



**IKU**  
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SCREENING ANALYSIS. SOURCE ROCK POTENTIAL OF WELL 34/7-6.			
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**SUMMARY/ SAMMENDRAG**

Based on the geochemical data obtained from the screening analysis of cuttings samples from well 34/7-6, the following conclusions may be made:

- 1) The Utsira formation, the Hordaland group and the Shetland group above 1960m may be considered thermally immature and contain no intervals currently capable of hydrocarbon generation.
- 2) Significant accumulations of liquid hydrocarbon may be present between 2140m and 2250m in the Shetland group, throughout the Dunlin group and the upper part of the Staffjord formation. Minor amounts may be present below 2270m in the Shetland group, in the Staffjord formation and the Lunde formation between 2835m and 3044m.
- 3) There are no particularly promising hydrocarbon source intervals in the well section. The intervals of most promise occur in the Dunlin group, and the lower part of the Shetland group.

<b>KEY WORDS</b>	<b>STIKKORD</b>
Source rock	
34/7-6	
Screening analyses	

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## INTRODUCTION

A total of three hundred and thirty-five canned cuttings samples was supplied by Saga Petroleum a.s. from well 34/7-6 (Figure 1). As instructed by Saga Petroleum, every third sample from the Tertiary section (990-1840m) and every second sample from the Cretaceous, Jurassic and Triassic was selected for geochemical screening. Geochemical screening includes light hydrocarbon analysis (headspace and occluded gas), lithological description and total organic carbon (TOC) determination. A total of one hundred and twenty-five samples was analysed and the results of these analyses are presented in this report.

The data are discussed with reference to lithostratigraphic tops provided by Saga Petroleum a.s. These tops are listed in table 1.

Figure 1. Well location map.

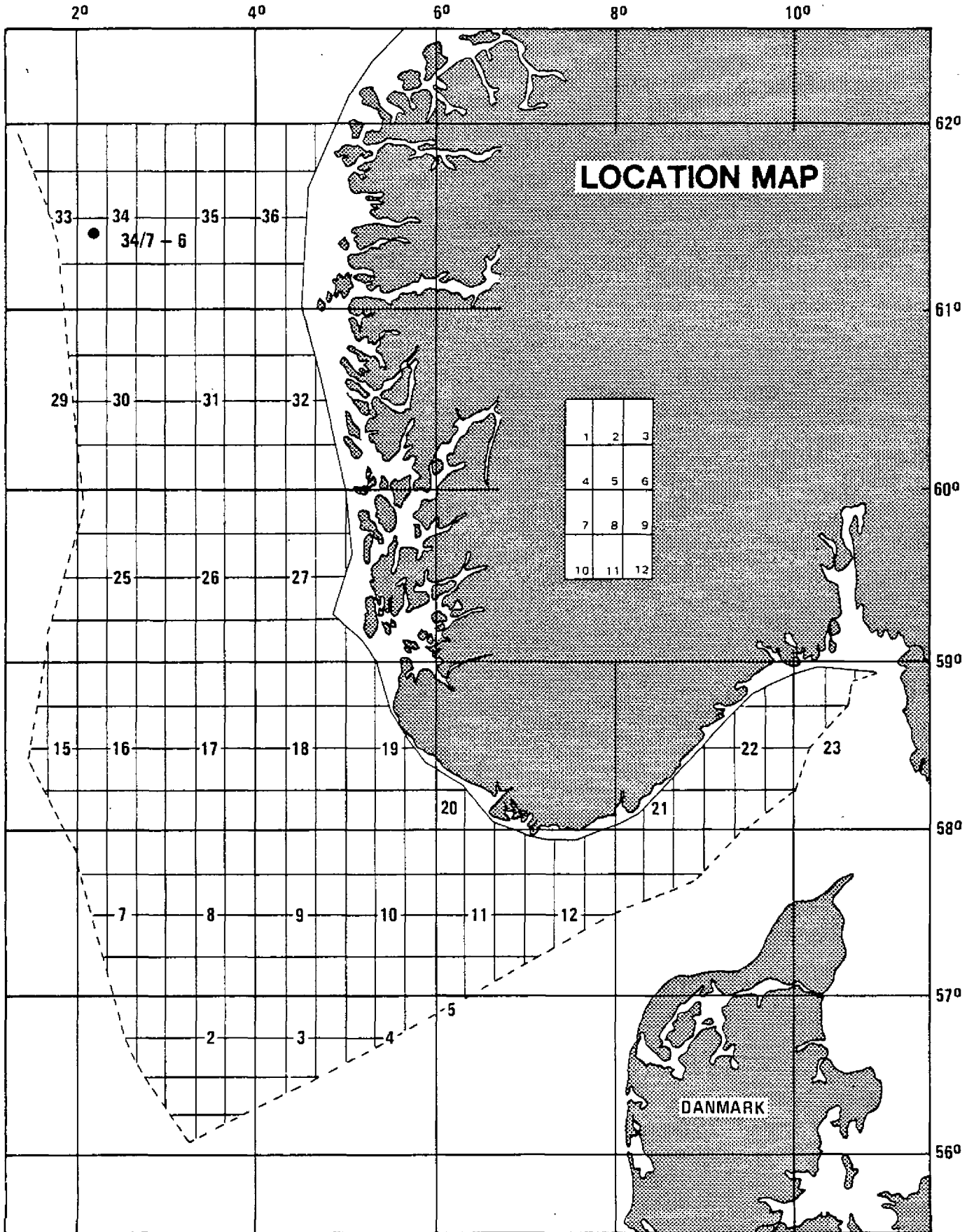


Table 1. Lithostratigraphic tops for well 34/7-6

NORDLAND GROUP:	Utsira Formation	1024m MRKB
HORDALAND GROUP		1072m MRKB
SHETLAND GROUP		1840m MRKB
DUNLIN GROUP		2444m MRKB
	Statfjord Formation	2508m MRKB
	Lunde Formation	2593m MRKB
	Lomvi Formation	3543m MRKB
	Teist Formation	3635m MRKB
TOTAL DEPTH (T.D.)		3685m MRKB

## DISCUSSION OF RESULTS

The screening analysis results will be discussed with reference to lithostratigraphic data provided by Saga Petroleum a.s. The first sample interval at 990-1000m will be discussed within the Utsira formation (1024-1072m) as it is partially similar to the two samples from this unit.

### Utsira Formation (1024-1072m)

The light hydrocarbon recovered from the three samples in this formation (Table 2) consist of methane, with trace amounts of ethane. The gas occurs predominantly in the headspace fraction and probably represents biogenic gas.

The two samples between 990m and 1030m consist mainly of a gravel, a quartz sand and shell fragments. A light brownish grey claystone of good organic richness (TOC = 1.12 wt%) is dominant in the basal sample at 1050-1060m and occurs together with a secondary gravel lithology.

The Utsira formation is considered to be thermally immature and of poor generation potential.

### Hordaland Group (1072-1840m)

The light hydrocarbons obtained from the rocks of the Shetland group are dominated by methane, with trace amounts of C<sub>2</sub>. Below 1640m, trace amounts of C<sub>3</sub> and C<sub>4</sub> compounds are present. The greater part of this gas lies in the headspace gas fraction. There is a significant drop in the methane content to a poor abundance below 1320m. The light hydrocarbons in the Hordaland Group are probably of biogenic origin, although there may be some catagenic input.

Claystone lithologies dominate the cuttings samples, with small amounts of sand only occurring between 1380m and 1420m. The claystones vary from a light brownish grey claystone of good organic richness above 1320m, to a medium olive grey claystone of poor to fair organic richness below 1320m, changing back to a light brownish grey claystone of poor organic richness below 1710m. The lithology change at 1320m

correlates with a decrease in gas content at 1320m and may indicate a significant catagenic component to the gas from the Hordaland group.

The data suggest that the claystones of the Hordaland group are thermally immature and are unlikely to be promising hydrocarbon source rocks.

#### Shetland Group (1840-2444m)

The light hydrocarbon content of the rocks in the Shetland group is similar to that observed in the overlying Hordaland Group down to 1950m. Below 1960m,  $C_5+$  compounds become increasingly abundant, increasing to an abundance of 85,200  $\mu\text{l}/\text{kg}$  in 100m. This is matched by a rapid increase in gas wetness values and a decrease in  $iC_4/C_4$  values, reaching a peak between 2140m and 2250m. The lighter  $C_1-C_4$  compounds are preferentially concentrated in the headspace gas, while the  $C_5+$  compounds are split nearly evenly between the headspace and cuttings gas fractions.

The cuttings samples are dominated by claystones of poor to fair organic richness, with isolated sand occurrences at 2270-2350m. The organic richness of the claystones increases slightly with depth, although this increase does not appear to be related to colour changes in the claystone. The appearance and increase in the abundance of  $C_5+$  compounds occurs in claystones, reaching a peak just above the sandstones. Normally, such a rapid increase would be associated with migrated hydrocarbons, although the occurrence of this in a claystone sequence would argue against non-indigenous origin.

The data tend to suggest that the rocks of the Shetland Group have, at best, a fair hydrocarbon potential in localised intervals. The presence of liquid hydrocarbons, possibly migrated and non-indigenous is indicated.

#### Dunlin Group (2444-2508m)

The light hydrocarbons from the Dunlin group are typified by a relatively high  $C_5+$  component. Gas wetness values and the abundances of  $C_5+$  compounds are increased relative to the base of the Shetland Group. The  $C_1-C_4$  compounds are preferentially concentrated in the headspace gas

fraction, while the  $C_5+$  compounds are split evenly between the headspace and cuttings gas fractions. The data indicate the presence of a thermally mature assemblage of light hydrocarbons and the probably presence of liquid hydrocarbons. These may be of indigenous origin, although it is difficult to be certain.

The cuttings samples have a predominantly claystone lithology, although some caving from the Shetland group may have occurred. The claystones vary from a reddish-brown colour to a medium dark grey colour. The former coloured claystones generally have a poor organic richness, while the medium dark grey claystones have good organic richness. The basal sample at 2495-2504m is dominated by a quartz sand and may represent a change to the typical Statfjord formation lithology.

The data indicate the presence of intervals of good organic richness which could have some hydrocarbon generation potential. The light hydrocarbon data suggest the presence of liquid hydrocarbons which could be of indigenous origin if the claystones do not represent caved materials.

#### Statfjord Formation (2508-2593m)

Gas wetness values obtained for the light hydrocarbons from this unit are similar to those obtained from the overlying Dunlin group. However, there is a marked decrease in the abundance of both the  $C_1-C_4$  and  $C_5+$  compounds relative to the Dunlin group. Generally, the  $C_5+$  compounds are more abundant than the  $C_1-C_4$  compounds. The highest abundances of compounds are found in the headspace gas fraction.

The samples consist mainly of quartz sand, together with minor amounts of a medium grey claystone of fair organic richness which may represent caved material from the Dunlin or Shetland groups.

The data indicate an absence of promising hydrocarbon source rocks, but the presence of a poor to fair abundance of thermally mature assemblage of non-indigenous gaseous and liquid hydrocarbons.



### Lunde Formation (2593-3543m)

There is a rapid decrease in the gas wetness values obtained from the light hydrocarbon fraction compared to that of the Dunlin Group/-Statfjord Formation. A generally poor abundance of  $C_1-C_4$  compounds, similar to that observed in the Statfjord Formation, is present. The  $C_5+$  compounds are generally present in poor abundances or are absent, except between 2835m and 3044m, where fair abundances may be present. The light hydrocarbons, although present in low abundance, consist mainly of methane, with minor abundances of  $C_2$  and  $C_3$  compounds. These compounds are split more or less evenly between the headspace and cuttings gas fractions.

The Lunde formation consists mostly of medium to fine grained sandstones, together with variable amounts of a reddish-brown claystone of poor organic richness. Traces of a medium grey-dark grey claystone of poor to fair organic richness also occurs, although this may represent caved material. Coal was recorded at the base of this formation, but probably reflects contamination of the samples by a mud additive. This suggestion is borne out by a poor  $C_1-C_4$  abundance in these intervals as coaly intervals are usually characterised by high  $C_1-C_4$  abundances.

The Lunde formation contains no promising hydrocarbon source rocks. Minor amounts of migrated liquid hydrocarbons may be present at 2835-3044m.

### Lomvi Formation (3543-3635m)

The samples from the Lomvi Formation contain very poor abundances of  $C_1$  to  $C_3$  compounds. No  $C_4+$  compounds are present. The light hydrocarbons tend to be concentrated in the cuttings gas fraction.

The Lomvi formation consists mostly of a brown to red-brown, medium to fine grained sandstone. Pale reddish-brown, mottled claystones of very poor organic richness also occur.

The Lomvi formation contains no significant amounts of hydrocarbons. There are no promising hydrocarbon source rocks.

Teist Formation (3635-3685m (TD))

The light hydrocarbons in the Teist formation are present in very low abundances and consist mainly of methane. The light hydrocarbons are preferentially concentrated in the cuttings gas fraction.

The samples from the Teist formation consist of calcite-cemented sandstones and a pale reddish-brown claystone of mottled appearance and very low organic richness.

The Teist formation may be considered barren of significant hydrocarbon accumulations or source rocks.

## CONCLUSIONS

Based on the geochemical data obtained from the screening analysis of cuttings samples from well 34/7-6, the following conclusions may be made:

- 1) The Utsira formation, the Hordaland group and the Shetland group above 1960m may be considered thermally immature and contain no intervals currently capable of hydrocarbon generation.
- 2) Significant accumulations of liquid hydrocarbon may be present between 2140m and 2250m in the Shetland group, throughout the Dunlin group and the upper part of the Statfjord formation. Minor amounts may be present below 2270m in the Shetland group, in the Statfjord formation and the Lunde formation between 2835m and 3044m.
- 3) There are no particularly promising hydrocarbon source intervals in the well section. The intervals of most promise occur in the Dunlin group, and the lower part of the Shetland group.

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TABLE 2a.

CONCENTRATION (ul Gas / kg dry Rock) OF C1 - C5+ HYDROCARBONS IN HEADSPACE

IKU no.	DEPTH m	C1	C2	C3	iC4	nC4	C5+	SUM C1-C4	SUM C2-C4	WET-NESS (%)	iC4 nC4
I C 0633	1000	18387						18387		0.00	*****
I C 0636	1030	16420						16420		0.00	*****
I C 0639	1060	110945	51					110997	51	0.05	*****
I C 0642	1090	169444	98					169542	98	0.06	*****
I C 0645	1120	61578	43					61621	43	0.07	*****
I C 0648	1150	52370	36					52406	36	0.07	*****
I C 0651	1180	35433	26					35459	26	0.07	*****
I C 0654	1210	46942	25					46967	25	0.05	*****
I C 0656	1230	49421	25					49446	25	0.05	*****
I C 0660	1270	3217						3217		0.00	*****
I C 0663	1300	22191	13					22204	13	0.06	*****
I C 0666	1330	3275						3275		0.00	*****
I C 0669	1360	5906						5906		0.00	*****
I C 0672	1390	4407						4407		0.00	*****
I C 0675	1420	3583						3583		0.00	*****
I C 0678	1450	2431						2431		0.00	*****
I C 0681	1480	6796	8					6804	8	0.12	*****
I C 0684	1510	1256						1256		0.00	*****
I C 0687	1540	2415						2415		0.00	*****
I C 0690	1570	5326	13					5338	13	0.23	*****
I C 0693	1600	4713	19					4733	19	0.40	*****
I C 0696	1630	3309	19					3328	19	0.59	*****

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TABLE 2a.

CONCENTRATION (ul Gas / kg dry Rock) OF C1 - C5+ HYDROCARBONS IN HEADSPACE

IKU no.	DEPTH m	C1	C2	C3	iC4	nC4	C5+	SUM C1-C4	SUM C2-C4	WET-NESS (%)	iC4 nC4
I C 0699	1660	9981	71	16	30			10098	117	1.16	*****
I C 0702	1690	15561	100	17	23			15700	140	0.89	*****
I C 0705	1720	8298	92	22	20			8432	135	1.60	*****
I C 0708	1750	6183	81	22				6285	103	1.64	*****
I C 0711	1780	7138	111	43	22			7315	177	2.42	*****
I C 0714	1810	10274	199	78				10551	277	2.63	*****
I C 0716	1830	7404	132	53	25	22		7636	232	3.04	1.14
I C 0718	1850	6008	106	43	18	19		6193	185	2.99	0.96
I C 0720	1870	7100	151	75	33	42		7401	302	4.08	0.79
I C 0722	1890	5266	82	35	16	19		5418	152	2.80	0.85
I C 0724	1910	1432	30	23	10	19		1515	82	5.43	0.52
I C 0726	1930	8681	318	248		204		9450	769	8.14	0.00
I C 0728	1950	7728	403	365	168	321		8984	1256	13.98	0.52
I C 0730	1970	5891	306	282	116	227	81	6823	932	13.66	0.51
I C 0732	1990	19471	977	847	318	633	248	22247	2776	12.48	0.50
I C 0734	2010	15948	1036	1084	438	986	702	19492	3544	18.18	0.44
I C 0736	2030	16886	1187	1242	480	1045	724	20840	3953	18.97	0.46
I C 0738	2050	29064	1725	1556	548	1300	990	34192	5129	15.00	0.42
I C 0740	2070	24410	1586	1578	543	1528	1716	29644	5234	17.66	0.36
I C 0742	2090	11893	857	907	321	897	1205	14874	2981	20.04	0.36
I C 0744	2110	47520	3038	2640	834	2169	2657	56201	8681	15.45	0.38
I C 0746	2130	45889	3392	3741	1492	3856	9501	53370	12481	21.38	0.39

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TABLE 2a.

CONCENTRATION (ul Gas / kg dry Rock) OF C1 - C5+ HYDROCARBONS IN HEADSPACE

IKU no.	DEPTH m	C1	C2	C3	iC4	nC4	C5+	SUM C1-C4	SUM C2-C4	WET-NESS (%)	iC4 nC4
I C 0748	2150	79026	10962	18653	8613	22987	59926	140241	61216	43.65	0.37
I C 0750	2170	83960	10930	17775	6783	18726	38934	138174	54214	39.24	0.36
I C 0752	2190	26364	5533	13069	5427	15612	35561	66004	39640	60.06	0.35
I C 0754	2210	17679	3504	8585	3383	9534	20025	42685	25006	58.58	0.35
I C 0797	2230	96682	19672	45440	15059	43538	71066	220392	123710	56.13	0.35
I C 0799	2250	127041	17734	28275	7836	22107	31301	202994	75953	37.42	0.35
I C 0802	2280	51843	9630	11866	2299	5944	6619	81582	29739	36.45	0.39
I C 0803	2290	21538	4103	7030	1789	4733	6228	39193	17654	45.05	0.38
I C 0805	2310	46687	9153	11543	2230	5460	5900	75073	28386	37.81	0.41
I C 0807	2330	75477	16547	16821	2425	5902	4660	117171	41694	35.58	0.41
I C 0809	2350	32232	8334	10964	1867	4761	3445	58157	25926	44.58	0.39
I C 0811	2370	39114	8179	11379	2227	5636	4481	66534	27421	41.21	0.40
I C 0813	2390	7510	2112	3279	534	1712	1740	15147	7637	50.42	0.31
I C 0815	2410	33913	6753	10106	2017	6306	7249	59095	25182	42.61	0.32
I C 0817	2430	39040	9224	10761	1351	4579	4132	64956	25916	39.90	0.30
I C 0819	2450	10445	76	17508	3248	11236	14089	42513	32068	75.43	0.29
I C 0821	2468	22186	19535	48229	9132	31689	50389	130770	108584	83.03	0.29
I C 0823	2486	33504	18515	31334	4758	15822	17057	103934	70430	67.76	0.30
I C 0825	2504	47910	55373	154506	24502	80961	78710	363252	315342	86.81	0.30
I C 0827	2522	3513	2841	9009	1685	5654	6861	22702	19189	84.53	0.30
I C 0829	2540	738	367	869	246	892	2624	3112	2374	76.29	0.28
I C 0831	2558	1073	589	1328	284	1034	3261	4309	3235	75.09	0.27

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TABLE 2a.

CONCENTRATION (ul Gas / kg dry Rock) OF C1 - C5+ HYDROCARBONS IN HEADSPACE

IKU no.	DEPTH m	C1	C2	C3	iC4	nC4	C5+	SUM C1-C4	SUM C2-C4	WET-NESS (%)	iC4 nC4
I C 0833	2576	221	104	306	81	290	800	1001	781	77.96	0.28
I C 0835	2594	549	354	2000	707	2708	8240	6317	5769	91.31	0.26
I C 0837	2612	195	50	268	130	516	1876	1158	963	83.17	0.25
I C 0839	2630	643	222	369	41	163	181	1438	795	55.27	0.25
I C 0841	2648	1892	224	224		100	356	2440	548	22.46	0.00
I C 0843	2666	287	32	38		23	102	379	93	24.43	0.00
I C 0845	2684	1629	105	59		31		1823	194	10.67	0.00
I C 0847	2702	1457	97	88				1641	185	11.25	*****
I C 0849	2720	955	48	21			108	1025	69	6.77	*****
I C 0851	2738	856	54					910	54	5.94	*****
I C 0853	2756	856	43	20				919	63	6.87	*****
I C 0855	2774	180						180		0.00	*****
I C 0857	2792	491	31	24				546	55	10.09	*****
I C 0859	2810	274	11					285	11	3.95	*****
I C 0929	2846	362	28	74	16	68	134	549	187	34.09	0.24
I C 0931	2864	839	33	42				915	76	8.27	*****
I C 0933	2882	169		22				191	22	11.49	*****
I C 0935	2900	1190						1190		0.00	*****
I C 0937	2918	748	402	96	28	111	251	1385	637	45.99	0.26
I C 0939	2936	440	82	72				594	153	25.82	*****
I C 0941	2954	127	24	95	25	95	194	366	239	65.34	0.26
I C 0943	2972	503	41	109				653	150	23.01	*****





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TABLE 2a.

CONCENTRATION (ul Gas / kg dry Rock) OF C1 - C5+ HYDROCARBONS IN HEADSPACE

IKU no.	DEPTH m	C1	C2	C3	iC4	nC4	C5+	SUM C1-C4	SUM C2-C4	WET-NESS (%)	iC4 nC4
I C 0909	3386	56						56		0.00	*****
I C 0911	3401	48						48		0.00	*****
I C 0913	3419	26						26		0.00	*****
I C 0915	3437	42						42		0.00	*****
I C 0917	3461	48						48		0.00	*****
I C 0919	3488	7						7		0.00	*****
I C 0922	3512	24						24		0.00	*****
I C 0924	3530	12						12		0.00	*****
I C 0926	3548	64						64		0.00	*****
I C 0927	3557	40						40		0.00	*****
I C 0945	3584	22						22		0.00	*****
I C 0947	3602									*****	*****
I C 0949	3620	7						7		0.00	*****
I C 0951	3633	15						15		0.00	*****
I C 0953	3656	4						4		0.00	*****
I C 0955	3671	13						13		0.00	*****
I C 0957	3694	13						13		0.00	*****

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TABLE 2b.

CONCENTRATION (ul Gas / kg dry Rock) OF C1 - C5+ HYDROCARBONS IN OCLUDED

IKU no.	DEPTH m	C1	C2	C3	iC4	nC4	C5+	SUM C1-C4	SUM C2-C4	WET-NESS (%)	iC4 nC4
I C 0633	1000	849	43					892	43	4.80	*****
I C 0636	1030	1839	165					2004	165	8.22	*****
I C 0639	1060	2939	123					3063	123	4.03	*****
I C 0642	1090	1433	86	155	43			1717	284	16.54	*****
I C 0645	1120	630	18	21				669	39	5.77	*****
I C 0648	1150	675	10	13				698	23	3.33	*****
I C 0651	1180	1072	20	4				1097	25	2.27	*****
I C 0654	1210	860	15	21				897	37	4.10	*****
I C 0656	1230	1457	22	10				1489	32	2.14	*****
I C 0660	1270	319	20	30				368	50	13.45	*****
I C 0663	1300	624	15	4				644	19	3.03	*****
I C 0666	1330	79						79		0.00	*****
I C 0669	1360	159	7					166	7	3.93	*****
I C 0672	1390	110						110		0.00	*****
I C 0675	1420	115						115		0.00	*****
I C 0678	1450	102						102		0.00	*****
I C 0681	1480	207						207		0.00	*****
I C 0684	1510	75						75		0.00	*****
I C 0687	1540	73						73		0.00	*****
I C 0690	1570	133						133		0.00	*****
I C 0693	1600	70						70		0.00	*****
I C 0696	1630	80						80		0.00	*****



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TABLE 2b.

CONCENTRATION (ul Gas / kg dry Rock) OF C1 - C5+ HYDROCARBONS IN OCLUDED

IKU no.	DEPTH m	C1	C2	C3	iC4	nC4	C5+	SUM C1-C4	SUM C2-C4	WET-NESS (%)	iC4 nC4
I C 0748	2150	421	79	336	275	983	25285	2094	1673	79.91	0.28
I C 0750	2170	580	97	309	123	602	8132	1711	1131	66.09	0.20
I C 0752	2190	321	56	302		813	18256	1491	1170	78.49	0.00
I C 0754	2210	344	72	449	298	1176	25613	2340	1996	85.31	0.25
I C 0797	2230	499	93	517	271	1155	16687	2535	2036	80.30	0.23
I C 0799	2250	839	126	499	225	862	16160	2550	1711	67.11	0.26
I C 0802	2280	568	108	448	154	624	5468	1904	1335	70.14	0.25
I C 0803	2290	250	49	248	89	388	2945	1023	773	75.55	0.23
I C 0805	2310	487	97	355	73	320	2385	1332	845	63.45	0.23
I C 0807	2330	315	86	326	60	272	660	1059	744	70.25	0.22
I C 0809	2350	316	77	343	77	364	1152	1177	861	73.14	0.21
I C 0811	2370	296	59	302	102	467	1869	1227	931	75.91	0.22
I C 0813	2390	167	29	98		136	408	430	263	61.17	0.00
I C 0815	2410	184	32	139		193	852	548	365	66.51	0.00
I C 0817	2430	274	78	338	69	392	1344	1151	877	76.19	0.18
I C 0819	2450	228	88	1284	656	2873	30117	5130	4902	95.56	0.23
I C 0821	2468	280	244	2670	867	4597	29085	8658	8378	96.76	0.19
I C 0823	2486	292	281	2310	593	3242	24695	6718	6427	95.66	0.18
I C 0825	2504	320	401	4393	1554	6975	48115	13643	13323	97.65	0.22
I C 0827	2522	180	120	1032	343	1691	15946	3367	3187	94.65	0.20
I C 0829	2540	146	43	331	126	721	7875	1368	1222	89.31	0.17
I C 0831	2558				228		251	228	228	100.00	*****

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TABLE 2b.

CONCENTRATION (ul Gas / kg dry Rock) OF C1 - C5+ HYDROCARBONS IN OCLUDED

I	I	I	I	I	I	I	I	I	I	I	I	I	I
I	IKU	DEPTH	C1	C2	C3	iC4	nC4	C5+	SUM	SUM	WET-	iC4	I
I	no.	m							C1-C4	C2-C4	NESS	-----	I
I											(%)	nC4	I
I	C 0833	2576						182			*****	*****	I
I	C 0835	2594	99	322	690	132	758	7270	2001	1902	95.05	0.17	I
I	C 0837	2612	87	9	40	17		2242	152	65	43.04	*****	I
I	C 0839	2630	88	16	64	6	67	726	242	154	63.65	0.10	I
I	C 0841	2648	185	22	36			244	243	59	24.11	*****	I
I	C 0843	2666	103	9					112	9	8.22	*****	I
I	C 0845	2684	137	13					150	13	8.54	*****	I
I	C 0847	2702	162	17				196	178	17	9.27	*****	I
I	C 0849	2720	114	12				172	126	12	9.42	*****	I
I	C 0851	2738	147	14					161	14	8.78	*****	I
I	C 0853	2756	98	9					108	9	8.82	*****	I
I	C 0855	2774	228	20					249	20	8.16	*****	I
I	C 0857	2792	151	15					166	15	9.04	*****	I
I	C 0859	2810	98	8					106	8	7.97	*****	I
I	C 0929	2846	189	17	27		49	513	282	93	33.02	0.00	I
I	C 0931	2864	583	54				1976	637	54	8.53	*****	I
I	C 0933	2882	1224	117				4109	1341	117	8.71	*****	I
I	C 0935	2900	847	84					931	84	8.98	*****	I
I	C 0937	2918	245	22				482	267	22	8.18	*****	I
I	C 0939	2936	145	663	2121	200	905	2751	4034	3889	96.41	0.22	I
I	C 0941	2954	179	17	37		59	696	292	113	38.61	0.00	I
I	C 0943	2972	645	53	77		129	3584	904	259	28.65	0.00	I

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TABLE 2b.

CONCENTRATION (ul Gas / kg dry Rock) OF C1 - C5+ HYDROCARBONS IN OCLUDED

IKU no.	DEPTH m	C1	C2	C3	iC4	nC4	C5+	SUM C1-C4	SUM C2-C4	WET-NESS (%)	iC4 nC4
I C 0865	2990	793	77	73		72	1704	1015	221	21.81	0.00
I C 0867	3008	1126	117					1242	117	9.38	*****
I C 0869	3026	72					359	72		0.00	*****
I C 0871	3044	363	30				5938	393	30	7.59	*****
I C 0873	3062	413	29					442	29	6.59	*****
I C 0875	3080	1174	85					1260	85	6.77	*****
I C 0877	3098	1326	112					1438	112	7.81	*****
I C 0879	3116	694	56					750	56	7.48	*****
I C 0881	3134	775	69					844	69	8.12	*****
I C 0883	3152	386	30					416	30	7.19	*****
I C 0885	3170	649	61					710	61	8.58	*****
I C 0887	3188	586	49					636	49	7.78	*****
I C 0889	3206	1567	161					1728	161	9.31	*****
I C 0891	3224	2613	264					2877	264	9.16	*****
I C 0893	3242	1743	171					1914	171	8.93	*****
I C 0895	3260	1197	126					1323	126	9.49	*****
I C 0897	3278	1179	125					1304	125	9.58	*****
I C 0899	3296	353	31					384	31	8.18	*****
I C 0901	3314	411	38					449	38	8.53	*****
I C 0903	3332	225	21	3				249	24	9.57	*****
I C 0905	3350	236	21					257	21	8.18	*****
I C 0907	3368	483	52	47				582	99	17.06	*****



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TABLE 2c.

CONCENTRATION (ul Gas / kg dry Rock) OF C1 - C5+ HYDROCARBONS SUMMATION

IKU no.	DEPTH m	C1	C2	C3	iC4	nC4	C5+	SUM C1-C4	SUM C2-C4	WET-NESS (%)	iC4 nC4
I C 0633	1000	19237	43					19279	43	0.22	*****
I C 0636	1030	18259	165					18424	165	0.89	*****
I C 0639	1060	113884	175					114059	175	0.15	*****
I C 0642	1090	170877	184	155	43			171259	382	0.22	*****
I C 0645	1120	62209	60	21				62290	81	0.13	*****
I C 0648	1150	53045	46	13				53105	60	0.11	*****
I C 0651	1180	36505	46	4				36556	51	0.14	*****
I C 0654	1210	47803	40	21				47864	61	0.13	*****
I C 0656	1230	50878	47	10				50935	57	0.11	*****
I C 0660	1270	3535	20	30				3585	50	1.38	*****
I C 0663	1300	22815	28	4				22848	33	0.14	*****
I C 0666	1330	3354						3354		0.00	*****
I C 0669	1360	6065	7					6072	7	0.11	*****
I C 0672	1390	4516						4516		0.00	*****
I C 0675	1420	3698						3698		0.00	*****
I C 0678	1450	2534						2534		0.00	*****
I C 0681	1480	7003	8					7011	8	0.11	*****
I C 0684	1510	1331						1331		0.00	*****
I C 0687	1540	2487						2487		0.00	*****
I C 0690	1570	5458	13					5471	13	0.23	*****
I C 0693	1600	4784	19					4803	19	0.40	*****
I C 0696	1630	3389	19					3408	19	0.57	*****





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TABLE 2c.

CONCENTRATION (ul Gas / kg dry Rock) OF C1 - C5+ HYDROCARBONS SUMMATION

IKU no.	DEPTH m	C1	C2	C3	iC4	nC4	C5+	SUM C1-C4	SUM C2-C4	WET-NESS (%)	iC4 nC4
I C 0748	2150	79446	11041	18990	8888	23970	85211	142335	62889	44.18	0.37
I C 0750	2170	84540	11027	18084	6906	19328	47067	139885	55345	39.56	0.36
I C 0752	2190	26685	5588	13371	5427	16424	53818	67495	40810	60.46	0.33
I C 0754	2210	18023	3576	9034	3682	10710	45637	45025	27003	59.97	0.34
I C 0797	2230	97182	19765	45956	15331	44693	87753	222927	125745	56.41	0.34
I C 0799	2250	127879	17860	28774	8061	22969	47461	205544	77664	37.78	0.35
I C 0802	2280	52411	9738	12315	2453	6568	12087	83486	31075	37.22	0.37
I C 0803	2290	21788	4152	7277	1877	5121	9174	40216	18428	45.82	0.37
I C 0805	2310	47174	9250	11898	2303	5780	8285	76405	29232	38.26	0.40
I C 0807	2330	75792	16633	17147	2485	6173	5319	118230	42438	35.89	0.40
I C 0809	2350	32548	8411	11307	1944	5124	4597	59334	26786	45.14	0.38
I C 0811	2370	39409	8238	11681	2329	6103	6350	67761	28352	41.84	0.38
I C 0813	2390	7677	2141	3377	534	1849	2148	15577	7900	50.72	0.29
I C 0815	2410	34097	6784	10246	2017	6500	8101	59644	25547	42.83	0.31
I C 0817	2430	39314	9301	11099	1421	4972	5476	66107	26793	40.53	0.29
I C 0819	2450	10673	164	18793	3905	14109	44207	47643	36970	77.60	0.28
I C 0821	2468	22466	19779	50898	9999	36286	79473	139428	116962	83.89	0.28
I C 0823	2486	33796	18796	33644	5351	19064	41752	110652	76856	69.46	0.28
I C 0825	2504	48231	55774	158898	26056	87936	126825	376896	328665	87.20	0.30
I C 0827	2522	3693	2961	10041	2028	7345	22806	26069	22376	85.83	0.28
I C 0829	2540	884	411	1200	372	1613	10499	4479	3595	80.27	0.23
I C 0831	2558	1073	589	1328	512	1034	3512	4536	3463	76.34	0.50

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TABLE 2c.

CONCENTRATION (ul Gas / kg dry Rock) OF C1 - C5+ HYDROCARBONS SUMMATION

IKU no.	DEPTH m	C1	C2	C3	iC4	nC4	C5+	SUM C1-C4	SUM C2-C4	WET-NESS (%)	iC4 nC4
I C 0833	2576	221	104	306	81	290	982	1001	781	77.96	0.28
I C 0835	2594	648	676	2690	839	3465	15510	8319	7671	92.21	0.24
I C 0837	2612	281	59	308	147	516	4118	1310	1029	78.51	0.28
I C 0839	2630	731	238	433	47	230	907	1680	949	56.47	0.21
I C 0841	2648	2076	246	261		100	600	2683	607	22.61	0.00
I C 0843	2666	390	42	38		23	102	492	102	20.74	0.00
I C 0845	2684	1765	118	59		31		1973	207	10.50	0.00
I C 0847	2702	1619	113	88			196	1820	201	11.05	*****
I C 0849	2720	1069	60	21			279	1150	81	7.06	*****
I C 0851	2738	1002	68					1071	68	6.36	*****
I C 0853	2756	954	53	20				1026	73	7.07	*****
I C 0855	2774	408	20					429	20	4.73	*****
I C 0857	2792	642	46	24				712	70	9.85	*****
I C 0859	2810	372	20					392	20	5.04	*****
I C 0929	2846	551	45	102	16	117	647	831	280	33.72	0.14
I C 0931	2864	1422	88	42			1976	1552	130	8.37	*****
I C 0933	2882	1393	117	22			4109	1532	139	9.06	*****
I C 0935	2900	2038	84					2121	84	3.94	*****
I C 0937	2918	993	424	96	28	111	734	1652	659	39.88	0.26
I C 0939	2936	585	745	2192	200	905	2751	4628	4042	87.35	0.22
I C 0941	2954	306	41	132	25	155	889	658	352	53.49	0.16
I C 0943	2972	1148	95	186		129	3584	1557	409	26.28	0.00

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TABLE 2c.

CONCENTRATION (ul Gas / kg dry Rock) OF C1 - C5+ HYDROCARBONS SUMMATION

I	IKU	DEPTH	C1	C2	C3	iC4	nC4	C5+	SUM C1-C4	SUM C2-C4	WET-NESS (%)	iC4 nC4	I
I													I
I	C 0865	2990	1673	129	203		72	1704	2077	404	19.46	0.00	I
I	C 0867	3008	1410	154	51				1615	205	12.68	*****	I
I	C 0869	3026	159		21		31	413	211	52	24.77	0.00	I
I	C 0871	3044	389	30				5938	418	30	7.13	*****	I
I	C 0873	3062	491	29					520	29	5.61	*****	I
I	C 0875	3080	1225	85					1311	85	6.51	*****	I
I	C 0877	3098	1485	112					1597	112	7.03	*****	I
I	C 0879	3116	743	56					799	56	7.02	*****	I
I	C 0881	3134	813	69					881	69	7.77	*****	I
I	C 0883	3152	413	30					443	30	6.75	*****	I
I	C 0885	3170	750	61					811	61	7.51	*****	I
I	C 0887	3188	653	49					702	49	7.05	*****	I
I	C 0889	3206	1650	161					1810	161	8.88	*****	I
I	C 0891	3224	2789	274					3063	274	8.94	*****	I
I	C 0893	3242	1808	171					1979	171	8.64	*****	I
I	C 0895	3260	1254	126					1380	126	9.09	*****	I
I	C 0897	3278	1247	125					1372	125	9.11	*****	I
I	C 0899	3296	407	31					438	31	7.16	*****	I
I	C 0901	3314	512	38					550	38	6.97	*****	I
I	C 0903	3332	326	21	3				350	24	6.80	*****	I
I	C 0905	3350	428	21					449	21	4.69	*****	I
I	C 0907	3368	558	52	47				657	99	15.12	*****	I

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TABLE 2c.

CONCENTRATION (ul Gas / kg dry Rock) OF C1 - C5+ HYDROCARBONS SUMMATION

IKU no.	DEPTH m	C1	C2	C3	iC4	nC4	C5+	SUM C1-C4	SUM C2-C4	WET-NESS (%)	iC4 nC4
I C 0909	3386	248	18					266	18	6.66	*****
I C 0911	3401	227	16					242	16	6.53	*****
I C 0913	3419	234	16					249	16	6.38	*****
I C 0915	3437	245	18					263	18	6.80	*****
I C 0917	3461	533	58					591	58	9.76	*****
I C 0919	3488	369	36					404	36	8.79	*****
I C 0922	3512	354	37	61				452	98	21.75	*****
I C 0924	3530	176	17	28	9			229	53	23.31	*****
I C 0926	3548	315	27	41				384	68	17.80	*****
I C 0927	3557	338	42	65	19			465	126	27.20	*****
I C 0945	3584	158	13					171	13	7.37	*****
I C 0947	3602	175	17	19				211	36	16.90	*****
I C 0949	3620	210	21	28				258	49	18.81	*****
I C 0951	3633	284	29	40				353	69	19.43	*****
I C 0953	3656	208	22	34				264	56	21.19	*****
I C 0955	3671	260	30	48				339	78	23.06	*****
I C 0957	3694	354	41	74				469	115	24.60	*****



# Lithology and Total Organic Carbon measurements

TABLE NO.: 3  
WELL NO.: 34/7-6

Sample	Depth (m)	TOC	Lithology
C-633	990-1000		70% Gravel of metamorphic and plutonic origin 20% Sand, mainly quartz, fine to very coarse 10% Shell fragments
C-636	1020-1030		60% Gravel fragments 30% Sand fragments 10% Shell fragments
C-639	1050-1060	1.12	60% Claystone, light brownish grey, silty and sandy, with spicules. Contains Sm. am. of glaucony and trace amounts of pyrite framboides. 30% Gravel, mainly metamorphic and plutonic rock fragment 10% Glauconite Sm. am. Shell fragments
C-642	1080-1090	1.94	100% Claystone, light brownish grey, silty, micaceous, spiculitic, occasionally sandy Sm. am. Glauconite.
C-645	1110-1120	2.06	100% Claystone, light brownish grey, silty, micaceous, spiculitic, occasionally sandy Sm. am. Glauconite.
C-648	1140-1180	2.04	100% Claystone, light brownish grey, silty, micaceous, spiculitic, occasionally sandy
C-651	1170-1180	1.85	100% Claystone, light brownish grey, silty, micaceous, spiculitic, occasionally sandy
C-654	1200-1210	1.42	100% Claystone, light brownish grey, silty, micaceous, spiculitic, occasionally sandy



# Lithology and Total Organic Carbon measurements

TABLE NO.: 3  
WELL NO.: 34/7-6

Sample	Depth (m)	TOC	Lithology
C-656	1220-1230	1.28	100% Claystone, light brownish grey, silty, micaceous, spiculitic, occasionally sandy Sm. am. Glauconite.
C-660	1260-1270	1.53	100% Claystone, light brownish grey, silty, micaceous, spiculitic, occasionally sandy Sm. am. Glauconite, Sand
C-663	1290-1300	1.02	100% Claystone, light brownish grey, silty, micaceous, spiculitic, occasionally sandy Sm. am. Glauconite, Chalk
C-666	1320-1330	0.57	100% Claystone, olive grey, brownish grey, micromicaceous, pyritic. Sm. am. Claystone, light brownish grey.
C-669	1350-1360	0.42	100% Claystone, olive grey, brownish grey, micromicaceous, pyritic. Sm. am. Claystone, light brownish grey, Siderite
C-672	1380-1390	0.51	90% Claystone, olive grey, brownish grey, micromicaceous, pyritic. 10% Sand, rounded to subround, coarse to very coarse. Sm. am. Siderite.
C-675	1410-1420	0.49	90% Claystone, olive grey, brownish grey, micromicaceous, pyritic. 10% Sand, rounded to subround, coarse to very coarse.



# Lithology and Total Organic Carbon measurements

TABLE NO.: 3  
WELL NO.: 34/7-6

Sample	Depth (m)	TOC	Lithology
C-678	1440-1450	0.45	100% Claystone, olive grey, brownish grey, micromicaceous, pyritic. Sm. am. Claystone, light brownish grey; Sand, coarse to very coarse, rounded to subrounded.
C-681	1470-1480	0.41	100% Claystone, olive grey, brownish grey, micromicaceous, pyritic.
C-684	1500-1510	0.49	90% Claystone, olive grey, brownish grey, micromicaceous, pyritic. 10% Claystone, light brownish grey Sm. am. Forams
C-687	1530-1540	0.48	100% Claystone, olive grey, brownish grey, micromicaceous, pyritic.
C-690	1560-1570	0.38	100% Claystone, olive grey, brownish grey, micromicaceous, pyritic. Sm. am. Claystone, light brownish grey, Pyrite
C-693	1590-1600	0.40	100% Claystone, olive grey, brownish grey, micromicaceous, pyritic.
C-696	1620-1630	0.36	100% Claystone, olive grey, brownish grey, micromicaceous, pyritic.
C-699	1650-1660	0.47	100% Claystone, olive grey, brownish grey, micromicaceous, pyritic.





# Lithology and Total Organic Carbon measurements

TABLE NO.: 3  
WELL NO.: 34/7-6

Sample	Depth (m)	TOC	Lithology
C-702	1680-1690	0.49	40% Claystone, olive grey, brownish grey, micromicaceous, pyritic
		0.17	20% Claystone, dark brownish grey with white spots, probably tuffaceous.
		0.06	20% Claystone, reddish brown - greyish red. 10% Claystone, light olive grey (Multicoloured sequence)
C-705	1710-1720	0.28	80% Claystone, light brownish grey, occasionally light greenish grey
		0.37	20% Claystone, dark brownish grey, tuffaceous.
C-708	1740-1750	0.34	100% Claystone, light brownish grey Sm.am. Tuffaceous claystone; Claystone, reddish brown; Pyrite
C-711	1770-1780	0.33	100% Claystone, light brownish grey.
C-714	1800-1810	0.30	100% Claystone, light brownish grey.
C-716	1820-1830	0.46	50% Claystone, brownish grey
		0.33	50% Claystone, light brownish grey, occasionally greenish grey
C-718	1840-1850	0.48	50% Claystone, brownish grey, occasionally greenish grey
		0.28	50% Claystone, light brownish grey, light grey, light greenish grey Sm.am. Tuffaceous Claystone



# Lithology and Total Organic Carbon measurements

TABLE NO.: 3  
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Sample	Depth (m)	TOC	Lithology
C-720	1860-1870	0.42	80% Claystone, brownish grey, greenish grey 10% Light brownish grey, light greenish grey Sm.am. Red claystone, Tuffaceous Claystone
C-722	1880-1890	0.46 0.47	80% Claystone, brownish grey greenish grey 20% Claystone, light grey Sm.am. Tuffaceous claystone
C-724	1900-1910		100% Cement Sm.am. Claystone brownish grey
C-726	1920-1930	0.41	100% Claystone, grey brownish grey Sm.am. Cement; Pyrite.
C-728	1940-1950	0.47	100% Claystone, grey, brownish grey Sm.am. Additives; Pink limestone
C-730	1960-1970	0.44	100% Claystone, light olive grey, light grey Sm.am. Limestone, white to pink; Additives
C732-	1980-1990	0.51	90% Claystone, light olive grey, light grey 10% Limestone, white to pink Sm.am. Glauconite
C-734	2000-2010	0.57	100% Claystone, light olive grey, light grey Sm.am. Glauconite; Additives
C-736	2020-2030	0.48	100% Claystone, light olive grey, light grey, silty, micromicaceous Sm.am. Glauconite; cement; steel fragments



# Lithology and Total Organic Carbon measurements

TABLE NO.: 3  
WELL NO.: 34/7-6

Sample	Depth (m)	TOC	Lithology
C-738	2040-2050	0.60	100% Claystone, light olive grey, light grey, silty, micromicaceous Sm.am. Glauconite; pyrite; cement; steel fragments; additives (wood)
C-740	2060-2070	0.53	90% Claystone, light olive grey, light grey, silty, micromicaceous 10% Claystone, greyish red Sm.am. Glauconite; siderite; steel fragments; cement.
C-742	2080-2090	0.48	100% Claystone, light olive grey, light grey, silty, micromicaceous Sm.am. Greyish red claystone; glauconite; limestone; cement; steel fragments.
C-744	2100-2110	0.51	100% Claystone, light olive grey, light grey, silty, micromicaceous Sm.am. Siderite; columnar crystals of calcite; glauconite; v. fine sandstone, pale green; greyish red claystone; limestone; cement; wood
C-746	2120-2130	0.49	100% Claystone, light olive grey, light grey, silty, micromicaceous Sm.am. Glauconite; siderite; pyrite; pink-white limestone; additives (wood); steel fragments.
C-748	2140-2150	0.47	100% Claystone, light olive grey, light grey, silty, micromicaceous Sm.am. Glauconite; fossil fragments; pyrite; siderite; fine grained sandstone; limestone; cement, steel fragments



# Lithology and Total Organic Carbon measurements

TABLE NO.: 3  
WELL NO.: 34/7-6

Sample	Depth (m)	TOC	Lithology
C-750	2160-2170	0.54	100% Claystone, light olive grey, light grey, silty, micromicaceous Sm.am. Light olive grey, fine grained sandstone and claystone with white spots (tuffaceous); pyrite; siderite; brownish sandstone; limestone; fossil fragments
C-752	2180-2190	0.66	80% Claystone, light olive grey, light grey, silty, micromicaceous 20% Cement Sm.am. Siderite; greyish red claystone; pinkish to white limestone; tuffaceous claystone; steel fragments.
C-754	2200-2210	0.71	80% Claystone, light olive grey, light grey, silty, micromicaceous 20% Siderite, greyish brown, micritic to sucrosic Sm.am. Pyrite; tuffaceous claystone; cement
C-797	2220-2230	0.77	100% Claystone, light olive grey, light grey, silty, micromicaceous Sm.am. Siderite, micritic; greyish red claystone; light olive brown, fine grained sandstone.
C-799	2240-2250	0.72	100% Claystone, light olive grey, light grey, silty, micromicaceous Sm.am. Micritic siderite; light grey sandstone; glauconite; cement; additives.



# Lithology and Total Organic Carbon measurements

TABLE NO.: 3  
WELL NO.: 34/7-6

Sample	Depth (m)	TOC	Lithology
C-802	2270-2280	0.67	90% Claystone, light olive grey, light grey, silty, micromicaceous 10% Sandstone, light grey, fine grained, glauconite Sm.am. Micritic, siderite; tuffaceous claystone; pyrite; limestone; cement; additives.
C-803	2280-2290	0.70	90% Claystone, light olive grey, light grey, silty, micromicaceous 10% Sandstone, light grey, fine grained, glauconite Sm.am. Glauconite; siderite; pyrite; cement
C-805	2300-2310	0.71	80% Claystone, light olive grey, light grey, silty, micromicaceous 20% Sandstone, light grey, fine grained, glauconite Sm.am. Siderite, micrite; micritic white limestone; pyrite; cement; steel fragments; additives.
C-807	2320-2330	0.70	60% Claystone, light olive grey, light grey, silty, micromicaceous 40% Sandstone, light grey, fine grained, glauconite Sm.am. Light olive brown claystone; greyish red claystone; siderite.



# Lithology and Total Organic Carbon measurements

TABLE NO.: 3  
WELL NO.: 34/7-6

Sample	Depth (m)	TOC	Lithology
C-809	2340-2350	0.72	70% Claystone, light olive grey, light grey, silty, micromicaceous 20% Sandstone, light grey, fine grained, glauconite 10% Siderite, light olive grey - olive grey, micritic Sm.am. White limestone; pyrite; dark grey, calcareous claystone
C-811	2360-2370	0.63 0.72	10% Claystone, light olive grey, light grey, silty, micromicaceous 90% Claystone, dark grey, calcareous. Sm.am. Glauconitic sandstone; limestone; pyritized fossil fragments.
C-813	2380-2390	0.67	100% Claystone, medium light grey, light olive grey Sm.am. Dark grey calcareous claystone; fine grained, light grey sandstone; glauconite; additives (wood)
C-815	2400-2410	0.55	100% Claystone, medium light grey, light olive grey Sm.am. Greyish red claystone; light grey sandstone; glauconite; sucrosic dark brown siderite; fossil fragments; additives (wood)



# Lithology and Total Organic Carbon measurements

TABLE NO.: 3  
WELL NO.: 34/7-6

Sample	Depth (m)	TOC	Lithology
C-817	2420-2430	0.53	100% Claystone, medium light grey, light olive grey Sm.am. Fossil fragments; plates of columnar calcite crystals; glauconitic sandstone; glauconite; steel fragments; additives (fibrous material).
C-819	2440-2450	0.30	90% Claystone, red brown, very calcareous, occasionally with laminae of white micritic calcite.
		0.60	10% Claystone, light olive grey to medium light grey Sm.am. Quartz sand; micritic limestone; fossil fragments; glauconite; additives.
C-821	2459-2468	0.59	40% Claystone, medium light grey to light grey and light olive grey
		0.31	10% Claystone, red brown, calcareous
		0.60	50% Claystone, medium dark grey to brownish grey, occasionally slightly calcareous Sm.am. Siderite; greyish red claystone
C-823	2477-2486	1.05	100% Claystone, medium dark grey to brownish grey Sm.am. Medium light grey to light olive grey claystone; Red brown claystone; steel fragments
C-825	2495-2504	0.66	30% Claystone, medium light grey to olive grey 70% Sand, mainly quartz and mica. Sm.am. Fine grained sandstone; red brown claystone; siderite; white limestone; pyrite



# Lithology and Total Organic Carbon measurements

TABLE NO.: 3  
WELL NO.: 34/7-6

Sample	Depth (m)	TOC	Lithology
C-827	2513-2522	0.61	90% Sand, quartz 10% Claystone, medium grey to olive grey Sm.am. Steel fragments
C-829	2531-2540	0.59	90% Sand, quartz 10% Claystone, medium grey to olive grey Sm.am. Claystone, red brown
C-831	2549-2558	0.65	90% Claystone, medium grey to olive grey 10% Sand, quartz Sm.am. Siderite; steel fragments
C-833	2567-2576	0.71	70% Sand, fine to medium grained, mainly quartz 20% Claystone, medium dark grey to medium grey, slightly calcareous
		0.16	10% Claystone, dusky red to dark reddish brown Sm.am. Glauconite; greyish yellow to dusky yellow claystone; additives (fibrous)
C-835	2585-2594	0.17	90% Sand, fine to medium grained, mainly quartz 10% Claystone, dusky red to dark reddish brown Sm.am. Medium dark grey to medium grey claystone
C-837	2603-2612	0.65	70% Sand, fine to medium grained, mainly quartz 20% Claystone, medium dark grey to medium grey, non calcareous
		0.12	10% Claystone, dusky red to dark reddish brown Sm.am. Dusky yellow claystone





# Lithology and Total Organic Carbon measurements

TABLE NO.: 3  
WELL NO.: 34/7-6

Sample	Depth (m)	TOC	Lithology
C-839	2621-2630	0.63 0.07	50% Claystone, medium dark grey to medium grey 50% Claystone, dusky red to dark reddish brown Sm.am. Siderite; cement; sand
C-841	2639-2648	0.14 0.55	60% Claystone, dusky red to dark reddish brown 40% Claystone, medium dark grey to medium grey Sm.am. Sand; glauconite; greyish yellow to dusky yellow claystone
C-843	2657-2666	0.09 0.38	80% Sand, well rounded, medium grained, mainly quartz 10% Claystone, dusky red to dark reddish brown 10% Claystone, medium dark grey to medium grey.
C-845	2675-2684	0.06	90% Claystone, dusky red to dark reddish brown. 10% Sand, well rounded, medium grained, mainly quartz Sm.am. Claystone, medium dark grey to medium grey
C-847	2693-2702	0.09	70% Sand, well rounded, medium grained, mainly quartz 30% Claystone; dusky red to dark to dark reddish brown Sm.am. Claystone, medium dark grey to medium grey
C-849	2711-2720	0.11	70% Sand, well rounded, medium grained, mainly quartz 30% Claystone, dusky red to dark reddish brown Sm.am. Claystone, medium dark grey to medium grey; white micritic limestone.



# Lithology and Total Organic Carbon measurements

TABLE NO.: 3  
WELL NO.: 34/7-6

Sample	Depth (m)	TOC	Lithology
C-851	2729-2738	0.10	60% Sand, well rounded, medium grained, mainly quartz 40% Claystone, dusky red to dark reddish brown Sm.am. Claystone, medium dark grey to medium grey; white micritic limestone
C-853	2747-2756	0.07	10% Sand, well rounded, medium grained, mainly quartz 90% Claystone, dusky red to dark reddish brown Sm.am. Medium dark grey to medium grey claystone; sandstone
C-855	2765-2774		100% Sand, well rounded, medium grained, mainly quartz Sm.am. Claystone, dusky red to dark reddish brown; muscovite
C-857	2783-2792		100% Sand, well rounded, medium grained, mainly quartz Sm.am. Claystone, dusky red to dark reddish brown; muscovite
C-859	2801-2810		100% Sand, well rounded, medium grained, mainly quartz Sm.am. Claystone, dusky red to dark reddish brown; muscovite
C-929	2828-2837	0.13	90% Sand, well rounded, medium grained, mainly quartz 10% Claystone, dusky red to dark reddish brown, Tr. of micrite laminae Sm.am. Medium dark grey to medium grey claystone; muscovite



# Lithology and Total Organic Carbon measurements

TABLE NO.: 3  
WELL NO.: 34/7-6

Sample	Depth (m)	TOC	Lithology
C-933	2864-2873		100% Sand, well rounded, medium grained, mainly quartz Sm.am. Claystones as above; muscovite
C-935	2882-2891	0.10	70% Sand, well rounded, medium grained, mainly quartz 30% Claystone, dusky red to dark reddish brown, small amounts of micritic calcite associated with the claystone Sm.am. Moderate reddish brown claystone; medium grey claystone
C-937	2900-2909	0.10 0.61	60% Sand, well rounded, medium grained, mainly quartz 30% Claystone, dusky red to dark reddish brown 10% Claystone, medium dark grey to medium grey Sm.am. Cement; reddish brown claystone; sandstone; white micrite.
C-939	2918-2927	0.10 0.76	40% Claystone, dusky red to dark reddish brown 40% Claystone, medium dark grey to medium grey 20% Sand, well rounded, medium grained, mainly quartz Sm.am. White and grey fine grained sandstone; cement
C-941	2936-2945	0.09 0.70	20% Sand, well rounded, medium grained, mainly quartz 50% Claystone, dusky red to dark reddish brown 30% Claystone, medium dark grey to medium grey Sm.am. as above + wood fragments (additives)



# Lithology and Total Organic Carbon measurements

TABLE NO.: 3  
WELL NO.: 34/7-6

Sample	Depth (m)	TOC	Lithology
C-943	2954-2963	0.01 0.70	40% Claystone, dusky red to dark reddish brown 30% Claystone, medium dark grey to medium grey 30% Sand, well rounded, medium grained, mainly quartz Sm.am. Fine-grained sandstone; muscovite and wood fragments; Steel fragments w/blue paint
C-865	2972-2981	0.11	25% Claystone, dusky red to dark reddish brown with marly and micritic laminae 10% Sandstone, white, fine grained, calcite cemented. 65% Sand, well rounded, medium grained, mainly quartz Sm.am. Claystone, medium dark grey to medium grey
C-867	2990-2999		100% Sand, well rounded, medium grained, mainly quartz Sm.am. Claystones as above; sandstone
C-869	3008-3017	0.10	50% Sand, well rounded, medium grained, mainly quartz 35% Cement 15% Claystone, dusky red to dark reddish brown Sm.am. Grey claystone
C-871	3026-3035		100% Sand, well rounded, medium grained, mainly quartz Sm.am. Cement; claystones as above



# Lithology and Total Organic Carbon measurements

TABLE NO.: 3  
WELL NO.: 34/7-6

Sample	Depth (m)	TOC	Lithology
C-875	3062-3071		100% Sand, well rounded, medium grained, mainly quartz Sm.am. Cement; claystones as above; cement, muscovite
C-877	3080-3089		100% Sand, well rounded, medium grained, mainly quartz Sm.am. Sandstone; sandy micrite; dusky red claystone
C-879	3098-3107		100% Sand, well rounded, medium grained, mainly quartz Sm.am. Dusky red to dark reddish brown claystone; micrite
C-881	3116-3125		100% Sand, well rounded, medium grained, mainly quartz Sm.am. Micrite; claystone as above.
C-883	3134-3143		90% Sand, well rounded, medium grained, mainly quartz 10% Cement Sm.am. Dark reddish brown claystone
C-885	3152-3161	0.12	90% Claystone, dusky red to dark reddish brown, occasionally with very calcareous laminae; also white micritic laminae. 10% Sand, well rounded, medium grained, mainly quartz Sm.am. light grey sandstone; white micrite; steel fragments



# Lithology and Total Organic Carbon measurements

TABLE NO.: 3  
WELL NO.: 34/7-6

Sample	Depth (m)	TOC	Lithology
C-887	3170-3179		100% Sand, well rounded, medium grained, mainly quartz Sm.am. Sandstone; brownish red claystone
C-889	3188-3197		100% Sand, well rounded, medium grained, mainly quartz Sm.am. Brownish red claystone; white to light grey clayey and sandy micritic limestone
C-891	3206-3215		100% Sand, well rounded, medium grained, mainly quartz Sm.am. Limestone, light grey, laminated, micritic, clayey, occasionally white, sandy claystone, dusky red to dark reddish brown
C-893	3224-3233		90% Sand, well rounded, medium grained, mainly quartz 10% Limestone, white to light grey, occasionally with clayey laminae, occasionally sandy, micritic Sm.am. Claystone, occasionally calcareous; steel fragments
C-895	3242-3251		90% Sand, well rounded, medium grained, mainly quartz 10% Limestone, white, micritic
C-897	3260-3269		90% Sand, well rounded, medium grained, mainly quartz 10% Limestone, white, micritic Sm.am. Claystone, dusky red to dark reddish brown



# Lithology and Total Organic Carbon measurements

TABLE NO.: 3  
WELL NO.: 34/7-6

Sample	Depth (m)	TOC	Lithology
C-899	3278-3287	0.29	70% Sand, well rounded, medium grained, mainly quartz 10% Sandstone, calcite cemented 10% Claystone, brownish grey to olive grey calcareous 10% Limestone, white, micritic, occasionally sandy Sm.am. Laminated claystone - limestone; Cement
C-901	3296-3305	0.22	60% Sand, well rounded, medium grained, mainly quartz 10% Sandstone, white, calcite cemented 20% Limestone, white, micritic, occasionally sandy 10% Claystone, brownish grey to olive grey Sm.am. Clayey limestone, light grey with white spots and laminae of pure micrite
C-903	3314-3323	0.46	40% Claystone, olive grey, occasionally slightly calcareous 50% Sandstone, white to light grey, calcite cemented, fine grained 10% Limestone, light grey
C-905	3332-3341	0.46 0.20	60% Sandstone, fine grained, calcite cemented, white, light grey and brownish 10% Claystone, olive grey 10% Claystone, dark reddish brown 20% Limestone, white - light grey, occasionally with clayey laminae, occasionally sandy Sm.am. Steel fragments



# Lithology and Total Organic Carbon measurements

TABLE NO.: 3  
WELL NO.: 34/7-6

Sample	Depth (m)	TOC	Lithology
C-907	3350-3359		50% Sandstone, fine grained, calcite cemented, white, light grey and brownish
			10% Limestone, olive grey, contains small amounts of clay, micritic
C-909	3368-3377	0.26	25% Claystone, olive grey
		0.26	15% Claystone, dusky red to dark reddish brown
			40% Sandstone, fine grained, calcite cemented, white, light grey and brownish
C-911	3386-3395		30% Limestone, white, micritic, occasionally sandy
		0.15	20% Claystone, dusky red to dark reddish brown, occasionally with laminae of very fine, micaceous sand
		0.57	10% Claystone, olive grey
C-913	3401-3410		80% Sand
		0.27	10% Claystone, dusky red to dark reddish brown 10% Chert, light grey Sm.am. Olive grey claystone; white limestone; Sandstone, calcite cemented
C-915	3419-3428		100% Sand Sm.am. Chert; Claystones (olive grey and dark reddish brown); Claystone, grey-light grey with white laminae, tuffaceous.
C-915	3419-3428		70% Sand 30% Chert, light grey Sm.am. Siderite; fine grained sandstone; white limestone





# Lithology and Total Organic Carbon measurements

TABLE NO.: 3  
WELL NO.: 34/7-6

Sample	Depth (m)	TOC	Lithology
C-917	3437-3449		80% Sand 10% Chert Sm.am. Coal, black; dusky red to dark reddish brown claystone; olive grey claystone; Cement
C-919	3461-3470		70% Sand 30% Calcite cemented sandstone, fine grained-very fine grained
C-922	3495-3503	47.60	100% Coal, black Sm.am. Calcite cemented sandstone
C-924	3512-3521	47.08	40% Coal, black 60% Sandstone, calcite cemented, fine - very fine grained
C-926	3530-3539	30.80	80% Sand, white medium grained, mainly quartz 20% Coal Sm.am. Fine grained, calcite cemented, sandstone, micaceous claystone; limestone
C-927	3539-3548	0.33	90% Sand, medium to fine grained, moderate brown to moderate reddish brown 10% Claystone, pale reddish brown white spots and laminae, and whitish with brownish laminae and white spots, The calcite content varies considerably Sm.am. Coal; Sandstone



# Lithology and Total Organic Carbon measurements

TABLE NO.: 3  
WELL NO.: 34/7-6

Sample	Depth (m)	TOC	Lithology
C-945	3537-3566	0.18	80% Sand, medium to fine grained, moderate brown to moderate reddish brown 20% Claystone, calcareous as above Sm.am. Dark reddish brown claystone; Sandstone; Coal; Olive grey claystone.
C-947	3584-3593		100% Sand, medium to fine grained, moderate brown to moderate reddish brown Sm.am. Calcareous claystone; Dark reddish brown claystone; Olive grey claystone; Sandstone; Cement
C-949	3602-3611	0.33	60% Sand, medium to fine grained, moderate brown to moderate reddish brown 30% Claystone, pale reddish brown to whitish with white spots and laminae, calcareous 10% Claystone, dusky red to dark reddish brown Sm.am. Olive grey claystone
C-951	3620-3629	0.30	60% Sand, medium to fine grained, moderate brown to moderate reddish brown 40% Claystone, pale reddish brown to whitish with white spots and laminae, calcareous Sm.am. Olive grey claystone
C-953	3633-3647	0.00  0.18	60% Claystone, pale reddish brown to whitish with white spots and laminae, calcareous 30% Sand, medium to fine grained, moderate brown to moderate reddish brown 10% Claystone, dusky red to dark reddish brown Sm.am. Olive grey claystone

APPENDIX 1

## EXPERIMENTAL METHODS AND DESCRIPTION OF INTERPRETATION LEVELS

Gas analyses

A septum was attached to the can, a sample of the headspace gas was taken and analysed for  $C_1$ ,  $C_2$ ,  $C_3$ ,  $i-C_4$ ,  $nC_4$  and  $C_5+$  (conditions: see below). If any  $C_5+$  was detected a second sample was taken and analysed for  $C_4-C_{10}$  compounds (conditions: see below).

The can was opened, headspace volume, water volume and sample weight were measured. The canned samples were washed with tempered water on 4, 2 and 0.125 mm sieves to remove drilling mud and thereafter dried at 35°C.

For occluded gas analysis an aliquot of the 2-4 mm fraction of each sample before drying was crushed in water using an airtight ball mill. The evolved gas was analysed as described for headspace gas.

About 100g sample was placed in the adsorbed gas system. After evacuation 50ml concentrated hydrochloric acid was added and the sample was heated to 60-80°C under stirring until no more gas was evolved (10-15 min.). Evolved gases were lead through a concentrated potassium hydroxide solution for removal of carbon dioxide. The instrument was filled up with water to a specified volume and the gas pressure was recorded. After this the instrument was filled up to atmospheric pressure and the gas was analysed as described for headspace gas.

GC conditions:

 $C_1-C_5+$  analysis

This analysis was performed on Carlo Erba Fractovap 2150 and 2350 gas chromatographs equipped with 2m x 1/8" stainless steel columns filled with Porapak Q on Chromosorb using nitrogen as carrier gas. The oven temperature was 150°C. After elution of n-butane the column was back-flushed and  $C_5+$  was recorded. A standard gas containing methane, ethane, propane, n-butane, n-pentane and n-hexane was used for quantitation.

### Lithological descriptions

Lithological examinations are normally carried out using a binocular microscope (maximum 50x magnification). Colour descriptions are in accordance with "Rock Colour Chart" published in 1979 by the Geology Society of America, Boulder, Colorado. The clients have a choice of three different levels of description from a simple identification of the lithologies to a full examination of the sample. Handpicking of the cuttings for organic geochemical analyses is based on these descriptions.

### Total Organic Carbon

Bulk samples were crushed in a mortar. Aliquots of the samples were then weighed into Leco crucibles and treated three times with hot 10% HCl to remove carbonate, and washed 4 times with distilled water to remove traces of HCl. The crucibles were then placed on a hot plate and dried for 24 hours. The total organic carbon (TOC) content of the dried samples was determined using a Leco CR12 carbon analyser.



# Lithology and Total Organic Carbon measurements

TABLE NO.: 3  
WELL NO.: 34/7-6

Sample	Depth (m)	TOC	Lithology
C-955	3656-3662	0.06	80% Sand, calcite cemented sandstone 10% Reddish white clayey limestone/claystone 10% Claystone, dark reddish brown
C-957	3671-3685	0.00  0.20	80% Sand, calcite cemented sandstone 10% Claystone, pale reddish brown with white spots, calcareous 10% Claystone, dusky red to dark reddish brown

APPENDIX 2

## INTERPRETATION LEVELS

Total organic carbon (TOC)

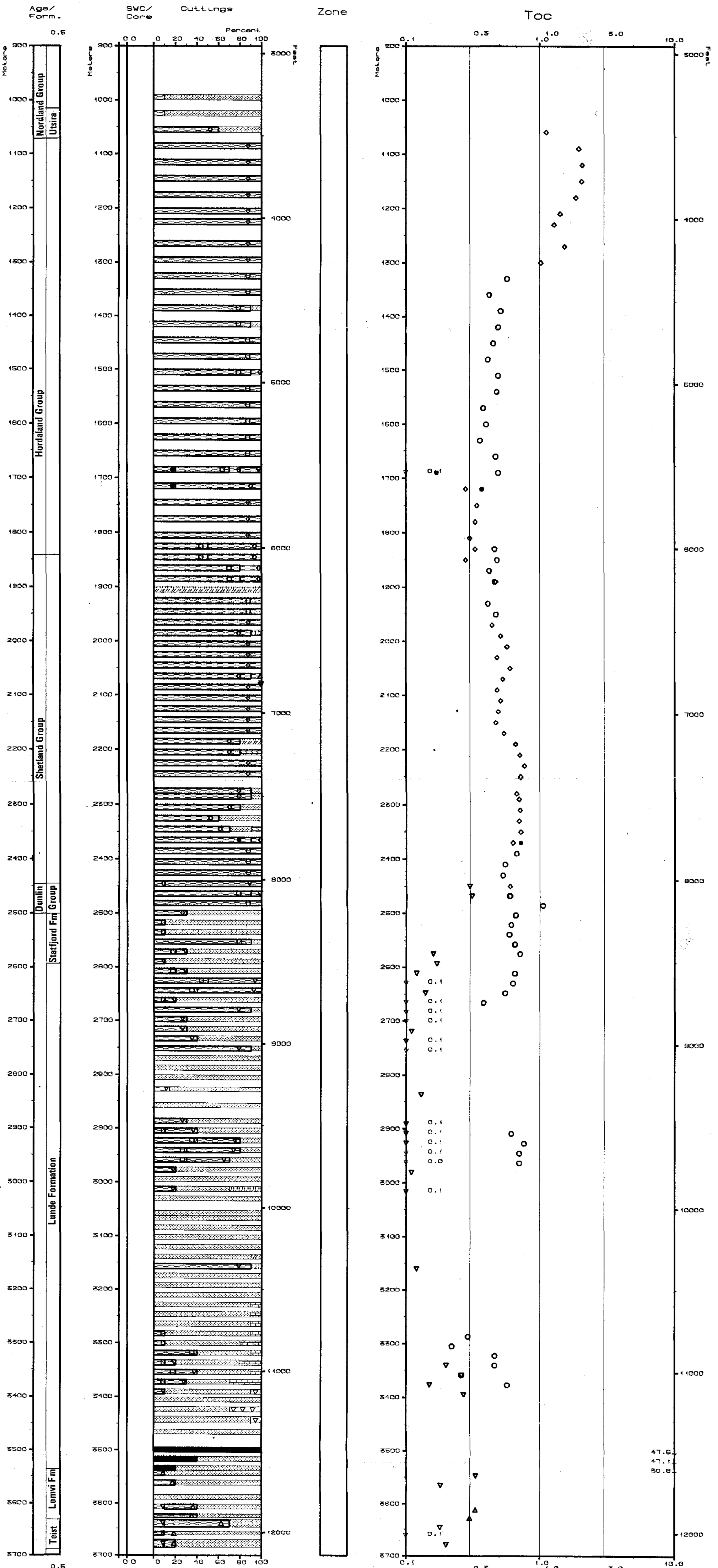
%TOC	
<0.5%	Poor Source Rock
0-5-1%	Fair Source Rock
1-2%	Good Source Rock
>2%	Rich Source Rock





**WELL 34/7-6**

**Lithology**



- A Coal
- B Claystone/Mudstone
- C Claystone/Mudstone, dark coloured
- D Claystone/Mudstone, medium coloured
- E Claystone/Mudstone, light coloured
- F Claystone/Mudstone, red-brown coloured
- G Claystone/Mudstone, varicoloured
- H Marl
- I Siltstone
- J Sandstone
- K Limestone
- L Dolomite
- M Evaporites
- N Tuff

- Claystone/Mudstone, dark coloured
- Claystone/Mudstone, medium coloured
- ◇ Claystone/Mudstone, light coloured
- ▽ Claystone/Mudstone, red-brown coloured
- △ Claystone/Mudstone, varicoloured
- × Siltstone
- \* Sandstone
- Carbonates
- + Coal
- ↙ Sidewall core

47.6  
47.1  
50.8