.02	426	10.44
3260	Ctgs	MDST, med-dk gy+ 20% SH, lt gy + 10% MDST, brn-gy+ tr LST, wht+ tr MDST, brn-gy									
	Ctgs	After extraction	1.98	150	6030	920	305	46	.02	428	6.55
3280	Ctgs	MDST, brn-gy+ 10% MDST, med-dk gy+ tr SH, v lt gy									
	Ctgs	After extraction	2.04	560	7360	2750	361	135	.07	427	2.68
3300	Ctgs	SH, med-dk gy+ 10% MDST, brn-gy+ tr MDST, wht									
	Ctgs	After extraction	1.87	390	6630	1750	355	94	.06	427	3.79
3325	Ctgs	MDST, pal yel-brn+ tr MDST, brn-gy									
	Ctgs	After extraction	1.00	190	2720	1800	272	180	.07	428	1.51
3340	Ctgs	MDST, pal yel-brn+ 10% MDST, brn-gy+ 10% MDST, med-dk gy+ tr MDST, wht									
	Ctgs	After extraction	1.64	400	5920	2100	361	128	.06	432	2.82
3360	Ctgs	MDST, med-dk gy+ 10% MDST, brn-gy+ 10% MDST, pal yel-brn + tr MDST, wht									
	Ctgs	After extraction	1.81	320	5980	1670	330	92	.05	431	3.58
3380	Ctgs	MDST, pal yel-brn+ 20% MDST, med-dk gy+ tr MDST, wht									
	Ctgs	After extraction	.86	340	2820	1460	328	170	.11	427	1.93
3400	Ctgs	MDST, med-dk gy+ tr MDST, wht									
	Ctgs	After extraction	1.35	350	4390	1760	325	130	.07	428	2.49
3420	Ctgs	MDST, med-dk gy+ tr MDST, wht									
	Ctgs	After extraction	1.12	200	3120	1300	279	116	.06	430	2.40
3440	Ctgs	MDST, brn-blk+ tr MDST, pal yel-brn									
	Ctgs	After extraction	1.86	370	5310	1650	285	89	.07	431	3.22
3460	Ctgs	MDST, brn-blk									
	Ctgs	After extraction	2.27	370	6480	1580	285	70	.05	429	4.10
3460.01		TD									

## ORGANIC CARBON AND ROCK-EVAL PYROLYSIS DATA

TABLE : 4C