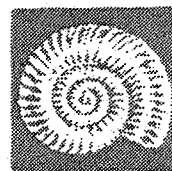


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CLIENT/ OPPDRAGSGIVER 21 AUG 1984 Saga Petroleum a.s.			
RESPONSIBLE SCIENTIST/ PROSJEKTANSVARLIG REGISTRERT REKTORATET L. Leith			
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SUMMARY/ SAMMENDRAG

Tertiary: Unidentified Tertiary (1000-1027m): Arenaceous lithology. Thermally immature. No source potential.
Pliocene sand (1027-1051m): As above.
Øtsira formation (1051-1673m): Predominantly claystone lithology. Poor to good organic richness. Thermally immature.
Balder formation (1673-1696m): Claystone lithology of poor organic richness. Thermally immature.
Lista/Sele formation (1696-1823m): Claystone lithology of poor organic richness. Thermally immature.

Cretaceous: Shetland group (1823-2387m): Dominantly claystone lithology of poor to fair organic richness. Migrated hydrocarbons probably present towards base of group.
Cromer Knoll group (2387-2392m): Sandstone lithology. Migrated hydrocarbons probably present.

Triassic: Lunde formation (2392-T.D. 2906m): Mixed claystone/sandstone lithologies of poor organic richness. Migration hydrocarbons probably present.

KEY WORDS/ STIKKORD

34/7-1	Geochemical screening
Saga Petroleum a.s.	

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INTRODUCTION

A number of samples were submitted for geochemical screening from the well section between 1000m and 2903m in the 34/7-1 well (Figure 1). The analyses used for the screening include analysis of the C₁-C₇ hydrocarbons in headspace and cuttings gas, lithological description and determination of the Total Organic Carbon (TOC) content of the samples. On instructions from the client, the analyses were carried out on every second sample.

The well section was divided into a number of geochemical zones and these are discussed with reference to stratigraphic tops provided by Saga Petroleum. A summary of these geochemical zones and stratigraphic tops, together with their relationship is shown in Figure 2.

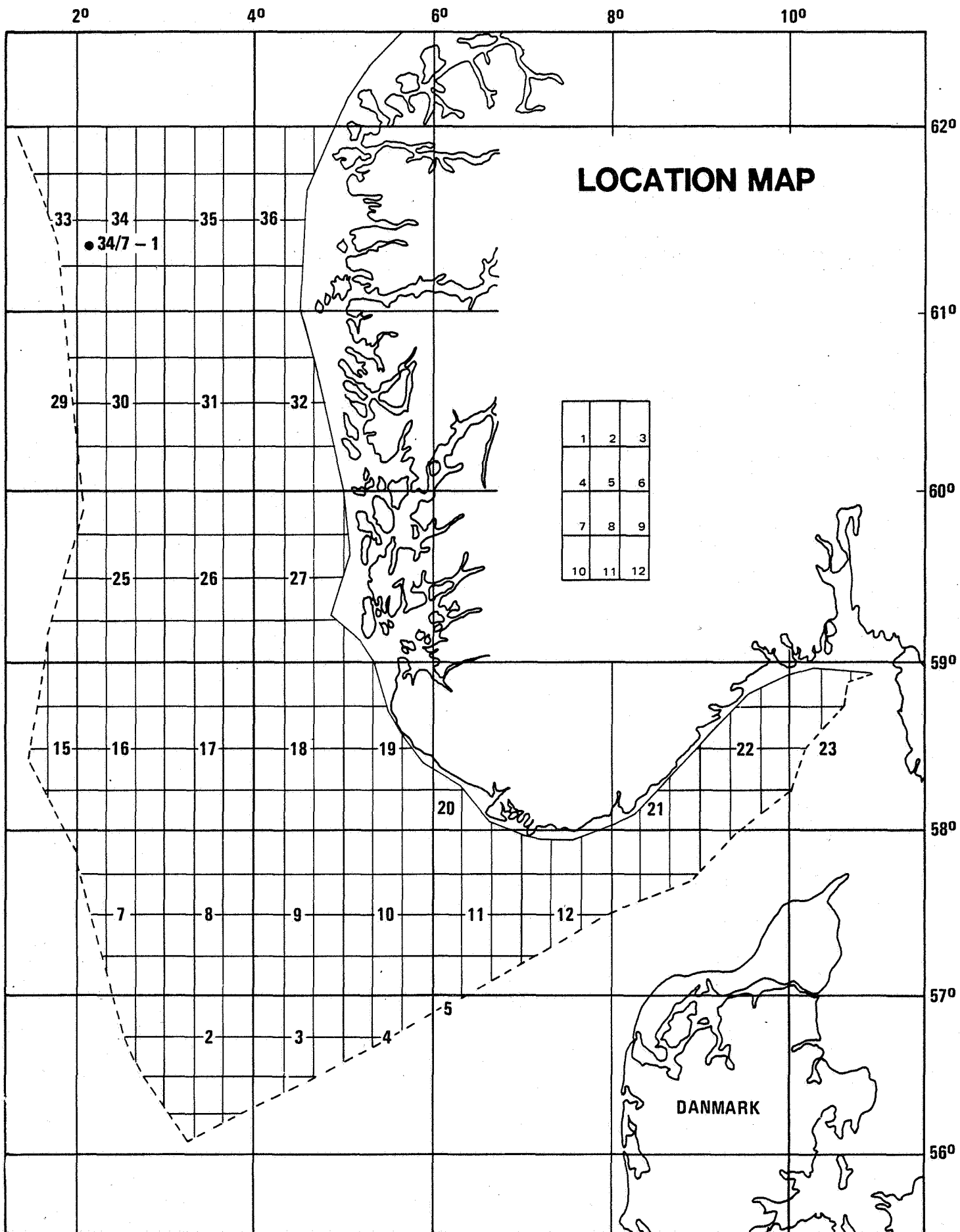


FIGURE 1: Location of well 34/7-1.

FIGURE 2: Correlation of stratigraphic tops and geochemical zones.

WELL 34/7-1

ERA	GROUPS	FORMATIONS	FORMATION TOPS (m)	ORGANIC GEOCHEMICAL ZONES (IKU)	
Tertiary		Pliocene Sand	-1027	1000m	A
		Utsira Equivalent	-1051	1080m	B
				1340m	C
				1420m	D
Upper Cretaceous	Shetland	Balder	-1673	1680m	E
		Lista/Sele	-1696		
			-1823		
Lower Cretaceous Triassic	Cromer Knoll			1895m	F
				2057m	G
		Lunde	-2387		H
			-2392	2399m	
				2552m	
			2633m	I	
		T.D.	-2906	2903m	J

EXPERIMENTAL METHODS AND DESCRIPTION OF INTERPRETATION LEVELS

Gas Analyses

The cans were thawed out overnight. 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).

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 $35^{\circ}C$.

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.

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 $150^{\circ}C$. 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.

DISCUSSION OF RESULTS

The analysed interval (1000-2903m) in the well 34/7-1 is divided into a number of zones based on the lithology of the samples and on the concentrations of C₁-C₇ hydrocarbons present in the samples.

- Zone A: 1000-1080m
- Zone B: 1080-1340m
- Zone C: 1340-1420m
- Zone D: 1420-1680m
- Zone E: 1680-1895m
- Zone F: 1895-2057m
- Zone G: 2057-2399m
- Zone H: 2399-2552m
- Zone I: 2552-2633m
- Zone J: 2633-2903m

Zone A, (1000-1080m): This zone includes the Pliocene sand unit (1027-1051m) and part of the Miocene Utsira formation equivalent (1051-1673m). Zone A consists mainly of crystalline rock fragments which may represent a poorly cemented or disaggregated sandstone. The presence of shell fragments in the samples suggests a fairly high energy depositional environment. The C₁-C₇ hydrocarbons in this zone are represented by methane together with very minor amounts of C₂ hydrocarbons. Gas wetness values reach a maximum of 0.05% at 1020m which indicates the near absence of higher molecular weight compounds in this zone. The composition of the C₁-C₇ hydrocarbons suggests that the rocks in zone A are thermally immature. No measurements of total organic carbon (TOC) content were made on these rock samples due to the reworked, crystalline nature of the samples. Such lithologies rarely contain significant amounts of indigenous organic matter.

Zone B, (1080-1340m): Zone B is included within the Miocene Utsira formation equivalent (1051-1673m). The rocks in this zone are mostly medium light grey to olive grey claystone (1080-1180m) or light brownish grey claystone (1180-1340m). Sand, consisting of crystalline rock fragments is found in secondary amounts down to 1140m and significant or trace amounts of glauconite are found towards the base of the zone. Methane is the dominant C₁-C₇ hydrocarbon, but is generally present at lower concentrations than was observed in zone A. Minor amounts of C₂ and C₃

hydrocarbons are present and gas wetness values reach a maximum of 1.09% at 1240m. These data suggest that the rocks of zone B are thermally immature and will not have produced any significant amounts of liquid hydrocarbons. TOC values vary from 0.32 wt% at 1120m to 1.69% at 1280m. Between 1180m and 1340m, TOC values vary from 0.93 wt% to 1.69 wt% and suggest fair to good organic richness in this interval.

Zone C, (1340-1420m): Zone C is included within the Miocene Utsira formation equivalent (1051-1673m). The rocks are dominantly light brownish grey to olive grey claystone, together with traces of glauconite. Methane concentrations are low relative to the overlying zones and C₂-C₇ hydrocarbons are absent. TOC values are mostly lower than were observed in zone B and vary from 0.96 wt% at 1360m to 0.43 wt% at 1420m. The data suggest that the rocks in zone C are thermally immature with a poor to fair organic matter content. Zone C is unlikely to contain any significant hydrocarbon source rocks.

Zone D, (1420-1680m): Zone D includes the base of the Miocene Utsira formation equivalent (1051-1673m) and the top of the Eocene Balder formation (1673-1696m). The rock samples consist of olive grey or light olive grey claystone. Secondary amounts of tuffaceous and dark reddish brown claystone are present at 1680m. C₁-C₇ hydrocarbon concentrations are generally low and methane is the dominant component. The presence of minor amounts of C₂, C₃ and iC₄ components and a significant concentration of C₅+ hydrocarbons differentiate zone D from zone C. Gas wetness values achieve 2.60% at 1660m. TOC values are low and vary from 0.56 wt% at 1440m to 0.30 wt% at 1620m. These TOC values suggest a generally poor organic richness. The C₁-C₇ light hydrocarbon data suggest that the rocks in zone D are thermally immature.

Zone E, (1680-1895m): Zone E includes the base of the Eocene Balder formation (1673-1696m), all of the Palaeocene Lista/Sele formation (1696-1823m) and the top of the Upper Cretaceous Shetland Group (1823-2387m).

The rock samples are mostly light olive grey to olive grey claystone above 1820m. Secondary or minor amounts of tuffaceous claystone are present between 1680m and 1820m. Below 1820m, the dominant lithology changes to a medium grey, silty claystone with minor amounts of olive

grey claystone. This change in lithology correlates with the top of the Cretaceous Shetland Group.

The concentrations of the C_1 - C_4 hydrocarbons are increased relative to those observed in zones B to D. The C_5+ hydrocarbons are present in similar concentrations to those found in zone D down to 1820m. Below this depth, slightly increased values are found. This change correlates with the top of the Cretaceous Shetland Group. Most of the observed increase in the C_1 - C_4 hydrocarbon concentrations occurs in the headspace gas fraction. The C_5+ hydrocarbon concentrations increase significantly in the headspace gas below 1820m. This may indicate that migrated, non-indigenous hydrocarbons are present. Average gas wetness values increase from 3.85% at 1760m to 15.97% at 1840m and reflect the increased C_2 - C_4 component of the light hydrocarbons. iC_4/nC_4 ratio values are calculated on headspace gas concentrations as these components are largely absent in the cuttings gas. iC_4/nC_4 values vary from 1.29 at 1740m to 0.58 at 1840m and suggest a sharp increase in the thermal maturity of the headspace gas fraction. This might be expected if migrated hydrocarbons are present.

TOC values in zone E vary from 0.49 wt% at 1700m to 0.31 wt% at 1780m. TOC values are relatively constant throughout zone E and suggest poor organic richness.

Zone F, (1895-2057m): This zone is included within the Upper Cretaceous Shetland group (1823-2387m). The samples predominantly consist of medium grey to greenish grey, silty claystone. Minor amounts of glauconite, sand, pyrite and siderite are also present. Minor amounts of a mixed claystone/ marl lithology occur at the base of the zone (2057m).

Zone F is marked by a general increase in the C_2+ hydrocarbon components with an accompanying increase in average gas wetness values from 19.25% at 2057m to 40.02% at 2021m. Methane is the dominant light hydrocarbon in the samples. Most of the observed increase in the light hydrocarbon concentrations occurs in the headspace gas although the C_5+ hydrocarbons are present at greater concentrations in the cuttings gas. This may indicate that the lithology in this zone is less permeable for the C_5+ hydrocarbons. Gas wetness values are generally higher in the cuttings gas than in the headspace gas. This reflects a greater concentration of the C_2 - C_4 hydrocarbons relative to methane in the cuttings gas. iC_4/nC_4

values are mostly based on headspace gas analyses and vary from 0.62 at 1913m to 0.36 at 2057m. The fairly rapid decrease in iC_4/nC_4 values continues the trend observed in zone E. iC_4/nC_4 values from the cuttings gas are probably less reliable due to the lower concentrations of these components in the cuttings gas. The data suggest that the majority of the light hydrocarbons present in the samples represent non-indigenous migrated material. The high gas wetness values (39.05% to 89.31%) of the cuttings gas may indicate the presence of liquid hydrocarbons in this interval.

TOC values vary from 0.58 wt% at 1985m to 0.34 wt% at 2057m and suggest poor to marginally fair organic richness. Most of the TOC values lie between 0.47 wt% and 0.58 wt%.

Zone G, (2057-2399m): Zone G includes the base of the Upper Cretaceous Shetland Group (1823-2387m), all of the Lower Cretaceous Cromer Knoll Group (2387-2392m) and the top of the Triassic Lunde Formation (2392-T.D. at 2906m).

The rocks in zone G consist of medium grey claystone and minor amounts of marl/claystone and sandstone (2057-2291m) grading into a medium dark grey claystone-marl and minor sandstone at 2327m. At 2399m, a clear to light brown sandstone becomes the dominant lithology. This correlates with the top of the Jurassic Lunde formation.

There is an increase in C_2-C_7 hydrocarbon concentrations in zone G. This increase is significant in both the headspace gas and cuttings gas. Gas wetness values in the headspace gas vary between about 50% and 75%, while gas wetness values in the cuttings gas exceed 90%. iC_4/nC_4 values in the headspace gas fall between 0.41 at 2111m and 0.26 at 2327m and iC_4/nC_4 values in the cuttings gas fall between 0.24 at 2093m and 0.16 at 2327m and 2381m. The data tend to suggest the presence of migrated liquid hydrocarbons in zone G. Throughout this zone, methane is subordinate to the C_2+ hydrocarbons.

TOC values in zone G are generally higher than observed in zones C to F and vary from 0.88 wt% at 2255m to 0.52 wt% at 2327m. The most organic rich zone occurs between 2219m and 2273m where TOC values vary from 0.83 wt% to 0.88 wt%. This section (2219-2273m) shows some of the highest C_5+ hydrocarbon concentrations and gas wetness values in zone G.

Zone H, (2399-2552m): This zone is included within the Triassic Lunde Formation (2392-T.D. at 2906m). The samples include significant amounts of medium-grey to medium light grey claystone, reddish-brown claystone and clear to light brown sand/sandstone. These lithologies vary in predominance from sample to sample.

Concentrations of the C_1 and C_2 hydrocarbon components are generally reduced from those observed in zone G. The nC_3 , nC_4 and C_5+ hydrocarbon concentrations show significant increases relative to those in zone G. This is reflected by high gas wetness values which vary from 80% to 96% in both headspace and cuttings gas. This might suggest that liquid hydrocarbons are present in this zone. The increase in C_5+ hydrocarbon concentrations and gas wetness values correlates with the appearance of significant amounts of sandstone in the well section lithology. iC_4/nC_4 values have low values in this zone and vary from 0.23 to 0.18 in the headspace gas and from 0.19 to 0.15 in the cuttings gas. This would be expected if mature liquid hydrocarbons are present in the section.

TOC values are lower than observed in zone G. The TOC values of the medium grey claystone lithology varies from 0.45 wt% at 2525m to 0.56 wt% at 2435m indicating poor to fair organic richness. This lithology may represent caved material from the Shetland group, although this would have to be confirmed by further study.

The reddish-brown claystone lithology has TOC values which vary from 0.14 wt% at 2498m to 0.31 wt% at 2552m and may be considered organic lean. The sandstone lithology was not analysed for TOC as arenaceous lithologies tend to be very poor in indigenous organic matter.

Zone I, (2552-2633m): Zone I is included within the Triassic Lunde Formation (2392-T.D. at 2906m). The rock samples from zone I have a predominantly reddish-brown claystone lithology and significant amounts of a clear to light brown sand/sandstone lithology. Minor amounts of contaminants and medium-grey claystone are also present. The latter lithology may represent caved material.

There is a decrease in the concentrations of the C_1 - C_4 hydrocarbons in zone I relative to those observed in zone H. C_5+ hydrocarbon concentrations are still high, and are generally greater than the concentrations of C_1 - C_4 hydrocarbons. Gas wetness values are fairly high and

vary from 67.28% to 90.15% in the headspace gas. Gas wetness values are generally lower in the cuttings gas and vary from 20.48% to 71.92%. High gas wetness values in the headspace gas relative to those in the cuttings gas have been observed since significant amounts of sand/sandstone become obvious in zone H. This observation may be due to increased permeability in this section which would allow a larger proportion of the nC_4 and C_5+ hydrocarbons to escape into the headspace gas. iC_4/nC_4 values of between 0.18 and 0.16 are recorded in the headspace gas. The iC_4 hydrocarbon is largely absent from the cuttings gas. The data suggest that migrated hydrocarbons are present in the section represented by zone I, although at lower concentrations than are found the immediately overlying zones.

TOC values for the reddish-brown claystones vary from 0.32 wt% at 2597m to 0.13 wt% at 2579m and 2633m. These values indicate that the claystones have a poor organic matter content.

Zone J, (2633-2903m): This zone is included within the Triassic Lunde Formation (2392-T.D. at 2906m). A clear to light brown sand/sandstone lithology is predominant in the samples from zone J. Minor amounts of a moderate brown claystone and a moderate brown marl lithology are also present. Small amounts of light grey - medium grey claystone, coal and limestone occur towards the base of the section.

The C_1-C_4 hydrocarbons are present at relatively low concentrations and the C_5+ hydrocarbons tend to predominate in both the headspace and cuttings gas. Gas wetness values are slightly higher in the headspace gas due to relatively higher concentrations of the C_2-C_4 hydrocarbons in the headspace gas. iC_4/nC_4 values are mostly difficult to obtain due to generally poor concentrations of iC_4 in the headspace gas and its absence in the cuttings gas.

TOC values of between 0.13 wt% (2696m) and 0.23 wt% (2867m) were obtained on the marl lithology. The medium grey - brownish grey claystone lithology at 2885m and 2903m has TOC values of 0.31 wt% and 0.34 wt% respectively. A sand/sandstone lithology at 2867m has a TOC value of 0.10 wt%. These data indicate that the section represented by zone J is organic lean.

CONCLUSIONS

Tertiary

Unidentified Tertiary (1000-1027m): Geochemical zone A

Arenaceous lithology with no oil or gas potential. Thermally immature.

Pliocene sand (1027-1051m): Geochemical zone A

Arenaceous lithology with no oil or gas potential. Thermally immature.

Utsira formation equivalent (1051-1673m): Geochemical zones A, B, C and D.

Predominantly claystone lithology of poor to good organic richness. Thermally immature. C₁-C₇ hydrocarbons present in low concentrations with methane dominant.

Balder formation (1673-1696m): Geochemical zones D and E

Predominantly claystone lithology of poor organic richness. Thermally immature. Non-indigenous gas may be present in trace amounts.

Lista/Sele formation (1696-1823m): Geochemical zone E

Predominantly claystone lithology of mostly poor organic richness. Increase in C₁-C₇ hydrocarbon concentrations, especially in C₂+ hydrocarbons. Migrated hydrocarbons may be present.

Cretaceous

Shetland Group (1823-2387m): Geochemical zones E, F and G

Dominantly claystone lithology of poor to fair organic richness. A sandstone lithology becomes dominant at the base of the section. Thermal maturity is probably low. Migrated hydrocarbons are probably present in this group.

Cromer Knoll Group (2387-2392m): Geochemical zone G

Dominantly sandstone lithology. Migrated hydrocarbons are probably present in this unit.

Triassic

Lunde Formation (2392-T.D. 2906m): Geochemical zones G, H, I and J

Mixed claystone/sandstone lithology. The claystones have poor organic richness. Migrated hydrocarbons may be present to base of zone I, possibly also in zone J although in low concentrations.



TABLE I a.

CONCENTRATION (ul Gas / kg Rock) OF C1 - C7 HYDROCARBONS IN HEADSPACE.

IKU no.	DEPTH m/ft	C1	C2	C3	iC4	nC4	C5+	SUM C1-C4	SUM C2-C4	WET-NESS (%)	iC4 nC4
I B 3750	1000	69382						69382		0.00	
I B 3752	1020	38302	19					38320	19	0.05	
I B 3754	1040	4080						4080		0.00	
I B 3756	1060	37860	15					37875	15	0.04	
I B 3758	1080	23225						23225		0.00	
I B 3760	1100	29234	30					29264	30	0.10	
I B 3762	1120	3189	6					3195	6	0.19	
I B 3764	1140	9961	18				164	9979	18	0.18	
I B 3766	1160	242						242		0.00	
I B 3768	1180	25710	15	6			51	25730	21	0.08	
I B 3770	1200	3000	2	1			8	3002	2	0.08	
I B 3772	1220	10861	7	4			19	10872	11	0.10	
I B 3774	1240	149						149		0.00	
I B 3776	1260	7712	9	7				7728	16	0.20	
I B 3778	1280	9379	11	12				9402	23	0.25	
I B 3780	1300	3646	6	7				3659	13	0.35	
I B 3782	1320	2475	4					2479	4	0.16	
I B 3784	1340	5736	8	7		3		5754	18	0.31	0.00
I B 3786	1360	2						2		0.00	
I B 4027	1380	1089						1089		0.00	
I B 4029	1400	114						114		0.00	
I B 4031	1420	125						125		0.00	
I B 4033	1440	1051	3				51	1054	3	0.26	

DATE : 11 - 7 - 84.



TABLE I a.

CONCENTRATION (ul Gas / kg Rock) OF C1 - C7 HYDROCARBONS IN HEADSPACE.

IKU no.	DEPTH m/ft	C1	C2	C3	iC4	nC4	C5+	SUM C1-C4	SUM C2-C4	WETNESS (%)	iC4 nC4
I B 4035	1460	655	1				31	656	1	0.18	
I B 4037	1480	185						185		0.00	
I B 4039	1500	745	2				36	747	2	0.27	
I B 4041	1520	619	2				38	620	2	0.25	
I B 4043	1540	1160	3	1			23	1165	4	0.36	
I B 4045	1560	1296	7					1303	7	0.50	
I B 4047	1580	320	2					322	2	0.63	
I B 4049	1600	327	3	1			42	331	4	1.19	
I B 4051	1620	1955	17	4	4		48	1980	25	1.26	
I B 4053	1640	3385	43	12	12		42	3451	66	1.92	
I B 4055	1660	3184	55	16	17		161	3272	88	2.69	
I B 4057	1680	2715	27	5	5			2752	37	1.35	
I B 4059	1700	9712	288	53	36			10089	377	3.74	
I B 4061	1720	4732	153	25	15			4926	194	3.94	
I B 4063	1740	7050	231	78	48	37		7443	394	5.29	1.29
I B 4065	1760	6842	183	45	21	22		7113	271	3.80	0.96
I B 4067	1780	8395	233	60	20	24		8733	338	3.87	0.82
I B 4069	1800	7928	322	131	61	75	177	8518	589	6.92	0.81
I B 4071	1820	5772	212	85	38	48	88	6154	383	6.22	0.79
I B 4237	1840	7499	607	364	161	229	443	8860	1361	15.36	0.70
I B 4239	1859	2652	139	72	31	47	141	2940	288	9.81	0.67
I B 4241	1877	4729	256	160	71	112	296	5329	600	11.26	0.63
I B 4243	1895	25396	1241	549	184	296	502	27666	2270	8.20	0.62

DATE : 11 - 7 - 84.



TABLE I a.

CONCENTRATION (ul Gas / kg Rock) OF C1 - C7 HYDROCARBONS IN HEADSPACE.

IKU no.	DEPTH m/Ft	C1	C2	C3	iC4	nC4	C5+	SUM C1-C4	SUM C2-C4	WET-NESS (%)	iC4 nC4
I B 4245	1913	6204	711	553	222	409	817	8098	1894	23.39	0.54
I B 4247	1931	5439	621	496	188	371	749	7114	1675	23.55	0.51
I B 4249	1949	7344	896	77	287	622	1292	9225	1881	20.39	0.46
I B 4251	1967	7004	772	576	191	425	958	8968	1964	21.90	0.45
I B 4253	1985	13805	2283	1926	627	1555	3025	20196	6391	31.64	0.40
I B 4255	2003	6393	918	699	194	492	746	8696	2303	26.48	0.39
I B 4257	2021	9084	1883	1682	473	1280	1977	14402	5319	36.93	0.37
I B 4259	2039	11445	1988	1673	452	1170	1354	16728	5283	31.58	0.39
I B 4261	2057	13801	1365	855	248	688	861	16957	3156	18.61	0.36
I B 4263	2075	10585	2105	2123	674	1750	2495	17237	6652	38.59	0.38
I B 4265	2093	30742	11596	11457	2976	7510	8027	64282	33540	52.18	0.40
I B 4267	2111	9881	2929	3135	865	2092	2151	18902	9021	47.73	0.41
I B 4269	2129	3700	2046	2675	734	2086	2958	11241	7541	67.08	0.35
I B 4271	2147	6450	3628	4662	1115	3274	4948	19129	12679	66.28	0.34
I B 4273	2165	6971	4613	6496	1436	4313	6296	23830	16859	70.75	0.33
I B 4275	2183	15508	11098	16075	2895	8412	9642	53988	38480	71.28	0.34
I B 4277	2201	5670	2785	3507	545	1712	2307	14220	8549	60.12	0.32
I B 4279	2219	8573	5325	8919	1372	4710	6160	28898	20326	70.34	0.29
I B 4281	2237	14377	10031	15702	2319	7689	8708	50118	35741	71.31	0.30
I B 4283	2255	10675	9053	14539	1922	6144	5684	42333	31658	74.78	0.31
I B 4285	2273	6491	5175	10948	1736	5672	6364	30022	23531	78.38	0.31
I B 4287	2291	4894	2831	5427	958	3268	5635	17379	12485	71.84	0.29
I B 4289	2309	3476	1958	3521	606	1994	3329	11555	8079	69.92	0.30

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TABLE I a.

CONCENTRATION (uL Gas / kg Rock) OF C1 - C7 HYDROCARBONS IN HEADSPACE.

IKU no.	DEPTH m/ft	C1	C2	C3	iC4	nC4	C5+	SUM C1-C4	SUM C2-C4	WET-NESS (%)	iC4 nC4
I B 4291	2327	3210	1347	2414	387	1439	2737	8797	5587	63.51	0.27
I B 4293	2345	3152	1357	2622	492	1902	4924	9525	6373	66.91	0.26
I B 4295	2363	1117	752	1446	251	859	1181	4424	3307	74.75	0.29
I B 4297	2381	960	506	907	135	498	734	3006	2046	68.05	0.27
I B 4299	2399	9819	9914	20576	3260	10734	16101	54304	44484	81.92	0.30
I B 4301	2417	2950	1410	5297	2730	11776	39682	24162	21212	87.79	0.23
I B 4303	2435	2214	985	2705	1535	6613	22411	14052	11838	84.24	0.23
I B 4305	2453	616	776	3021	2134	9835	42596	16382	15766	96.24	0.22
I B 4307	2471	2131	1487	4882	3085	14324	61577	25909	23778	91.78	0.22
I B 4310	2498	1100	583	1335	753	3425	15735	7195	6095	84.71	0.22
I B 4312	2525	1878	841	16379	860	4243	21830	24201	22322	92.24	0.20
I B 4314	2552	854	339	6878	389	2149	15637	10610	9756	91.95	0.18
I B 4316	2579	543	165	2980	155	874	10710	4716	4173	88.50	0.18
I B 4318	2597	198	71	1281	61	371	6148	1981	1783	90.00	0.16
I B 4320	2615	180	59	1156	59	374	9888	1829	1648	90.15	0.16
I B 4322	2633	430	61	721	15	88	1139	1316	885	67.28	0.18
I B 4324	2662	184	20	225	8	51	599	488	305	62.40	0.17
I B 4326	2678	124	10	84	4	252	586	474	350	73.86	0.02
I B 4328	2696	316	30	221	8	49	1281	623	307	49.33	0.16
I B 4330	2714	523	108	862	11	54	886	1558	1036	66.46	0.21
I B 4332	2732	1253	122	74	14	67	2492	1530	277	18.08	0.20
I B 4334	2750	341	32	18		25	1080	416	75	18.07	0.00
I B 4336	2768	86	9	7		8	344	110	24	21.89	0.00

DATE : 11 - 7 - 84.



TABLE I a.

CONCENTRATION (u1 Gas / kg Rock) OF C1 - C7 HYDROCARBONS IN HEADSPACE.

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I      IKU      DEPTH      C1      C2      C3      iC4      nC4      C5+      SUM      SUM      WET-      iC4      I
I      no.      m/ft                104      4      5+      1-4      2-4      NESS      -----  I
I                                     nC4                (%)      nC4      I
I=====I
I      I      B      4338      2786      93      8      6      9      473      117      24      20.53      0.00      I
I      I      B      4340      2804      29      4      3      242      35      6      17.96      I
I      I      B      4342      2822      414      43      23      8      386      488      74      15.21      0.00      I
I      I      B      4344      2849      320      55      44      13      552      433      112      25.94      0.00      I
I      I      B      4346      2867      546      77      47      6      20      726      696      150      21.58      0.32      I
I      I      B      4348      2885      868      131      72      9      23      549      1103      235      21.28      0.39      I
I      I      B      4350      2903      1251      161      93      31      605      1535      285      18.55      0.00      I
I=====I

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DATE : 11 - 7 - 84.



TABLE I b.

CONCENTRATION (uL Gas / kg Rock) OF C1 - C7 HYDROCARBONS IN CUTTINGS .

IKU no.	DEPTH m/ft	C1	C2	C3	iC4	nC4	C5+	SUM C1-C4	SUM C2-C4	WET-NESS (%)	iC4 nC4
I B 3750	1000	536						536		0.00	
I B 3752	1020	1354						1354		0.00	
I B 3754	1040	742						742		0.00	
I B 3756	1060	625						625		0.00	
I B 3758	1080	693						693		0.00	
I B 3760	1100	426						426		0.00	
I B 3762	1120	174					136	174		0.00	
I B 3764	1140	277						277		0.00	
I B 3766	1160	1609						1609		0.00	
I B 3768	1180	389						389		0.00	
I B 3770	1200	380						380		0.00	
I B 3772	1220	599	6					604	6	0.94	
I B 3774	1240	368	6					373	6	1.52	
I B 3776	1260	414	7					422	7	1.74	
I B 3778	1280	322	7				60	329	7	2.17	
I B 3780	1300	310	12	1			155	323	13	3.95	
I B 3782	1320	222	6					228	6	2.57	
I B 3784	1340	229	5					233	5	1.98	
I B 3786	1360	93						93		0.00	
I B 4027	1380	33						33		0.00	
I B 4029	1400	20						20		0.00	
I B 4031	1420	1010						1010		0.00	
I B 4033	1440	91	9				515	100	9	9.10	

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TABLE I b.

CONCENTRATION (ul Gas / kg Rock) OF C1 - C7 HYDROCARBONS IN CUTTINGS .

IKU no.	DEPTH m/ft	C1	C2	C3	iC4	nC4	C5+	SUM C1-C4	SUM C2-C4	WET-NESS (%)	iC4 nC4
I B 4035	1460	66					561	66		0.00	
I B 4037	1480	34					380	34		0.00	
I B 4039	1500	76	10				573	86	10	11.81	
I B 4041	1520	279					840	279		0.00	
I B 4043	1540	83						83		0.00	
I B 4045	1560	96	4				594	101	4	4.30	
I B 4047	1580	45					403	45		0.00	
I B 4049	1600	54					510	54		0.00	
I B 4051	1620	129					338	129		0.00	
I B 4053	1640	202	8		15		611	226	23	10.28	
I B 4055	1660	114					353	114		0.00	
I B 4057	1680	97					345	97		0.00	
I B 4059	1700	214	23	13				250	36	14.21	
I B 4061	1720	154	18				400	172	18	10.27	
I B 4063	1740	80					420	80		0.00	
I B 4065	1760	232	13				251	245	13	5.19	
I B 4067	1780	227	13	11				251	24	9.56	
I B 4069	1800	176	14	15		16	267	221	45	20.47	0.00
I B 4071	1820	35						35		0.00	
I B 4237	1840	120	17	24		46	1181	207	87	41.95	0.00
I B 4239	1859	98	9					107	9	8.74	
I B 4241	1877	78						78		0.00	
I B 4243	1895	183	24	32			710	239	56	23.56	

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TABLE I b.

CONCENTRATION (ul Gas / kg Rock) OF C1 - C7 HYDROCARBONS IN CUTTINGS .

IKU	DEPTH	C1	C2	C3	iC4	nC4	C5+	SUM C1-C4	SUM C2-C4	WET-NESS (%)	iC4 nC4
I B 4245	1913	118	17	35	27	79	2156	276	158	57.34	0.34
I B 4247	1931	210	23	41		71	2073	345	135	39.05	0.00
I B 4249	1949	140	22	54	28	101	1846	344	204	59.24	0.27
I B 4251	1967	132	22	48	30	95	1294	328	195	59.57	0.31
I B 4253	1985	31	16	43		86	1445	175	144	82.21	0.00
I B 4255	2003	134	30	81	54	205	2727	504	370	73.45	0.26
I B 4257	2021	151	56	180	127	480	5442	995	844	84.78	0.26
I B 4259	2039	42	20	71	51	212	2524	397	355	89.31	0.24
I B 4261	2057	108	20	45		96	1657	269	161	59.90	0.00
I B 4263	2075	53	37	132	92	399	4796	714	660	92.50	0.23
I B 4265	2093	359	245	906	594	2506	23217	4610	4251	92.21	0.24
I B 4267	2111	115	146	406	191	883	7061	1741	1626	93.42	0.22
I B 4269	2129	227	200	745	417	1804	14942	3394	3167	93.31	0.23
I B 4271	2147	156	287	974	440	1992	15688	3849	3692	95.94	0.22
I B 4273	2165	146	334	1419	680	2920	22940	5499	5353	97.34	0.23
I B 4275	2183	274	488	2295	962	4230	24157	8247	7974	96.68	0.23
I B 4277	2201	287	246	894	252	1329	7814	3009	2721	90.45	0.19
I B 4279	2219	221	208	1335	455	2352	11650	4571	4350	95.16	0.19
I B 4281	2237	392	602	2928	877	4446	19871	9245	8853	95.76	0.20
I B 4283	2255	210	620	3280	996	5078	21521	10184	9974	97.93	0.20
I B 4285	2273	320	312	2161	782	3911	25005	7485	7166	95.73	0.20
I B 4287	2291	134	89	517	150	853	6763	1742	1608	92.31	0.18
I B 4289	2309	190	97	533	176	1000	9445	1996	1806	90.46	0.18

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TABLE I b.

CONCENTRATION (wL Gas / kg Rock) OF C1 - C7 HYDROCARBONS IN CUTTINGS .

IKU	DEPTH m/ft	C1	C2	C3	iC4	nC4	C5+	SUM C1-C4	SUM C2-C4	WET- NESS (%)	iC4 ----- nC4
I B 4291	2327	76	28	199	65	392	3869	760	683	89.94	0.16
I B 4293	2345	248	43	208	78	449	5430	1026	778	75.80	0.17
I B 4295	2363	71	53	408	142	851	7349	1525	1454	95.36	0.17
I B 4297	2381	125	65	435	128	805	5804	1559	1433	91.95	0.16
I B 4299	2399	620	812	6025	3051	13502	85233	24009	23389	97.42	0.23
I B 4301	2417	530	180	1339	1495	7961	81821	11506	10976	95.40	0.19
I B 4303	2435	831	288	1504	2109	11049	108303	15782	14951	94.73	0.19
I B 4305	2453	314	65	308	406	2490	47708	3583	3269	91.25	0.16
I B 4307	2471	176	29	130	156	926	19253	1417	1241	87.57	0.17
I B 4310	2498	223	62	277	284	1708	28607	2554	2331	91.27	0.17
I B 4312	2525	197	30	86	78	494	9337	886	689	77.77	0.16
I B 4314	2552	165	19	65	71	468	8576	788	623	79.04	0.15
I B 4316	2579	269	33	91	57	509	16246	959	689	71.92	0.11
I B 4318	2597	233	206	114		141	8102	693	460	66.41	0.00
I B 4320	2615	151	15	41		176	7229	383	232	60.69	0.00
I B 4322	2633	166	15	28			3186	209	43	20.48	
I B 4324	2662	227	20	9			3688	256	29	11.17	
I B 4326	2678	195	12	5			2596	212	17	8.06	
I B 4328	2696	185	17	24			3095	226	41	18.15	
I B 4330	2714	219	19	1			2929	239	20	8.55	
I B 4332	2732	335	46	76		39	3053	496	161	32.51	0.00
I B 4334	2750	184	14	8			3610	206	22	10.59	
I B 4336	2768	197	18	9			2283	224	27	12.04	

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TABLE I b.

CONCENTRATION (ul Gas / kg Rock) OF C1 - C7 HYDROCARBONS IN CUTTINGS.

IKU no.	DEPTH m/ft	C1	C2	C3	iC4	nC4	C5+	SUM C1-C4	SUM C2-C4	WET-NESS (%)	iC4 nC4
I B 4338	2786	127	10	7			1817	144	17	12.10	
I B 4340	2804	172	19	28			2945	219	47	21.46	
I B 4342	2822	236	21	12			3975	269	33	12.28	
I B 4344	2849	243	40	126		105	7336	513	270	52.63	0.00
I B 4346	2867	160	15	24			2470	199	39	19.55	
I B 4348	2885	234	28	24			2801	286	52	18.11	
I B 4350	2903	208	23	32		29	2675	293	85	28.88	0.00

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TABLE I c.

CONCENTRATION (ul Gas / kg Rock) OF C1 - C7 HYDROCARBONS (Ia + Ib) .

I	IKU	DEPTH	C1	C2	C3	iC4	nC4	C5+	SUM	SUM	WET-	iC4	I
I	no.	m/ft							C1-C4	C2-C4	NESS	-----	I
I											(%)	nC4	I
I	B 3750	1000	69918						69918		0.00		I
I	B 3752	1020	39655	19					39674	19	0.05		I
I	B 3754	1040	4823						4823		0.00		I
I	B 3756	1060	38485	15					38500	15	0.04		I
I	B 3758	1080	23918						23918		0.00		I
I	B 3760	1100	29660	30					29690	30	0.10		I
I	B 3762	1120	3363	6				136	3369	6	0.18		I
I	B 3764	1140	10238	18				164	10256	18	0.17		I
I	B 3766	1160	1851						1851		0.00		I
I	B 3768	1180	26099	15	6			51	26120	21	0.08		I
I	B 3770	1200	3380	2	1			8	3383	2	0.07		I
I	B 3772	1220	11460	13	4			19	11476	17	0.15		I
I	B 3774	1240	516	6					522	6	1.09		I
I	B 3776	1260	8126	16	7				8149	23	0.28		I
I	B 3778	1280	9701	18	12			60	9731	30	0.31		I
I	B 3780	1300	3956	17	8			155	3981	25	0.64		I
I	B 3782	1320	2697	10					2707	10	0.36		I
I	B 3784	1340	5965	13	7			3	5988	23	0.38	0.00	I
I	B 3786	1360	95						95		0.00		I
I	B 4027	1380	1123						1123		0.00		I
I	B 4029	1400	134						134		0.00		I
I	B 4031	1420	1135						1135		0.00		I
I	B 4033	1440	1142	12				566	1154	12	1.03		I

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TABLE I c.

CONCENTRATION (uI Gas / kg Rock) OF C1 - C7 HYDROCARBONS (Ia + Ib) .

IKU no.	DEPTH m/ft	C1	C2	C3	iC4	nC4	C5+	SUM C1-C4	SUM C2-C4	WET-NESS (%)	iC4 nC4
I B 4035	1460	722	1				591	723	1	0.17	
I B 4037	1480	219					380	219		0.00	
I B 4039	1500	821	12				609	833	12	1.46	
I B 4041	1520	898	2				878	899	2	0.17	
I B 4043	1540	1243	3	1			23	1247	4	0.34	
I B 4045	1560	1392	11				594	1403	11	0.77	
I B 4047	1580	364	2				403	366	2	0.55	
I B 4049	1600	381	3	1			552	385	4	1.02	
I B 4051	1620	2083	17	4	4		386	2108	25	1.19	
I B 4053	1640	3587	51	12	27		653	3677	90	2.43	
I B 4055	1660	3298	55	16	17		513	3386	88	2.60	
I B 4057	1680	2812	27	5	5		345	2850	37	1.30	
I B 4059	1700	9926	311	66	36			10339	413	3.99	
I B 4061	1720	4886	171	25	15		400	5097	212	4.15	
I B 4063	1740	7130	231	78	48	37	420	7524	394	5.23	1.29
I B 4065	1760	7075	196	45	21	22	251	7358	283	3.85	0.96
I B 4067	1780	8622	247	71	20	24		8984	362	4.03	0.82
I B 4069	1800	8104	336	146	61	91	444	8738	635	7.26	0.67
I B 4071	1820	5807	212	85	38	48	88	6190	383	6.18	0.79
I B 4237	1840	7619	623	388	161	276	1624	9067	1448	15.97	0.58
I B 4239	1859	2749	148	72	31	47	141	3047	298	9.77	0.67
I B 4241	1877	4807	256	160	71	112	296	5407	600	11.10	0.63
I B 4243	1895	25579	1265	581	184	296	1212	27905	2326	8.34	0.62

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TABLE I c.

CONCENTRATION (ul Gas / kg Rock) OF C1 - C7 HYDROCARBONS (Ia + Ib) .

IKU no.	DEPTH m/ft	C1	C2	C3	iC4	nC4	C5+	SUM C1-C4	SUM C2-C4	WET-NESS (%)	iC4 nC4
I B 4245	1913	6321	728	587	249	488	2974	8374	2052	24.51	0.51
I B 4247	1931	5649	643	537	188	442	2822	7459	1810	24.26	0.42
I B 4249	1949	7484	917	131	314	722	3138	9569	2084	21.78	0.43
I B 4251	1967	7137	794	625	220	520	2252	9296	2159	23.23	0.42
I B 4253	1985	13836	2299	1969	627	1640	4469	20371	6535	32.08	0.38
I B 4255	2003	6527	948	779	248	697	3473	9200	2673	29.06	0.36
I B 4257	2021	9235	1940	1862	600	1761	7419	15397	6162	40.02	0.34
I B 4259	2039	11487	2008	1744	503	1382	3878	17125	5638	32.92	0.36
I B 4261	2057	13909	1385	900	248	784	2518	17226	3317	19.25	0.32
I B 4263	2075	10639	2142	2256	765	2149	7290	17951	7312	40.73	0.36
I B 4265	2093	31101	11841	12363	3570	10017	31244	68892	37791	54.86	0.36
I B 4267	2111	9995	3074	3542	1057	2975	9211	20643	10648	51.58	0.36
I B 4269	2129	3927	2246	3420	1151	3890	17901	14635	10708	73.17	0.30
I B 4271	2147	6607	3915	5636	1555	5265	20636	22978	16371	71.25	0.30
I B 4273	2165	7117	4948	7915	2116	7233	29237	29329	22212	75.73	0.29
I B 4275	2183	15782	11586	18369	3856	12642	33800	62235	46454	74.64	0.31
I B 4277	2201	5957	3031	4401	797	3041	10121	17228	11271	65.42	0.26
I B 4279	2219	8794	5533	10254	1827	7062	17810	33470	24676	73.73	0.26
I B 4281	2237	14768	10633	18630	3196	12135	28579	59363	44594	75.12	0.26
I B 4283	2255	10885	9673	17819	2918	11222	27205	52517	41632	79.27	0.26
I B 4285	2273	6811	5487	13109	2518	9583	31368	37508	30697	81.84	0.26
I B 4287	2291	5028	2920	5943	1108	4121	12397	19121	14092	73.70	0.27
I B 4289	2309	3666	2055	4054	782	2994	12775	13551	9884	72.94	0.26

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TABLE I c.

CONCENTRATION (uI Gas / kg Rock) OF C1 - C7 HYDROCARBONS (Ia + Ib) .

IKU no.	DEPTH m/ft	C1	C2	C3	iC4	nC4	C5+	SUM C1-C4	SUM C2-C4	WET-NESS (%)	iC4 nC4
I B 4291	2327	3287	1375	2613	451	1831	6606	9557	6271	65.61	0.25
I B 4293	2345	3400	1400	2830	570	2351	10355	10551	7151	67.78	0.24
I B 4295	2363	1188	805	1854	393	1709	8529	5949	4761	80.03	0.23
I B 4297	2381	1086	571	1341	264	1303	6538	4565	3479	76.21	0.20
I B 4299	2399	10439	10726	26601	6311	24236	101334	78313	67874	86.67	0.26
I B 4301	2417	3480	1590	6636	4225	19736	121502	35668	32188	90.24	0.21
I B 4303	2435	3045	1273	4209	3644	17663	130715	29833	26788	89.79	0.21
I B 4305	2453	930	841	3330	2540	12324	90304	19965	19035	95.34	0.21
I B 4307	2471	2307	1516	5012	3241	15250	80830	27327	25020	91.56	0.21
I B 4310	2498	1323	645	1611	1038	5132	44342	9749	8426	86.43	0.20
I B 4312	2525	2075	871	16465	938	4737	31167	25086	23011	91.73	0.20
I B 4314	2552	1019	358	6943	460	2618	24213	11397	10378	91.06	0.18
I B 4316	2579	812	198	3070	211	1383	26956	5674	4863	85.70	0.15
I B 4318	2597	431	276	1394	61	512	14250	2674	2243	83.89	0.12
I B 4320	2615	331	74	1197	59	550	17117	2212	1881	85.05	0.11
I B 4322	2633	597	76	749	15	88	4325	1524	928	60.86	0.18
I B 4324	2662	411	40	233	8	51	4287	744	333	44.78	0.17
I B 4326	2678	319	22	89	4	252	3181	687	368	53.53	0.02
I B 4328	2696	501	46	246	8	49	4376	849	348	41.04	0.16
I B 4330	2714	741	127	863	11	54	3815	1798	1056	58.76	0.21
I B 4332	2732	1588	168	150	14	106	5544	2025	438	21.61	0.13
I B 4334	2750	525	46	26		25	4690	622	97	15.59	0.00
I B 4336	2768	283	27	16		8	2627	334	51	15.27	0.00



TABLE I c.

CONCENTRATION (uL Gas / kg Rock) OF C1 - C7 HYDROCARBONS (Ia + Ib) .

I	I	I	I	I	I	I	I	I	I	I	I	I	I
I	IKU	DEPTH	C1	C2	C3	iC4	nC4	C5+	SUM C1-C4	SUM C2-C4	WET-NESS (%)	iC4	I
I	no.	m/ft										nC4	I
I	=====												
I	B 4338	2786	220	19	13		9	3289	261	41	15.88	0.00	I
I	B 4340	2804	201	22	31			3187	254	53	20.97		I
I	B 4342	2822	650	64	35		8	4361	757	107	14.17	0.00	I
I	B 4344	2849	563	95	169		118	7889	946	382	40.42	0.00	I
I	B 4346	2867	706	92	71	6	20	3197	895	189	21.13	0.32	I
I	B 4348	2885	1102	159	96	9	23	3351	1389	287	20.63	0.39	I
I	B 4350	2903	1459	184	129		60	3280	1828	369	20.20	0.00	I
I	=====												

DATE : 11 - 7 - 84.



Lithology and Total Organic Carbon measurements

TABLE NO.: 2.
WELL NO.: 34/7-1

Sample	Depth (m)	TOC	Lithology
B-3750	1000		100% <u>Rock fragments</u> , crystalline; Sand Sm.am. Shell fragments
B-3752	1020		100% <u>Rock fragments</u> ; Sand, as above Sm.am. Shell fragments
B-3754	1040		100% <u>Rock fragments</u> ; Sand; as above Sm.am. Shell fragments
B-3756	1060		100% <u>Rock fragments</u> ; Sand; as above Sm.am. Shell fragments
B-3758	1080		100% <u>Rock fragments</u> ; Sand; as above Sm.am. Shell fragments
B-3760	1100	0.58	*70% <u>Claystone</u> , medium light grey - light olive grey, very silty and sandy, slightly micaceous 30% <u>Rock fragment</u> ; Sand
B-3762	1120	0.32	*40% <u>Claystone</u> , medium light grey - light olive grey, very silty and sandy, slightly micaceous 30% <u>Rock fragments</u> ; Sand 30% <u>Casing cement</u> , light grey, containing minute black specks
B-3764	1140	0.57	*90% <u>Claystone</u> , medium light grey - light olive grey, very silty and sandy, slightly micaceous 10% <u>Rock fragments</u> ; Sand



Lithology and Total Organic Carbon measurements

TABLE NO.: 2.
WELL NO.: 34/7-1

Sample	Depth (m)	TOC	Lithology
B-3766	1160		90% <u>Glauconite</u> , dark green 10% <u>Claystone</u> , light olive grey, very silty, sandy, glauconitic, slightly micromicaceous
B-3768	1180	0.93	*90% <u>Claystone</u> , light brownish grey, very silty, sandy, partly glauconite, slightly micromicaceous 10% <u>Glauconite</u> , dark green
B-3770	1200	1.57	*60% <u>Claystone</u> , light brownish grey, silty, slightly micromicaceous, partly glauconite 40% <u>Glauconite</u> , as above
B-3772	1220	1.49	*90% <u>Claystone</u> , light brownish grey, as above 10% <u>Glauconite</u> , as above
B-3774	1240	1.65	*100% <u>Claystone</u> , light brownish grey, silty, slightly micromicaceous Trace <u>Glauconite</u> (dark grey)
B-3776	1260	1.54	*100% <u>Claystone</u> , light brownish grey, as above Trace <u>Glauconite</u>
B-3778	1280	1.69	*90% <u>Claystone</u> , light brownish grey, as above 10% <u>Glauconite</u> , dark green
B-3780	1300	1.54	*100% <u>Claystone</u> , light brownish grey, as above Trace <u>Glauconite</u>
B-3782	1320	1.19	*100% <u>Claystone</u> , light brownish grey, as above Trace <u>Glauconite</u>



Lithology and Total Organic Carbon measurements

TABLE NO.: 2.
WELL NO.: 34/7-1

Sample	Depth (m)	TOC	Lithology
B-3784	1340	1.12	*100% <u>Claystone</u> , light brownish grey, as above Trace Glauconite
B-3786	1360	0.96	*100% <u>Claystone</u> , light brownish grey, as above Trace Glauconite
B-4027	1380	0.53	*100% <u>Claystone</u> , light olive grey - olive grey, slightly micromicaceous, partly silty Trace Glauconite
B-4029	1400	0.45	*100% <u>Claystone</u> , olive grey, slightly micromicaceous Trace Glauconite
B-4031	1420	0.43	*100% <u>Claystone</u> , olive grey, as above Trace Glauconite
B-4033	1440	0.56	BULK 100% <u>Claystone</u> , olive grey, as above
B-4035	1460	0.45	BULK 100% <u>Claystone</u> , olive grey, as above
B-4037	1480	0.42	BULK 100% <u>Claystone</u> , as above
B-4039	1500	0.35	BULK 100% <u>Claystone</u> , olive grey, as above
B-4041	1520	0.33	BULK 100% <u>Claystone</u> , olive grey, as above
B-4043	1540	0.46	BULK 100% <u>Claystone</u> , olive grey, as above



Lithology and Total Organic Carbon measurements

TABLE NO.: 2.
WELL NO.: 34/7-1

Sample	Depth (m)	TOC	Lithology
B-4045	1560	0.32	BULK 100% <u>Claystone</u> , olive grey, as above
B-4047	1580	0.31	BULK 100% <u>Claystone</u> , olive grey, as above
B-4049	1600	0.31	BULK 100% <u>Claystone</u> , olive grey, as above
B-4051	1620	0.30	BULK 100% <u>Claystone</u> , olive grey, as above
B-4053	1640	0.31	BULK 100% <u>Claystone</u> , olive grey, as above
B-4055	1660	0.43	*100% <u>Claystone</u> , olive grey, as above Trace Siderite; Limestone
B-4057	1680	0.33	*60% <u>Claystone</u> , light olive grey - olive grey, partly calcareous 30% <u>Claystone</u> , tuffaceous, (dark) olive grey with white mottles 10% <u>Claystone</u> , dark reddish brown, partly calcareous
B-4059	1700	0.49	*80% <u>Claystone</u> , light olive grey - olive grey 20% <u>Claystone</u> , tuffaceous, as above Sm.am. Claystone (dark reddish brown)
B-4061	1720	0.32	*100% <u>Claystone</u> , light olive grey - olive grey Sm.am. Claystone (tuffaceous)
B-4063	1740	0.36	BULK 100% <u>Claystone</u> , light olive grey



Lithology and Total Organic Carbon measurements

TABLE NO.: 2.
WELL NO.: 34/7-1

Sample	Depth (m)	TOC	Lithology
B-4065	1760	0.35	BULK 100% <u>Claystone</u> , light olive grey
B-4067	1780	0.31	BULK 100% <u>Claystone</u> , light olive grey
B-4067	1800	0.32	BULK 100% <u>Claystone</u> , light olive grey - olive grey
B-4069	1800	0.32	BULK 100% <u>Claystone</u> , light olive grey - olive grey
B-4071	1820	0.33	BULK 100% <u>Claystone</u> , light olive grey - olive grey
B-4237	1840	0.34	*100% <u>Claystone</u> , medium grey, silty, slightly micromicaceous, occasionally glauconitic, carbonaceous, partly very carbonaceous grading to Marl Sm.am. Claystone (olive grey)
B-4239	1859	0.32	*80% <u>Claystone</u> , medium grey, silty, calcareous, as above 20% <u>Claystone</u> , olive grey, cavings Sm.am. Claystone (moderate brown)
B-4241	1877	0.33	*90% <u>Claystone</u> , medium grey, as above 10% <u>Claystone</u> , olive grey, cavings Sm.am. Contaminants (casing cement, steel)
B-4243	1895	0.41	*100% <u>Claystone</u> , medium grey, silty, slightly micromicaceous, occasionally glauconitic, calcareous Sm.am. Sandstone/Sand; Claystone (olive grey)



Lithology and Total Organic Carbon measurements

TABLE NO.: 2.
WELL NO.: 34/7-1

Sample	Depth (m)	TOC	Lithology
B-4245	1913	0.47	*100% <u>Claystone</u> , medium grey, silty, as above Sm.am. Sandstone/Sand; Claystone (olive grey)
B-4247	1931	0.49	*100% <u>Claystone</u> , medium grey, occasionally greenish grey, silty, slightly micromicaeous, occasionally glauconitic, slightly calcareous Sm.am. As above
B-4249	1949	0.53	*100% <u>Claystone</u> , as above Sm.am. Glauconite (dark green); Sand/Sandstone; Pyrite
B-4251	1967	0.51	*100% <u>Claystone</u> , as above Sm.am. Glauconite (dark green); Sand/Sandstone; Pyrite
B-4253	1985	0.58	*100% <u>Claystone</u> , medium grey, silty, slightly micromicaceous, occasionally glauconitic, partly calcareous Sm.am. Glauconite; Pyrite
B-4255	2003	0.47	*100% <u>Claystone</u> , medium grey, as above Sm.am. Glauconite; Pyrite
B-4257	2021	0.52	*100% <u>Claystone</u> , medium grey, as above Sm.am. As above
B-4259	2039	0.54	*100% <u>Claystone</u> , as above Sm.am. Glauconite; Siderite; Pyrite
B-4261	2057	0.34	*100% <u>Claystone</u> , medium grey, as above Sm.am. Claystone/Marl (reddish brown); Glauconite; Sand; Pyrite



Lithology and Total Organic Carbon measurements

TABLE NO.: 2.
WELL NO.: 34/7-1

Sample	Depth (m)	TOC	Lithology
B-4263	2075	0.56	*100% <u>Claystone</u> , medium grey, as above Sm.am. Claystone/Marl (reddish brown); Glauconite; Sand; Pyrite
B-4265	2093	0.65	*100% <u>Claystone</u> , medium grey, as above Sm.am. Claystone/Marl (reddish brown); Sand/Sandstone/Pyrite; Glauconite (trace)
B-4267	2111	0.67	*100% <u>Claystone</u> , medium grey, silty, slightly micromicaceous, trace of glauconite, occasionally calcareous Sm.am. Siderite; Limestone; Pyrite; Glauconite
B-4269	2129	0.68	*100% <u>Claystone</u> , medium grey, as above Sm.am. Sand/Sandstone; Siderite; Limestone; Glauconite
B-4271	2147	0.68	*100% <u>Claystone</u> , medium grey, as above Sm.am. Sand/Sandstone; Siderite; Trace of Glauconite
B-4273	2165	0.71	*100% <u>Claystone</u> , medium grey, as above Sm.am. Sand/Sandstone; Siderite
B-4275	2183	0.75	*100% <u>Claystone</u> , medium grey, as above Sm.am. Sand/Sandstone; Siderite; Trace of Pyrite
B-4277	2201	0.64	*100% <u>Claystone</u> , medium grey, as above Sm.am. Sand/Sandstone; Glauconite; Claystone/Marl, reddish brown; Steel



Lithology and Total Organic Carbon measurements

TABLE NO.: 2.
WELL NO.: 34/7-1

Sample	Depth (m)	TOC	Lithology
B-4279	2219	0.84	*90% <u>Claystone</u> , medium grey, silty, partly very silty, slightly micromicaceous, calcareous, partly grading into <u>Marl</u> 10% <u>Sand/Sandstone</u> , very fine - fine Sm.am. Limestone; Trace of Glauconite
B-4281	2237	0.83	*100% <u>Claystone</u> , medium grey, as above Sm.am. Sand/Sandstone; Limestone; Trace of Glauconite
B-4283	2255	0.88	*100% <u>Claystone</u> , medium grey, as above Sm.am. Sand/Sandstone; Trace of Glauconite
B-4285	2273	0.83	*100% <u>Claystone</u> , medium grey, as above Sm.am. Sand/Sandstone; Limestone; Claystone (reddish brown)
B-4287	2291	0.65	*100% <u>Claystone</u> , medium grey - (medium dark grey) silty, slightly micromicaceous, very calcareous, grading into <u>Marl</u> Sm.am. Sand/Sandstone; Limestone; Siderite; Trace of Glauconite
B-4289	2309	0.62	*100% <u>Claystone</u> , grading into <u>Marl</u> , medium grey (medium dark grey), as above Sm.am. Sand/Sandstone; Calcite
B-4291	2327	0.52	*100% <u>Claystone-Marl</u> , as above Sm.am. Calcite; Claystone (reddish brown)
B-4293	2345	0.55	*100% <u>Claystone-Marl</u> , as above Sm.am. Sand/Sandstone
B-4295	2363	0.61	*100% <u>Claystone-Marl</u> , as above



Lithology and Total Organic Carbon measurements

TABLE NO.: 2.
WELL NO.: 34/7-1

Sample	Depth (m)	TOC	Lithology
B-4297	2381	0.54	*100% <u>Claystone-Marl</u> , as above Sm.am. Calcite
B-4299	2399		90% <u>Sand/Sandstone</u> , clear - light brown, fine - coarse 10% <u>Claystone-Marl</u> , cavings Sm.am. Claystone (light grey); Marl (reddish brown)
B-4301	2417	0.52	*50% <u>Claystone</u> , medium grey - medium light grey, silty, partly calcareous 50% <u>Sand/Sandstone</u> , as above Sm.am. Marl (reddish brown); Glauconite
B-4303	2435	0.56	50% <u>Sand/Sandstone</u> , as above *50% <u>Claystone</u> , medium grey - medium light grey, as above Sm.am. Claystone (reddish brown); Marl (reddish brown)
B-4305	2453	0.17 0.47	*40% <u>Claystone</u> , reddish brown, silty, slightly micromicaceous, occasionally calcareous *30% <u>Claystone</u> , medium grey - medium light grey, as above 30% <u>Sand/Sandstone</u> , as above Sm.am. Steel
B-4307	2471	0.18 0.55	*60% <u>Claystone</u> , reddish brown, as above *30% <u>Claystone</u> , medium grey - medium light grey, as above 10% <u>Sand/Sandstone</u> Sm.am. Steel



Lithology and Total Organic Carbon measurements

TABLE NO.: 2.
WELL NO.: 34/7-1

Sample	Depth (m)	TOC	Lithology
B-4310	2498	0.14	*40% <u>Claystone</u> , reddish brown, as above
		0.49	*40% <u>Claystone</u> , medium grey - medium light grey, as above 20% <u>Sand/Sandstone</u>
B-4312	2525		50% <u>Sand/Sandstone</u> , clear - light brown, fine - coarse
		0.45	*30% <u>Claystone</u> , medium grey - medium light grey, as above 20% <u>Claystone</u> , reddish brown, as above
B-4314	2552	0.52	*50% <u>Claystone</u> , medium grey - medium light grey, as above
		0.31	*50% <u>Claystone</u> , reddish brown, as above Sm.am. Sand/Sandstone; Contaminants (Pipe dope; Steel)
B-4316	2579		70% <u>Sand/Sandstone</u> , as above
		0.13	*30% <u>Claystone</u> , reddish brown Sm.am. Claystone (medium grey - medium light grey)
B-4318	2597		*50% <u>Claystone</u> , reddish brown, as above
		0.32	40% <u>Sand/Sandstone</u> , clear - light brown, medium - very coarse 10% <u>Claystone</u> , medium grey - medium dark grey Sm.am. Steel
B-4320	2615	0.14	*80% <u>Claystone</u> , reddish brown, as above 20% <u>Sand/Sandstone</u> , as above Sm.am. Contaminants (pipe dope, steel); Claystone (medium grey - medium light grey)



Lithology and Total Organic Carbon measurements

TABLE NO.: 2.
WELL NO.: 34/7-1

Sample	Depth (m)	TOC	Lithology
B-4322	2633	0.13	*50% <u>Claystone</u> , moderate brown - reddish brown, very silty, partly sandy, partly calcareous 40% <u>Sand/Sandstone</u> , clear light grey, white, light brown, very fine - coarse, partly calcite cemented 10% <u>Claystone</u> (medium grey - medium light grey) Sm.am. Contaminants (Steel)
B-4324	2662		90% <u>Sand/Sandstone</u> , as above 10% <u>Claystone</u> , moderate brown, very silty, partly sandy Sm.am. Limestone
B-4326	2678		100% <u>Sand/Sandstone</u> , as above Sm.am. Claystone (moderate brown); Limestone
B-4328	2696	0.13	80% <u>Sand/Sandstone</u> , as above *20% <u>Marl</u> , moderate brown, very silty, partly sandy
B-4330	2714		100% <u>Sand/Sandstone</u> , white, light grey, light brown, fine - very coarse, partly calcite cemented Sm.am. Marl (moderate brown)
B-4332	2732	0.16	90% <u>Sand/(Sandstone)</u> , as above *10% <u>Marl</u> , moderate brown, silty, partly sandy
B-4334	2750		100% <u>Sand/Sandstone</u> , as above Sm.a.m as above



Lithology and Total Organic Carbon measurements

TABLE NO.: 2.
WELL NO.: 34/7-1

Sample	Depth (m)	TOC	Lithology
B-4336	2768	0.16	60% <u>Sand/Sandstone</u> , as above *30% <u>Marl</u> , moderate brown, partly, grading into calcareous claystone, as above 10% <u>Claystone</u> , light grey - medium grey Sm.am. Limestone
B-4338	2786	0.16	*60% <u>Marl</u> , reddish brown, as above 40% <u>Sand/Sandstone</u> , as above Sm.am. Limestone; Claystone (light grey - medium grey)
B-4340	2804	0.19	80% <u>Sand/Sandstone</u> , white, light grey, very fine - coarse, partly very calcite cemented *20% <u>Marl</u> , reddish brown, as above Sm.am. Limestone
B-4342	2822		100% <u>Sand/Sandstone</u> , as above Sm.am. Limestone; Marl (reddish brown)
B-4344	2849		100% <u>Sand/Sandstone</u> , as above Sm.am. Marl (reddish brown); Coal; Limestone
B-4346	2867	0.10 0.24	*80% <u>Sand/Sandstone</u> , light grey, partly argillaceous, partly micromicaceous, partly calcite cemented *20% <u>Marl</u> , moderate brown - brownish grey Sm.am. Claystone (medium grey - greenish grey)
B-4348	2885	0.31	80% <u>Sand/Sandstone</u> , as above 10% <u>Coal</u> , black *10% <u>Claystone</u> , medium grey - brownish grey, partly micromicaceous, partly silty



Lithology and Total Organic Carbon measurements

TABLE NO.: 2.
WELL NO.: 34/7-1

Sample	Depth (m)	TOC	Lithology
B-4350	2903	0.34	50% <u>Sand/Sandstone</u> , as above 50% <u>Claystone</u> , medium grey - brownish grey, as above Sm.am. Coal