

1.4.7 Sampling

Table 1.5

No	Run	Depth mMD	Pumped volume ltr	Draw Down Bar	Fluid	Sampled	Remarks
	1A	2052.2	352	9	Water	6 x MPSR	
	1C	1967.8	186	10	Oil	4x SPMC+1x MPSR +1gal	1 x SPMC failed
	1C	2155.5	214	-	Water	1 x MPSR + 1gal	

MPSR: Schlumberger multisampler chamber 0.45 litre
 SPMC: Oilphase single phase sample chamber 0.25 litre

Samples were transferred to transport and storage bottles offshore by Petrotech (MPSR and 1 gallon samples) and Oilphase (SPMC). Petrotech performed sample validation and preliminary analysis offshore. The quality of the oil samples was generally good, with one SPMC bottle failing. The quality of the formation water samples was excellent, with very little contamination from mud filtrate.

Water samples were transferred to PVT, plastic and glass (samples stabilized with HCl acid) bottles. The Melke Formation MPSR oil sample and three SPMC samples were transferred to PVT bottles and the 1 gallon chamber was transferred to a 4 litre PVT oil bottle. These samples were shipped onshore for further analysis. One SPMC sample was flashed offshore for analysis.

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Table 4.4 MDT pretest pressure measurements, Run 1A

FORMATION PRESSURE - MDT WELL: 6608/10-7			RUN: 1A			DATE: 27.04.01 - 28.04.01				
TEST #	DEPTH mMD RKB	DEPTH m TVD MSL	RES. PRESS (BAR)	PORE PRESS (g/cc) ref. RKB	HYD. PRESS BEF. (BAR)	HYD PRESS AFTER (BAR)	MOB. mD/CP	TEMP °C	COMMENTS	
1	1966.5	1935.0	204.94	1.063	253.04	253.03	91.4	44.1	Good	
2	1971.7	1940.2	205.33	1.062	253.67	253.66	72.6	47.2	Good	
3	1953.5	1922.0	204.93	1.070	251.33	251.29	0.8	49.0	Not Stable 1.4 cc	
4	1954.9	1923.4	204.45	1.067	251.51	251.49	5.0	49.3	Not Stable 4.4 cc	
5	1961.0	1929.5	204.29	1.062	252.16	252.14	149.9	50.3	Good	
6	1967.5	1936.0	204.89	1.062	252.99	253.00	56.1	51.2	Good	
7	1972.9	1941.4	205.35	1.061	253.67	253.70	32.5	51.6	Good	
8	1974.0	1942.5	205.47	1.061	253.82	253.82	36.7	52.1	Good	
9	1951.9	1920.4	203.54	1.063	251.01	251.01	20.7	51.3	Good	
10	1954.9	1923.4	-	-	251.41	251.41	-	51.2	Tight, aborted	
11	1953.5	1922.0	204.12	1.066	251.24	251.25	0.7	51.6	Tight/supercharge , not stabilised, aborted	
12	2008.0	1976.5	207.86	1.056	258.14	258.14	0.3	53.6	Tight/supercharge , not stabilised, aborted	
13	2011.3	1979.8	204.81	1.038	258.57	258.57	0.2	54.5	Tight/supercharge , not stabilised, aborted	
14	2014.7	1983.2	207.17	1.049	259.01	259.01	0.5	54.9	Tight/supercharge , aborted	
15	2019.2	1987.7	204.42	1.032	259.58	259.60	972.4	55.4	Very Good	
16	2033.7	2002.2	205.85	1.032	261.44	261.45	98.1	56.6	Good	
17	2043.0	2011.5	206.81	1.032	262.64	262.65	15.0	57.4	Good	
18	2052.2	2020.7	207.71	1.032	263.83	263.84	397.6	58.1	Very good	
19	2059.5	2028.0	208.42	1.032	264.76	264.76	2805.7	58.7	Very good	
20	2077.8	2046.3	210.21	1.032	267.09	267.10	1635.2	59.3	Very good	
21	2091.0	2059.5	211.48	1.031	268.75	268.75	685.6	59.9	Very good	
22	2118.5	2087.0	214.20	1.031	272.27	272.27	13.8	60.9	Good	
23	2135.5	2103.9	215.90	1.031	274.43	274.43	1897.3	61.6	Very good	
24	2155.1	2123.5	217.56	1.029	276.92	276.93	1281.8	52.4	Very good	
25	2164.5	2132.9	218.49	1.029	278.13	278.14	2503.7	53.3	Very good	
26	2188.5	2156.9	220.76	1.029	281.19	281.19	2123.7	64.3	Very good	
27	2204.5	2172.9	222.30	1.028	283.25	283.26	1370.9	65.1	Very good	
28	2248.5	2216.9	226.62	1.028	288.87	288.88	1456.0	66.2	Very good	
	2052.2	2020.6	207.53	1.031	263.76		15.2		Pressure test before sampling	
	2052.2	2020.6	207.57	1.031	263.81		38.0		New pressure test before sampling	
	2052.2	2020.6	207.67	1.032	263.89		203.8	59.9	Pressure bef. sampling w/large diam. probe	
	2019.2	1987.6	204.33	1.032	259.58				Poor, new pressure test after probe plugging	
	2019.2	1987.6	204.32	1.032	259.59				Large diameter probe, mobility questionable	
	2019.2	1987.6	204.38	1.032	259.63		316	59.6	Good mobility	
Number of pretests: 28 + pretests prior to sampling			Good pretests: 21, (+6 before sampling)				No. of samples: 6 x 450cc water samples from			
			Tight/supercharge: 7				depth 2052.2 m. (see Table 1.5 for further			
			No seal: 0				information)			
Hydrostatic gradient in logging interval: 1.031 g/cc										
Max. pore pressure gradient in interval ref. RKB: 1.07 g/cc										
Min. pore pressure gradient in interval ref. RKB: 1.03 g/cc										
COMMENTS: MDT run 1A pretests were taken using the Large diameter probe. Water sampling at 2052.2 m was started with the Martineau probe (filled 2 x 450 cc). Seal was lost and tool was moved to sample the last 4 x 600 cc bottles with use of Large diameter probe.										

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Table 4.5 MDT pretest pressure measurements, Run 1B

FORMATION PRESSURE -MDT WELL: 6608/10-7			RUN: 1B				DATE: 29.04.01 - 29.04.01			
TEST #	DEPTH mMD RKB	DEPTH m TVD MSL	RES. PRESS (BAR)	PORE PRESS (g/cc) ref. RKB	HYD. PRESS BEF. (BAR)	HYD. PRESS AFTER (BAR)	MOB. mD/CP	TEMP °C	COMMENTS	
1	1814.5	1783.0	-	-	233.35		-		No seal	
2	1810.6	1779.1	224.20 ?	1.26 ?	232.84	232.86	0.1	53.6	Tight, pressure not stable	
3	1808.4	1776.9	-	-	232.57		-		Seal failure, pressure build up to hydrostatic	
	1971.7	1940.2	205.00	1.060	253.80		12.0	60.0	Pretest before sampling	
	1961.0	1929.5	204.16	1.061	252.24		43.3	58.3	Pretest before sampling	
	1961.0	1929.5			252.32				Pretest before sampling	
	1960.9	1929.4	204.03	1.061	252.29				Pretest before sampling	
	1960.9	1929.4	204.03	1.061			20.0		Pretest before sampling	
	1961.0	1929.5	204.04	1.061	252.16		11.0		Pretest before sampling	
	1961.1	1929.6	204.05	1.061	252.15		10.7		Pretest before sampling	
	1961.2	1929.7	204.55	1.064	252.16		11.0		Pretest before sampling	
	1961.3	1929.8	204.83	1.065	252.19		144.9		Pretest before sampling	
	2155.1	2123.6	217.50	1.029			107.7	67.1	Pretest before sampling	
	2155.1	2123.6	217.48	1.029					Pretest before sampling	
	2157.5	2126.0	217.77	1.029					Pretest before sampling	
Number of pretests: 3 (+12 pretests before sampling attempts, all of these were good)			Good pretests: 0 (+12 before sampling) Tight/supercharge: 1 No seal: 2				Number of samples: Sampling did not succeed due to seal / pump problems			

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Table 4.4 MDT pressure measurements, Run 1C

FORMATION PRESSURE -MDT WELL: 6608/10-7			RUN: 1C				DATE: 29.04.01 - 30.04.01			
TEST #	DEPTH mMD RKB	DEPTH m TVD MSL	RES. PRESS (BAR)	PORE PRESS (g/cc) ref RKB	HYD. PRESS BEF. (BAR)	HYD PRESS AFTER (BAR)	MOB. mD/CP	TEMP °C	COMMENTS	
	1967.8								Oil sample	
	2155.5								Water sample	
Number of pretests: 0 (sampling run with dual packer)			Good pretests: -			Number of samples: 1967.8 m (oil): 4 x SPMC-bottles 250 cc (1 inert), 1 x 450 cc bottle, 1 x 1gallon chamber 2155.5 m (water): 1 x 450 cc bottle, 1 x 1 gallon chamber (see Table 1.5 for further information)				

A summary of the collected samples is listed in Table 1.5 in Chapter 1.4.7

Well: **6608/10-7**
 Field: **Exploration**
 Rig: **Borgland Dolphin**

DRILLING FLUIDS SUMMARY

REVISION 1 - 16.01.02

HOLE		CASING		MUD TYPE	MW [SG]	LGS [KG/m³]	10 sec. [Pa]	10 min. [Pa]	Fann 100 rpm	Fann 3 rpm	O / W ratio	PV [mPa]	API FL [ml]	HTHP FL [ml]	MBT [KG/m³]	pH	Kcl [KG/m³]	Glyc. [%]	Ca++ (mg/l)	ES (volt)	Total Volume Old Volume New Volume Usage [m³]	
SIZE	TVD MD	SIZE	TVD MD																			
36"	481 481	30"	468 468	seawater w/ hi-vis sweeps	1.03 (DISPL.VOL) 1.30											8 - 10 8 - 10				80 - 120 80 - 120		
				<p>Comments: This section was drilled with Seawater and hi-vis sweeps. 10 m3 hi-vis pills were pumped every 10-15 m or as required to ensure good hole cleaning. At TD, the hole was flushed with a 30 m3 hi-vis pill prior to displacing the hole to 1.30 S.G. spud mud.</p> <p>KILL MUD: 70 m3 spud mud at 1.30 S.G. was kept in a reserve pit at all times throughout the drilling of this interval.</p>																		
17 1/2"	1315 1315	13 3/8"	1305.6 1305.6	seawater w/ hi-vis sweeps Aquadrill	1.03 (DISPL.VOL) 1.30											8 - 10 8 - 10		50 - 80	0 - 3		80 - 120	
				<p>Comments: This section was drilled with Seawater and hi-vis sweeps. 10 m3 hi-vis pills were pumped every 10-15 m or as required to ensure good hole cleaning. At TD, the hole was flushed with a 30 m3 hi-vis pill prior to displacing the hole to 1.30 S.G. AquaDrill (used mud from Helgel.base mixed with spud mud)</p> <p>KILL MUD: 130 m3 of diluted, inhibitive AquaDrill mud at 1.30 S.G. was kept in a reserve pit at all times throughout the drilling of this interval.</p>																		
8 1/2"	2318,4 2319	7" (If inj.)	2312 (If inj.)	AquaDrill WBM	1.25 1.30	<160 <160	2 - 5 2 - 5	4 - 8 4 - 8		5 - 8 5 - 8		ALAP ALAP	<3.5 <3.0	<10 <8	<80 <80	8 - 10 8 - 9		120 - 150 80 - 120	4 - 5 2 - 4			
				<p>Comments: This section was drilled with the inhibitive Aquadrill PAC/Glycol/KCL water base mud system. Due to strict requirements to maintain a low sulphate level in the mud system, Ilmenite was replaced with CaCO3 as weighting agent.</p> <p>NOTE: It was very important to minimize the risk for any sea water leakage into the active mud system.</p>																		

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11. Febr. 2002

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Standard geochemical evaluation of well 6608/10-7
Sak/Dok. nr.: 1 -


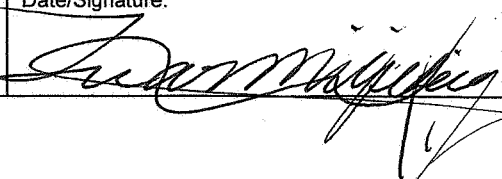
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1 INTRODUCTION

This report presents the results of a geochemical evaluation of the 6608/10-7 appraisal well (Svale Field), drilled offshore mid-Norway (Figure 1). The well section is vertical, and was drilled with seawater through the 17½" section (481-1315m MDRT) and with an Aquadrill mud system (KCl/glycol/polymer) through the 8½" section (1315-2319m MDRT (TD)).

The total numbers of analyses carried out during the course of the study were as follows:

Analysis	Cuttings	Core	Oil	Gas	Mud	Total
Sample preparation	26	21				47
TOC content	24	5				29
Rock-Eval	27	21				48
Vitrinite reflectance	11	4				15
Spore colouration	9	2				11
Pyrolysis-GC	4					4
Solvent extraction	10	17			2	29
Asphaltene precipitation	8	10	1		1	20
Iatroscan		9	1			10
MPLC separation	8	10	1		1	20
Whole oil/extract GC			1		2	3
Saturates GC	8	10	1		1	20
Aromatic GC			1			1
Saturates GC-MS	6	5	1		1	13
Aromatic GC-MS			1			1
Carbon isotopes	5	5	1		1	12
Gas composition				1		1
Gas isotopes				1		1

Full details of the analytical programme on a sample-by-sample basis are presented in Table 1. The analyses were carried out by Robertson Research, with the exceptions of the gas analyses, which were carried out by IFE. All analytical work was performed in accordance with the guidelines given in "The

2.4 Mud Samples

Mud samples from 1961m and 2000m MDRT (i.e. near the top and base of the cored interval) were submitted for geochemical analyses. The whole extract GCs for the muds are dominated by glycol peaks, with only relatively minor amounts of other components being detected.

The mud extract from 1961m MDRT was fractionated and further characterised. Its saturated hydrocarbon GC is dominated by three large peaks, presumably the C₁₄, C₁₆ and C₁₈ olefins. Minor amounts of *n*-alkanes are identified up to around C₃₀. The biomarkers recovered from this mud sample have a very similar distribution to those from the MDT and core samples (e.g. Figures 6 and 8), indicating that reservoired oil has become mixed into the mud.

Depth	Sample Type	Lithology Description	Gas Composition	Gas Isotopes	TOC Content	Pyrolysis	Kerogen Description	Vitrinite Reflectance	Pyrolysis - GC	Solvent Extraction	Bulk Composition	Carbon Isotopes	Whole Oil/ Extract GC	Saturate GC	Aromatic GC	Saturate GC-MS	Aromatic GC-MS
Samples																	
1350	Ctgs	x					x	x									
1500	Ctgs	x					x	x									
1600	Ctgs	x					x	x									
1720	Ctgs	x					x	x									
1800	Ctgs	x					x	x									
1800	Clyst				x	x											
1830	Ctgs	x															
1830	Clyst				x	x											
1840	Ctgs	x															
1840	Clyst				x	x											
1850	Ctgs	x															
1850	Clyst				x	x											
1901	Ctgs	x					x	x									
1901	Clyst				x	x											
1904	Ctgs	x															
1904	Clyst				x	x											
1922	Ctgs	x			x	x											
1943	Ctgs	x			x	x	x	x									
1992,87	Core	x			x	x	x	x									
2005,28	Core	x			x	x											
2030,78	Core	x			x	x		x									
2043,22	Core	x			x	x	x	x									
2073,5	Core	x			x	x		x		x	x	x		x		x	
2073,5	after xtn								x								
2102	Ctgs	x															
2102	Clyst/siltst				x	x											
2126	Ctgs	x															
2126	Coal				x	x		x									
2180	Ctgs	x					x	x									
2222	Ctgs	x															
2222	Coal				x	x		x		x	x	x		x		x	
2222	after xtn								x								
2252	Ctgs	x															
2252	Clyst				x	x											
2252	Coal				x	x											
2261	Ctgs	x															
2261	Clyst				x	x											
2261	Coal				x	x											
2267	Ctgs	x															
2267	Clyst				x	x											
2267	Coal				x	x				x	x			x			
2267	after xtn								x								
2276	Ctgs	x															
2276	Clyst				x	x											
2276	Coal				x	x											
2288	Ctgs	x															
2288	Clyst				x	x											
2288	Coal				x	x											

Table 1 Geochemical analytical programme

Depth	Sample Type	Lithology Description	Gas Composition	Gas Isotopes	TOC Content	Pyrolysis	Kerogen Description	Vitrinite Reflectance	Pyrolysis - GC	Solvent Extraction	Bulk Composition	Carbon Isotopes	Whole Oil/ Extract GC	Saturate GC	Aromatic GC	Saturate GC-MS	Aromatic GC-MS
2297	Ctgs	x															
2297	Clyst				x	x											
2297	Coal				x	x				x	x	x		x		x	
2297	after xtn								x								
2318	Ctgs	x					x										
2318	Coal				x	x		x									
1780	Ctgs	x				x				x							
1790	Ctgs	x				x				x							
1800	Ctgs	see above								x	x	x		x		x	
1830	Ctgs	see above								x	x			x		x	
1840	Ctgs	see above								x	x	x		x		x	
1850	Ctgs	see above								x	x	x		x		x	
1946	Ctgs	x				x				x	x			x			
1955,29	Core	x				x				x	x			x			
1960,98	Core	x				x				x	x	x		x		x	
1962,54	Core	x				x				x							
1965,49	Core	x				x				x	x			x			
1973,88	Core	x				x				x	x			x			
1975,2	Core	x				x				x							
1977,12	Core	x				x				x	x	x		x		x	
1979,1	Core	x				x				x							
1981,83	Core	x				x				x	x			x			
1983,43	Core	x				x				x							
1985,93	Core	x				x				x	x	x		x		x	
1989,52	Core	x				x				x							
2006,87	Core	x				x				x							
2017,97	Core	x				x				x	x	x		x		x	
2019,46	Core	x				x				x							
2089,72	Core	x				x				x	x			x			
1967,8	Oil										x	x	x	x	x	x	x
	Gas		x	x													
1961										x	x	x	x	x		x	
2000										x			x				
rs of analyses		47	1	1	29	48	11	15	4	29	20	12	3	20	1	13	1

Table 1 Geochemical analytical programme

Depth	Sample Type	22S	TSTM	TTX	30D	30AB-HOP	28AB	TRICY	TETRACY	35H_34H	29H_30H	DEMET
2073,5	Core	0,08	0,20	0,07	0,05	0,48	2,27	0,01	0,05	0,10	0,42	0,11
2222	Ctgs	0,13	0,14	0,28	0,10	0,94	0,13	0,03	0,02	-	0,21	0,05
2297	Ctgs	0,08	0,07	0,24	0,09	0,95	0,11	0,03	0,03	-	0,29	0,02
1800	Ctgs	0,31	0,85	1,73	1,16	0,54	0,83	1,06	1,11	0,58	0,95	0,14
1830	Ctgs	0,57	0,94	2,11	0,30	0,82	0,20	0,16	0,16	0,69	0,53	0,97
1840	Ctgs	0,57	0,94	1,92	0,29	0,83	0,22	0,29	0,28	0,72	0,57	1,05
1850	Ctgs	0,57	0,98	1,97	0,26	0,84	0,20	0,22	0,22	0,73	0,53	0,95
1960,98	Core	0,59	0,86	1,38	0,09	0,89	0,10	0,05	0,07	0,69	0,50	0,06
1967,80	Oil	0,58	0,78	1,31	0,09	0,89	0,10	0,06	0,07	0,72	0,49	0,06
1977,12	Core	0,59	0,82	1,39	0,09	0,89	0,10	0,06	0,07	0,65	0,47	0,06
1985,93	Core	0,60	0,80	1,38	0,09	0,89	0,10	0,05	0,07	0,66	0,47	0,06
2017,97	Core	0,57	0,79	1,28	0,09	0,89	0,11	0,05	0,07	0,65	0,46	0,06
1961	Mud	0,60	0,97	1,41	0,12	0,89	0,14	0,12	0,15	0,67	0,61	0,20

Table 2 Saturated hydrocarbon biomarker ratios (terpanes)

Depth	Sample Type	20S	BB	C27BB	C28BB	C29BB	C30BB	DIAST
2073,5	Core	0,16	0,53	5	15	80	0,29	0,34
2222	Ctgs	0,24	0,47	14	24	63	0,16	0,22
2297	Ctgs	0,28	0,42	18	26	56	0,11	0,76
1800	Ctgs	0,62	0,67	13	34	53	0,16	0,51
1830	Ctgs	0,43	0,55	29	27	44	0,14	1,60
1840	Ctgs	0,46	0,56	32	27	42	0,12	1,73
1850	Ctgs	0,43	0,56	32	26	42	0,13	1,70
1960,98	Core	0,46	0,58	34	24	41	0,12	1,61
1967,80	Oil	0,46	0,57	32	24	44	0,13	1,65
1977,12	Core	0,46	0,57	33	24	42	0,12	1,59
1985,93	Core	0,46	0,58	32	25	43	0,12	1,60
2017,97	Core	0,43	0,56	32	25	43	0,12	1,54
1961	Mud	0,46	0,56	37	26	37	0,10	1,47

Table 3. Saturated hydrocarbon biomarker ratios (steranes)

Derivation of biomarker ratios reported in Tables 2 and 3

<u>Ratio</u>	<u>Derivation</u>	<u>m/z</u>
Triterpanes		
22S	$32\alpha\beta S / (32\alpha\beta S + 32\alpha\beta R)$	191
TSTM	$27Ts / 27Tm$	191
TTX	$30d / 29\beta\alpha$	191
30D	$30d / 30\alpha\beta$	191
29H_30H	$29\alpha\beta / 30\alpha\beta$	191
30AB-HOP	$30\alpha\beta / (30\alpha\beta + 30\beta\alpha)$	191
C28AB	$28\alpha\beta / 30\alpha\beta$	191
TRICY	$(23/3) / 30\alpha\beta$	191
TETRACY	$(24/4) / 30\alpha\beta$	191
35H_34H	$(35\alpha\beta R + 35\alpha\beta S) / (34\alpha\beta R + 34\alpha\beta S)$	191
DEMET	$25nor30\alpha\beta / 30\alpha\beta$	191
OLEANAN	$30O / 30\alpha\beta$	191
GAMMA	$30G / 30\alpha\beta$	191
PPMH*	$\text{ppm } 27Ts + 27Tm + 29\alpha\beta + 29\beta\alpha + 30\alpha\beta + 30\beta\alpha + 31\alpha\beta S + 31\alpha\beta R + 32\alpha\beta S + 32\alpha\beta R + 33\alpha\beta S + 33\alpha\beta R + 34\alpha\beta S + 34\alpha\beta R + 35\alpha\beta S + 35\alpha\beta R$	191
Steranes		
20S	$29\alpha\alpha S / (29\alpha\alpha R + 29\alpha\alpha S)$	217
BB	$(29\beta\beta R + 29\beta\beta S) / (29\beta\beta R + 29\beta\beta S + 29\alpha\alpha R + 29\alpha\alpha S)$	217
C27BB	$100 * (27\beta\beta R + 27\beta\beta S) / (27\beta\beta R + 27\beta\beta S + 28\beta\beta R + 28\beta\beta S + 29\beta\beta R + 29\beta\beta S)$	218
C28BB	$100 * (28\beta\beta R + 28\beta\beta S) / (27\beta\beta R + 27\beta\beta S + 28\beta\beta R + 28\beta\beta S + 29\beta\beta R + 29\beta\beta S)$	218
C29BB	$100 * (29\beta\beta R + 29\beta\beta S) / (27\beta\beta R + 27\beta\beta S + 28\beta\beta R + 28\beta\beta S + 29\beta\beta R + 29\beta\beta S)$	218
C30BB	$(30\beta\beta R + 30\beta\beta S) / (27\beta\beta R + 27\beta\beta S + 28\beta\beta R + 28\beta\beta S + 29\beta\beta R + 29\beta\beta S)$	218
DIAS	$(27d\beta R + 27d\beta S) / (27\alpha\alpha R + 27\alpha\alpha S)$	217
PPMS*	$\text{ppm } 27\beta\beta R + 27\beta\beta S + 28\beta\beta R + 28\beta\beta S + 29\beta\beta R + 29\beta\beta S$	218
HOPST	$\text{Intensities}(27Ts + 27Tm + 29\alpha\beta + 29\beta\alpha + 30\alpha\beta + 30\beta\alpha + 31\alpha\beta S + 31\alpha\beta R + 32\alpha\beta S + 32\alpha\beta R + 33\alpha\beta S + 33\alpha\beta R + 34\alpha\beta S + 34\alpha\beta R + 35\alpha\beta S + 35\alpha\beta R) / \text{Intensities}(27\beta\beta R + 27\beta\beta S + 28\beta\beta R + 28\beta\beta S + 29\beta\beta R + 29\beta\beta S)$	

* ppm calculated from comparison with m/z 219 intensity for D2-cholestane

Biomarker codes used in derivation of ratios

<u>Compound name</u>	<u>Old code</u>	<u>NEW CODE</u>
Triterpanes		
C ₂₃ H ₄₂ tricyclic terpane	P	23/3
C ₂₄ H ₄₄ tricyclic terpane	Q	24/3
C ₂₅ H ₄₆ tricyclic terpane ¹	R	25/3
C ₂₄ H ₄₂ tetracyclic terpane	S	24/4
C ₂₆ H ₄₈ tricyclic terpane ²	T	26/3
18 α (H)-22,29,30-trisnorneohopane	27A	27Ts
17 α (H)-22,29,30-trisnorhopane	27B	27Tm
17 α (H), 21 β (H)-25,28,30-trisnorhopane		25nor28 $\alpha\beta$
17 α (H), 21 β (H)-28,30-bisnorhopane	28A	28 $\alpha\beta$
17 α (H), 21 β (H)-25-norhopane		25nor30 $\alpha\beta$ ³
17 α (H), 21 β (H)-30-norhopane	C29A	29 $\alpha\beta$
18 α (H)-30-norneohopane		29Ts
15 α -methyl-17 α (H)-27-norhopane (TiX)	X	30D
17 β (H), 21 α (H)-30-norhopane (normoretane)	C29B	29 $\beta\alpha$
18 α (H)-oleanane		30O
17 α (H), 21 β (H)-hopane	C30A	30 $\alpha\beta$
17 β (H), 21 α (H)-hopane (moretane)	C30B	30 $\beta\alpha$
Gammacerane		
17 α (H), 21 β (H), 22(S)-homohopane	C31S	31 $\alpha\beta$ S
17 α (H), 21 β (H), 22(R)-homohopane	C31R	31 $\alpha\beta$ R
17 α (H), 21 β (H), 22(S)-bishomohopane	C32S	32 $\alpha\beta$ S
17 α (H), 21 β (H), 22(R)-bishomohopane	C32R	32 $\alpha\beta$ R
17 α (H), 21 β (H), 22(S)-trishomohopane	C33S	33 $\alpha\beta$ S
17 α (H), 21 β (H), 22(R)-trishomohopane	C33R	33 $\alpha\beta$ R
17 α (H), 21 β (H), 22(S)-tetrakishomohopane	C34S	34 $\alpha\beta$ S
17 α (H), 21 β (H), 22(R)-tetrakishomohopane	C34R	34 $\alpha\beta$ R
17 α (H), 21 β (H), 22(S)-pentakishomohopane	C35S	35 $\alpha\beta$ S
17 α (H), 21 β (H), 22(R)-pentakishomohopane	C35R	35 $\alpha\beta$ R

1 may be broad peak or doublet

2 may be doublet

3 listed in Statoil spreadsheets as "nor30" for convenience

Steranes

13 β (H), 17 α (H), 20(S)-cholestane (diasterane)	27a	27d β S
13 β (H), 17 α (H), 20(R)-cholestane (diasterane)	27b	27d β R
13 α (H), 17 β (H), 20(R)-cholestane (diasterane)	27c	27d α R
13 α (H), 17 β (H), 20(S)-cholestane (diasterane)	27d	27d α S
5 α (H), 14 α (H), 17 α (H), 20(S)-cholestane	27e	27 $\alpha\alpha$ S
5 α (H), 14 β (H), 17 β (H), 20(R)-cholestane	27f	27 $\beta\beta$ R
5 α (H), 14 β (H), 17 β (H), 20(S)-cholestane	27g	27 $\beta\beta$ S
5 α (H), 14 α (H), 17 α (H), 20(R)-cholestane	27h	27 $\alpha\alpha$ R
24-methyl-13 β (H), 17 α (H), 20(S)-cholestane (diasterane)	28a	28d β S
24-methyl-13 β (H), 17 α (H), 20(R)-cholestane (diasterane)	28b	28d β R
24-methyl-13 α (H), 17 β (H), 20(R)-cholestane (diasterane)	28c	28d α R
24-methyl-13 α (H), 17 β (H), 20(S)-cholestane (diasterane)	28d	28d α S
24-methyl-5 α (H), 14 α (H), 17 α (H), 20(S)-cholestane	28e	28 $\alpha\alpha$ S
24-methyl-5 α (H), 14 β (H), 17 β (H), 20(R)-cholestane	28f	28 $\beta\beta$ R
24-methyl-5 α (H), 14 β (H), 17 β (H), 20(S)-cholestane	28g	28 $\beta\beta$ S
24-methyl-5 α (H), 14 α (H), 17 α (H), 20(R)-cholestane	28h	28 $\alpha\alpha$ R
24-ethyl-13 β (H), 17 α (H), 20(S)-cholestane (diasterane)	29a	29d β S
24-ethyl-13 β (H), 17 α (H), 20(R)-cholestane (diasterane)	29b	29d β R
24-ethyl-13 α (H), 17 β (H), 20(R)-cholestane (diasterane)	29c	29d α R
24-ethyl-13 α (H), 17 β (H), 20(S)-cholestane (diasterane)	29d	29d α S
24-ethyl-5 α (H), 14 α (H), 17 α (H), 20(S)-cholestane	29e	29 $\alpha\alpha$ S
24-ethyl-5 α (H), 14 β (H), 17 β (H), 20(R)-cholestane	29f	29 $\beta\beta$ R
24-ethyl-5 α (H), 14 β (H), 17 β (H), 20(S)-cholestane	29g	29 $\beta\beta$ S
24-ethyl-5 α (H), 14 α (H), 17 α (H), 20(R)-cholestane	29h	29 $\alpha\alpha$ R
24-propyl-5 α (H), 14 α (H), 17 α (H), 20(S)-cholestane	30e	30 $\alpha\alpha$ S
24-propyl-5 α (H), 14 β (H), 17 β (H), 20(R)-cholestane	30f	30 $\beta\beta$ R
24-propyl-5 α (H), 14 β (H), 17 β (H), 20(S)-cholestane	30g	30 $\beta\beta$ S
24-propyl-5 α (H), 14 α (H), 17 α (H), 20(R)-cholestane	30h	30 $\alpha\alpha$ R
4-methyl-14 α (H), 17 α (H)-cholestanes		M28 $\alpha\alpha$
4,24-dimethyl-14 α (H), 17 α (H)-cholestanes		M29 $\alpha\alpha$
4-methyl-24-ethyl-14 α (H), 17 α (H)-cholestanes		M30 $\alpha\alpha$
4,23,24-trimethyl-14 α (H), 17 α (H)-cholestanes (dinosteranes)		M30D

Depth	Sample Type	MPI1	F1	F2	Arom1	Arom2	Crack1	Crack2
1967,80	Oil	0,88	0,52	0,28	0,89	0,88	0,74	0,49

Table 4 Aromatic hydrocarbon biomarker ratios

Derivation of aromatic steroid ratios reported in Table 4

$$\text{Arom 1} = g1 / ((g1 + H1b + I1) - (I1 * f1 / g1))$$

$$\text{Arom 2} = (a1 + b1 + c1 + d1 + e1 + f1 + g1) / (a1 + b1 + c1 + d1 + e1 + f1 + g1 + A1 + B1 + C1 + D1 + E1 + F1 + G1 + H1 + I1)$$

$$\text{Crack 1} = a1 / (a1 + g1)$$

$$\text{Crack 2} = (a1 + b1) / (a1 + b1 + c1 + d1 + e1 + f1 + g1)$$

N.B. H1b refers to second eluting (split) peak of doublet corresponding to H1 in standard figure

Codes for aromatic steroids

ABC-RING TRIAROMATIC STEROID HYDROCARBONS (m/z 231)

Peak	Substituents		Abbreviation of Compound
	R ₁	R ₂	
a1	CH ₃	H	C ₂₀ TA
b1	CH ₃	CH ₃	C ₂₁ TA
c1	S(CH ₃)	C ₆ H ₁₃	SC ₂₆ TA
d1	R(CH ₃)	C ₆ H ₁₃	RC ₂₆ TA
	S(CH ₃)	C ₇ H ₁₅	SC ₂₇ TA
e1	S(CH ₃)	C ₈ H ₁₇	SC ₂₈ TA
f1	R(CH ₃)	C ₇ H ₁₅	RC ₂₇ TA
g1	R(CH ₃)	C ₈ H ₁₇	RC ₂₈ TA

C-RING MONOAROMATIC STEROID HYDROCARBONS (m/z 253)

Peak	R ₁	Substituents		R ₄	Abbreviation of Compound
		R ₂	R ₃		
A1					C ₂₁ M
B1					C ₂₂ MA
C1	β(H)	CH ₃	S(CH ₃)	H	βSC ₂₇ MA
	β(CH ₃)	H	S(CH ₃)	H	βSC ₂₇ DMA
D1	β(CH ₃)	H	R(CH ₃)	H	βRC ₂₇ DMA
	β(H)	CH ₃	R(CH ₃)	H	βRC ₂₇ MA
	α(H)	CH ₃	S(CH ₃)	H	αSC ₂₇ MA
E1	β(H)	CH ₃	S(CH ₃)	CH ₃	βSC ₂₈ MA
	α(CH ₃)	H	R(CH ₃)	H	αRC ₂₇ DMA
	β(CH ₃)	H	S(CH ₃)	CH ₃	βSC ₂₈ DMA
F1	α(CH ₃)	H	S(CH ₃)	CH ₃	αSC ₂₇ DMA
G1	α(H)	CH ₃	R(CH ₃)	H	αRC ₂₇ MA
	α(H)	CH ₃	S(CH ₃)	CH ₃	αSC ₂₈ MA
	β(H)	CH ₃	R(CH ₃)	CH ₃	βRC ₂₈ MA
	β(CH ₃)	H	R(CH ₃)	CH ₃	βRC ₂₈ DMA
	β(H)	CH ₃	S(CH ₃)	C ₂ H ₅	βSC ₂₉ MA
	βCH ₃	H	S(CH ₃)	C ₂ H ₅	βSC ₂₉ DMA
H1	α(H)	CH ₃	S(CH ₃)	C ₂ H ₅	αSC ₂₉ MA
	α(H)	CH ₃	R(CH ₃)	CH ₃	αRC ₂₈ MA
	β(H)	CH ₃	R(CH ₃)	C ₂ H ₅	βRC ₂₉ MA
	βCH ₃	H	R(CH ₃)	C ₂ H ₅	βRC ₂₉ DMA
I1	α(H)	CH ₃	R(CH ₃)	C ₂ H ₅	αRC ₂₉ MA

N.B. Not all possible DMA isomers are marked (rarely present in geological samples)



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Memorandum Number: RL/01/681

Title:

**ORGANIC GEOCHEMICAL ANALYSIS OF WELL
6608/10-7**

Prepared For:

**STATOIL
FORUS
POSTBOKS 300
N-4001 STAVANGER
NORWAY**

Author's signature.....

Date.....

30/11/2001

Mr M C Wadsworth

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Summary & Introduction

Client Name	STATOIL
Well Name	6608/10-7
Location	Norway
Dates of sample receipt (ctgs, core & muds) (oil)	25/06/2001 06/07/2001
Dates of analysis	02/07/2001 – 30/10/2001
Sample types	Cuttings, Core, Mud and Oil
RL Job number	G01032
Statoil Geochemical Study No.	Rob 2001-01

Twenty-six wet ditch cuttings, twenty-one core pieces, two muds and an oil sample were received from well 6608/10-7. All the samples were submitted for analysis and came from the depth interval 1350.0 – 2318.0 m.

The objective of this report is to present analytical data only, produced from the samples documented above. All analytical selections were made by Mr John Scotchmer (Statoil).

The well was drilled with Aquadrill (KCL/Glycol/PAC) drilling mud. Consequently, all cuttings samples after water washing were Soxhlet cleaned with a 50:50 water/methanol mixture prior to analysis. The aim was to remove drilling mud contamination, without removal of significant amounts of indigenous hydrocarbons. Similarly, where possible, the samples used from the core pieces, were taken from the centre of each piece, to minimise any mud contamination.

The analytical program (Table 2) on page 4 of this report, fully documents the analysis carried out on each sample.

Experimental Procedures

Unless otherwise stated, analysis was carried out following the 'Norwegian Industry Guide to Organic Geochemical Analysis, ' Edition 4.0, May 2000. A detailed table documenting the methodologies adopted can be found overleaf.

EXPERIMENTAL PROCEDURES (TABLE 1)

ANALYSIS	INSTRUMENT	METHOD	TEMPERATURE PROGRAM	COLUMN	COMMENTS
TOC	Eltra CS 800	OLS 1 *			Run as per Nigoga guidelines, but in house standard used as check. In house standard is calibrated with IFP international standard. Check samples run more frequently than Nigoga requirements.
Rock Eval Pyrolysis	Rock Eval II	OLS 5 *	Cycle 1		Run as per Nigoga guidelines, but in house standard used as check. In house standard is calibrated with IFP international standard. Check samples run more frequently than Nigoga requirements.
Quantative Extraction	Tecator Soxthec	NIGOGA V4.0			
Iatroscan Fractionation	Iatroscan Mk III	NIGOGA V4.0			
Topping Loss		NIGOGA V4.0			
Asphaltene Content		NIGOGA V4.0			
Liquid Chromatography		OLS 10			
Whole Oil GC	Agilent 6850	NIGOGA V4.0	-20(1)1-40(0)5-310(25)	CP SIL 5 CB 60m	
Whole Extract GC	Agilent 6850	NIGOGA V4.0	35(1.5)0.5-60(0)5-320(25)	HP-5 60m	
Saturate GC	Agilent 6850	NIGOGA V4.0	50(0.5)30-70(0)3.5 300(15)	HP-1 30m	Squalane used as internal standard
Aromatic GC	Agilent 6850	NIGOGA V4.0	80(1)1-103(0)4-240(30)	HP-5 60m	
Pyrolysis GC	HP5890 with MSSV-1	NIGOGA V4.0	35(12)6-300(25)	GC-1	subcontracted to Hall Analytical Laboratories
Saturate GC/MS	Agilent 5973N	NIGOGA V4.0	100(0)20-170(0)1.5-280(0)1-310(12)	J & W DB-5 MS 60m	C24 5b Cholane used as internal standard
Aromatic GC/MS	Agilent 5973N	NIGOGA V4.0	50(1)4-190(0)2.0-310(15)	J & W DB-5 MS 60m	D10 Anthracene used as internal standard
Carbon Isotopes	VG602D	NIGOGA V4.0			subcontracted to GHG Geochemical Services Ltd

LITHOLOGY DESCRIPTIONS - CUTTINGS (TABLE 3A)

Well Name	LAB ID	Depth (m)	Sample type	Lithology
6608/10-7	G01032-1	1350.0	Ctgs	Clyst, lt med gy, calc + 10% Sd + tr Dol, dk gy + tr Qtz
6608/10-7	G01032-2	1500.0	Ctgs	Clyst, brn gy + 20% Clyst, lt gy + 10% Clyst, lt med gy, calc + tr Mic
6608/10-7	G01032-3	1600.0	Ctgs	Clyst, brn gy + 20% Clyst, lt brn gy + 10% Clyst, lt olv gy + 10% Clyst, med gy + tr Qtz
6608/10-7	G01032-4	1720.0	Ctgs	Clyst, dk gy + 20% Clyst, brn gy + 20% Clyst, v lt gy + 10% Clyst, lt brn gy + tr Clyst, grn gy + tr Salt
6608/10-7	G01032-30	1780.0	Ctgs	Clyst, lt med gy + 20% Clyst, med gy + 10% Clyst, dk grn gy + tr Lst, wht + tr Salt
6608/10-7	G01032-31	1790.0	Ctgs	Clyst, med dk gy, calc + 20% Clyst, brn gy, calc + tr Lst wht + tr Clyst, grn gy + tr Salt
6608/10-7	G01032-5	1800.0	Ctgs	Clyst, med dk gy, calc + 20% Clyst, brn gy + 20% Clyst, lt med gy + 10% Clyst, lt gy + tr Clyst, dk grn gy + tr Salt
6608/10-7	G01032-7	1830.0	Ctgs	Clyst, brn gy + 20% Clyst, grn gy + 20% Clyst, lt med gy + 10% Lst, lt grn gy + tr Clyst, dk grn gy, calc + tr Salt
6608/10-7	G01032-8	1840.0	Ctgs	Clyst, med gy, calc + 20% Clyst, grn gy, calc, + 10% Lst v lt gy + 10% Lst, wht
6608/10-7	G01032-9	1850.0	Ctgs	Clyst, lt med gy + 20% Lst, dk gy + 10% Clyst, grn gy + tr Lst, wht
6608/10-7	G01032-10	1901.0	Ctgs	Clyst, lt med gy + 20% Clyst, brn gy + 10% Clyst, lt gy + 10% Clyst, grn gy + tr Sd
6608/10-7	G01032-11	1904.0	Ctgs	Clyst, med gy + 20% Clyst, lt med gy + 10% Sst, lt brn gy + tr Clyst, grn gy + tr Sd
6608/10-7	G01032-12	1922.0	Ctgs	Clyst, lt med gy + 20% Lst, lt brn gy + 10% Clyst, brn gy + 10% Sst, lt brn gy, glau + tr Lst, wht + tr Clyst, grn gy + tr Sd
6608/10-7	G01032-13	1943.0	Ctgs	Clyst, med gy + 20% Clyst, brn gy, calc + 10% Clyst, grn gy, calc + 10% Sst, lt gy + tr Sd
6608/10-7	G01032-32	1946.0	Ctgs	Clyst, med gy + 20% Clyst, brn gy, calc + 10% Sd + tr Clyst, grn gy + tr Clyst, lt gy
6608/10-7	G01032-19	2102.0	Ctgs	Clyst, lt med gy + 20% Clyst, lt gy, calc + 20% Clyst, med dk gy + 10% Clyst, grn gy + tr Lst, wht
6608/10-7	G01032-20	2126.0	Ctgs	Lst, pk gy + 20% Clyst, lt med gy + 20 Clyst, med gy + 10% Coal
6608/10-7	G01032-21	2180.0	Ctgs	Clyst, brn gy + 20% Lst, pk gy + tr Coal + tr Clyst, grn gy
6608/10-7	G01032-22	2222.0	Ctgs	Coal + 20% Clyst, v lt gy + 10% Clyst, med gy
6608/10-7	G01032-23	2252.0	Ctgs	Clyst, lt brn gy + 20% Clyst, brn gy + 20% Lst, pk gy + 10% Coal
6608/10-7	G01032-24	2261.0	Ctgs	Clyst, lt brn gy + 20% Lst, pk gy + 10% Clyst, grn gy + 10% Coal
6608/10-7	G01032-25	2267.0	Ctgs	Clyst, lt brn gy + 20% Lst, pk gy + 10% Clyst, grn gy + 10% Coal
6608/10-7	G01032-26	2276.0	Ctgs	Clyst, lt brn gy + 20% Clyst, brn gy + 20% Lst, pk gy + 10% Coal + mnr Clyst, grn gy
6608/10-7	G01032-27	2288.0	Ctgs	Clyst, lt brn gy + 20% Coal + 10% Lst, pk gy + 10% Clyst, grn gy
6608/10-7	G01032-28	2297.0	Ctgs	Clyst, lt brn gy + 20% Coal + 10% Lst, pk gy
6608/10-7	G01032-29	2318.0	Ctgs	Clyst, lt brn gy + 20% Lst, pk gy + 10% Coal

LITHOLOGY DESCRIPTIONS - CORE PIECES (TABLE 3B)

Well Name	LAB ID	Depth (m)	Sample type	Lithology
6608/10-7	G01032-33	1955.29	Core	Clyst, olv blk, oily
6608/10-7	G01032-34	1960.98	Core	Clyst, olv blk, oily
6608/10-7	G01032-35	1962.54	Core	Clyst, brn gy, oily
6608/10-7	G01032-36	1965.49	Core	Clyst, olv blk, oily
6608/10-7	G01032-37	1973.88	Core	Clyst, med dk gy, oily
6608/10-7	G01032-38	1975.20	Core	Clyst, brn gy, oily
6608/10-7	G01032-39	1977.12	Core	Clyst, brn gy, oily
6608/10-7	G01032-40	1979.10	Core	Clyst, brn gy, oily
6608/10-7	G01032-41	1981.83	Core	Clyst, brn gy, oily
6608/10-7	G01032-42	1983.43	Core	Clyst, brn gy, oily
6608/10-7	G01032-43	1985.93	Core	Clyst, brn gy, sndy, oily
6608/10-7	G01032-44	1989.52	Core	Clyst, med dk gy
6608/10-7	G01032-14	1992.87	Core	Clyst, med dk gy, lam
6608/10-7	G01032-15	2005.28	Core	Clyst, med dk gy
6608/10-7	G01032-45	2006.87	Core	Sst, lt med gy + 10% Sst, blk
6608/10-7	G01032-46	2017.97	Core	Sand
6608/10-7	G01032-47	2019.46	Core	Sst, lt gy, calc
6608/10-7	G01032-16	2030.78	Core	Coal
6608/10-7	G01032-17	2043.22	Core	Clyst, brn gy, calc
6608/10-7	G01032-18	2073.50	Core	Coal
6608/10-7	G01032-48	2089.72	Core	Sst, v lt gy

PICKED LITHOLOGIES (TABLE 4)

Well name	LAB ID	Depth (m)	Sample type	Picked Lith
6608/10-7	G01032-5A	1800.0	Pick	Clyst, med dk gy, calc
6608/10-7	G01032-7A	1830.0	Pick	Clyst, brn gy
6608/10-7	G01032-8A	1840.0	Pick	Clyst, med gy, calc
6608/10-7	G01032-9A	1850.0	Pick	Clyst, grn gy
6608/10-7	G01032-10A	1901.0	Pick	Clyst, brn gy
6608/10-7	G01032-11A	1904.0	Pick	Clyst, med gy
6608/10-7	G01032-19A	2102.0	Pick	Clyst, med dk gy
6608/10-7	G01032-20A	2126.0	Pick	Coal
6608/10-7	G01032-22A	2222.0	Pick	Coal
6608/10-7	G01032-23A	2252.0	Pick	Clyst, brn gy
6608/10-7	G01032-23B	2252.0	Pick	Coal
6608/10-7	G01032-24A	2261.0	Pick	Clyst, lt brn gy
6608/10-7	G01032-24B	2261.0	Pick	Coal
6608/10-7	G01032-25A	2267.0	Pick	Clyst, grn gy
6608/10-7	G01032-25B	2267.0	Pick	Coal
6608/10-7	G01032-26A	2276.0	Pick	Clyst, brn gy
6608/10-7	G01032-26B	2276.0	Pick	Coal
6608/10-7	G01032-27A	2288.0	Pick	Clyst, lt brn gy
6608/10-7	G01032-27B	2288.0	Pick	Coal
6608/10-7	G01032-28A	2297.0	Pick	Clyst, lt brn gy
6608/10-7	G01032-28B	2297.0	Pick	Coal
6608/10-7	G01032-29A	2318.0	Pick	Coal

TOC AND ROCK EVAL PYROLYSIS DATA (TABLE 5)

GENERAL DATA					CHEMICAL DATA						
Well Name	Lab ID	Depth (m)	Sample type	lithology	TOC Wt % rock	PYROLYSIS					
						S1 mg/g	S2 mg/g	T max deg C	HI	PI	PP
6608/10-7	1780.0	G01032-30X	Ctgs	Clyst, lt med gy +		0.07	0.35	*		0.17	0.42
6608/10-7	1790.0	G01032-31X	Ctgs	Lst, med dk gy +		0.05	0.34	*		0.13	0.39
6608/10-7	1800.0	G01032-5X	Ctgs	Clyst, med dk gy, calc +	0.86	0.42	1.71	*	199	0.20	2.13
6608/10-7	1800.0	G01032-5AX	Pick	Clyst	0.95	0.07	0.66	401	69	0.10	0.73
6608/10-7	1830.0	G01032-7X	Ctgs	Clyst, brn gy +	0.84	0.45	1.30	*	155	0.26	1.75
6608/10-7	1830.0	G01032-7AX	Pick	Clyst	1.49	0.35	2.85	416	191	0.11	3.20
6608/10-7	1840.0	G01032-8X	Ctgs	Clyst, med gy, calc +	0.98	1.12	1.89	*	193	0.37	3.01
6608/10-7	1840.0	G01032-8AX	Pick	Clyst	1.39	0.10	1.16	422	83	0.08	1.26
6608/10-7	1850.0	G01032-9X	Ctgs	Clyst, lt med gy +	0.93	0.61	1.47	*	158	0.29	2.08
6608/10-7	1850.0	G01032-9AX	Pick	Clyst	0.75	0.43	1.95	*	260	0.18	2.38
6608/10-7	1901.0	G01032-10AX	Pick	Clyst	0.86	0.12	0.69	*	80	0.15	0.81
6608/10-7	1904.0	G01032-11AX	Pick	Clyst	1.01	0.15	1.07	*	106	0.12	1.22
6608/10-7	1922.0	G01032-12X	Ctgs	Clyst, lt med gy +	1.54	0.48	1.68	*	109	0.22	2.16
6608/10-7	1943.0	G01032-13X	Ctgs	Clyst, med gy +	0.93	0.20	1.34	423	144	0.13	1.54
6608/10-7	1946.0	G01032-32X	Ctgs	Clyst, med gy +		0.40	2.28	418		0.15	2.68
6608/10-7	1955.29	G01032-33	Core	Clyst, olv blk, oily		23.25	14.06	*		0.62	37.31
6608/10-7	1960.98	G01032-34	Core	Clyst, olv blk, oily		35.70	14.11	*		0.72	49.81
6608/10-7	1962.54	G01032-35	Core	Clyst, brn gy, oily		16.81	10.47	*		0.62	27.28
6608/10-7	1965.49	G01032-36	Core	Clyst, olv blk, oily		29.03	12.59	*		0.70	41.62
6608/10-7	1973.88	G01032-37	Core	Clyst, med dk gy, oily		14.47	8.60	413		0.63	23.07
6608/10-7	1975.20	G01032-38	Core	Clyst, brn gy, oily		20.23	8.50	*		0.70	28.73
6608/10-7	1977.12	G01032-39	Core	Clyst, brn gy, oily		20.06	6.49	*		0.76	26.55
6608/10-7	1979.10	G01032-40	Core	Clyst, brn gy, oily		25.56	8.71	417		0.75	34.27
6608/10-7	1981.83	G01032-41	Core	Clyst, brn gy, oily		17.55	6.31	421		0.74	23.86
6608/10-7	1983.43	G01032-42	Core	Clyst, brn gy, oily		20.34	7.21	421		0.74	27.55
6608/10-7	1985.93	G01032-43	Core	Clyst, brn gy, sndy, oily		19.36	10.08	424		0.66	29.44
6608/10-7	1989.52	G01032-44	Core	Clyst, med dk gy		0.29	1.12	430		0.21	1.41
6608/10-7	1992.87	G01032-14	Core	Clyst, med dk gy, lam	2.09	0.48	1.48	428	71	0.24	1.96
6608/10-7	2005.28	G01032-15	Core	Clyst, med dk gy	1.20	0.20	0.84	428	70	0.19	1.04
6608/10-7	2006.87	G01032-45	Core	Sst, lt med gy +		0.69	0.64	405		0.52	1.33
6608/10-7	2017.97	G01032-46	Core	Sand		1.52	0.79	*		0.66	2.31
6608/10-7	2019.46	G01032-47	Core	Sst, lt gy, calc		0.68	0.26	*		0.72	0.94
6608/10-7	2030.78	G01032-16	Core	Coal	47.64	2.74	107.84	421	226	0.02	110.58
6608/10-7	2043.22	G01032-17	Core	Clyst, brn gy, calc	4.10	0.22	4.30	426	105	0.05	4.52
6608/10-7	2073.50	G01032-18	Core	Coal	53.05	4.21	171.05	426	322	0.02	175.26
6608/10-7	2089.72	G01032-48	Core	Sst, v lt gy		0.64	0.37	*		0.63	1.01
6608/10-7	2102.0	G01032-19AX	Pick	Clyst/sltst	1.43	0.19	1.38	*	97	0.12	1.57
6608/10-7	2126.0	G01032-20AX	Pick	Coal	54.71	0.71	31.42	422	57	0.02	32.13
6608/10-7	2222.0	G01032-22AX	Pick	Coal	62.37	1.22	90.47	425	145	0.01	91.69
6608/10-7	2252.0	G01032-23AX	Pick	Clyst	2.01	0.34	2.05	408	102	0.14	2.39
6608/10-7	2252.0	G01032-23BX	Pick	Coal	35.92	0.82	46.48	424	129	0.02	47.30
6608/10-7	2261.0	G01032-24AX	Pick	Clyst	2.13	0.26	1.43	*	67	0.15	1.69
6608/10-7	2261.0	G01032-24BX	Pick	Coal	39.01	1.00	55.22	424	142	0.02	56.22
6608/10-7	2267.0	G01032-25AX	Pick	Clyst	1.05	0.16	0.82	*	78	0.16	0.98
6608/10-7	2267.0	G01032-25BX	Pick	Coal	39.54	0.97	70.09	424	177	0.01	71.06
6608/10-7	2276.0	G01032-26AX	Pick	Clyst	2.19	0.09	1.66	431	76	0.05	1.75
6608/10-7	2276.0	G01032-26BX	Pick	Coal	31.33	1.18	51.98	425	166	0.02	53.16
6608/10-7	2288.0	G01032-27AX	Pick	Clyst	0.97	0.17	1.21	413	125	0.12	1.38
6608/10-7	2288.0	G01032-27BX	Pick	Coal	30.88	0.77	38.25	425	124	0.02	39.02
6608/10-7	2297.0	G01032-28AX	Pick	Clyst	1.06	0.15	0.91	413	86	0.14	1.06
6608/10-7	2297.0	G01032-28BX	Pick	Coal	57.57	1.77	72.00	423	125	0.02	73.77
6608/10-7	2318.0	G01032-29AX	Pick	Coal	20.73	0.38	27.97	427	135	0.01	28.35

MATURITY AND KEROGEN COMPOSITION DATA (TABLE 6)

GENERAL DATA					MATURITY DATA		KEROGEN COMPOSITION DATA (%)					
Well Name	LAB ID	Depth M	Sample type	Analysed lithology	SCI	VR	AM		AL	HE	WO	CO
							FA	HA				
6608/10-7	G01032-1	1350	Ctgs	Clyst, lt med gy, calc + 10% Sd + tr Dol, dk gy + tr Qtz	2.5-3.0		-	65	5	10	10	10
6608/10-7	G01032-1	1350	Polished whole rock	Clyst, lt med gy, calc		.21(2)L						
6608/10-7	G01032-2	1500	Ctgs	Clyst, brn gy + 20% Clyst, lt gy + 10% Clyst, lt med gy, calc + tr Mic	3.0-3.5		-	85	Mnr	Mnr	15	Mnr?
6608/10-7	G01032-2	1500	Polished whole rock	Clyst, brn gy		.29(1) 1.66(2)R						
6608/10-7	G01032-3	1600	Ctgs	Clyst, brn gy + 20% Clyst, lt brn gy + 10% Clyst, lt olv gy + 10% Clyst, med gy + tr Qtz	3.5-4.0?		-	90	Mnr	Mnr	10	Prt
6608/10-7	G01032-3	1600	Polished whole rock	Clyst, brn gy		.52(2)R 1.01(2)R						
6608/10-7	G01032-4	1720	Ctgs	Clyst, dk gy + 20% Clyst, brn gy + 20% Clyst, v lt gy + 10% Clyst, lt brn gy + tr Clyst, grn gy + tr Salt	3.5	.37(50) .57(5)R	-	25	10	20	45	10?
6608/10-7	G01032-5	1800	Ctgs	Clyst, med dk gy, calc + 20% Clyst, brn gy + 20% Clyst, lt med gy + 10% Clyst, lt gy + tr Clyst, dk grn gy + tr Salt	4.0	.41(44) .60(7)R	-	45	Prt	5	20	20
6608/10-7	G01032-5	1800	Polished whole rock	Clyst, med dk gy, calc		.41(2) .81(7)R .87(5)R						
6608/10-7	G01032-10	1901	Ctgs	Clyst, lt med gy + 20% Clyst, brn gy + 10% Clyst, lt gy + 10% Clyst, grn gy + tr Sd	4.0	.39(26) .26(5)L .62(2)R	-	75	-	Prt	15	10?
6608/10-7	G01032-10	1901	Polished whole rock	Clyst, brn gy		.46(6) .77(12)R 1.32(3)R						
6608/10-7	G01032-13	1943	Ctgs	Clyst, med gy + 20% Clyst, brn gy, calc + 10% Clyst, grn gy, calc + 10% Sst, lt gy + tr Sd	4.5	.40(19) .24(2)L .56(4)R	-	80	-	Mnr	10	10
6608/10-7	G01032-13	1943	Polished whole rock	Clyst, med gy		.44(7) .67(6)R 1.68(5)R						

MATURITY AND KEROGEN COMPOSITION DATA (TABLE 6)

GENERAL DATA					MATURITY DATA		KEROGEN COMPOSITION DATA (%)					
Well Name	LAB ID	Depth M	Sample type	Analysed lithology	SCI	VR	AM FA	HA	AL	HE	WO	CO
6608/10-7	G01032-14	1992.87	Core	Clyst, med dk gy, lam	4.0?, 6.0-7.0?R	.40(3) .25(1)L	-	20	-	Prt	40	40?
6608/10-7	G01032-16	2030.78	Core	Coal		.39(50) .22(1)L .65(4)R						
6608/10-7	G01032-17	2043.22	Core	Clyst, brn gy, calc	4.0?, 6.0-7.0R	.39(55)	-	15	-	Prt	50	35
6608/10-7	G01032-17	2043.22	Polished whole rock			.54(17) .23(3)L 1.04(11)R						
6608/10-7	G01032-18	2073.50	Core	Coal								
6608/10-7	G01032-18	2073.50	Polished whole rock	Coal		.47(12) .32(35)L .75(8)R						
6608/10-7	G01032-20	2126	Ctgs	Lst, pk gy + 20% Clyst, lt med gy + 20 Clyst, med gy + 10% Coal								
6608/10-7	G01032-20	2126	Polished whole rock	Coal		.31(54)L .78(1)R						
6608/10-7	G01032-21	2180	Ctgs	Clyst, brn gy + 20% Lst, pk gy + tr Coal + tr Clyst, gm gy	4.0		-	15	-	Mnr	50	35
6608/10-7	G01032-21	2180	Polished whole rock	Clyst, brn gy		.32(15)L .85(4)R						
6608/10-7	G01032-22	2222	Ctgs	Coal + 20% Clyst, v lt gy + 10% Clyst, med gy								
6608/10-7	G01032-22	2222	Polished whole rock	Coal		.34(54)L .85(1)R						
6608/10-7	G01032-29	2318	Ctgs	Clyst, lt brn gy + 20% Lst, pk gy + 10% Coal	4.5, 7.0R		-	65	-	Prt	10	25
6608/10-7	G01032-29	2318	Polished whole rock	Coal		.50(5) .28(14)L .76(1)R						

Topping Loss, Extraction Yields and Bitumen Composition data (Table 7)

Well	LAB ID	Depth	Sample type	Topping Loss (%)	Extract Yield (ppm)	Iatrosan Data			Column Chromatography Data				
						Alkanes %	Aromatics %	Polars %	Asphaltene %	Alkanes %	Aromatics %	Polars %	
6608/10-7	G01032-30X	1780.0	Ctgs		135								
6608/10-7	G01032-31X	1790.0	Ctgs		75								
6608/10-7	G01032-5AX	1800.0	Pick		500								
6608/10-7	G01032-5X	1800.0	Ctgs		720				0.0	42.1	22.3	35.5	
6608/10-7	G01032-7AX	1830.0	Pick		3165								
6608/10-7	G01032-7X	1830.0	Ctgs		1580				0.0	53.8	26.4	19.8	
6608/10-7	G01032-8AX	1840.0	Pick		835								
6608/10-7	G01032-8X	1840.0	Ctgs		2440				0.0	49.2	32.0	18.8	
6608/10-7	G01032-9AX	1850.0	Pick		570								
6608/10-7	G01032-9X	1850.0	Ctgs		1695				0.0	56.1	27.0	16.8	
6608/10-7	G01032-32X	1946.0	Ctgs		1500								
6608/10-7	G01032-33	1955.29	Core		42320	63.6	28.7	7.7	0.4	49.6	34.1	16.0	
6608/10-7	G01032-34	1960.98	Core		52720	67.2	25.0	7.8	0.3	48.5	37.4	13.8	
6608/10-7	G01032-49	1961.0	Mud		26270								
6608/10-7	G01032-35	1962.54	Core		25620								
6608/10-7	G01032-36	1965.49	Core		49090	66.1	27.2	6.7	0.2	50.3	37.4	12.2	
6608/10-7	G01032-51	1967.8	Oil	12.0		66.3	30.2	3.5	0.0	64.6	27.9	7.4	
6608/10-7	G01032-37	1973.88	Core		22500	64.6	27.8	7.6	0.3	49.0	34.4	16.3	
6608/10-7	G01032-38	1975.20	Core		29900								
6608/10-7	G01032-39	1977.12	Core		36920	64.6	27.2	8.2	0.3	48.0	35.2	16.5	
6608/10-7	G01032-40	1979.10	Core		34970								
6608/10-7	G01032-41	1981.83	Core		27720	62.6	28.4	9.0	0.4	57.1	26.7	15.8	
6608/10-7	G01032-42	1983.43	Core		30000								
6608/10-7	G01032-43	1985.93	Core		25310	59.6	29.0	11.4	0.5	54.4	26.8	18.3	
6608/10-7	G01032-44	1989.52	Core		180								
6608/10-7	G01032-50	2000.0	Mud		23430								
6608/10-7	G01032-45	2006.87	Core		1205								
6608/10-7	G01032-46	2017.97	Core		2780	65.5	22.5	12.0	0.8	55.4	19.8	23.9	
6608/10-7	G01032-47	2019.46	Core		1225								
6608/10-7	G01032-48	2089.72	Core		1505	7.3	9.7	83.0	0.9	3.1	2.6	93.3	
6608/10-7	G01032-18	2073.5	Core		13920	19.5	35.7	44.8	15.5	9.7	29.3	45.5	
6608/10-7	G01032-22A	2222.0	Pick		9143	11.8	36.9	51.3	44.3	3.4	13.5	38.8	
6608/10-7	G01032-25B	2267.0	Pick		6600	17.2	40.9	41.9	56.3	12.8	12.8	18.2	
6608/10-7	G01032-28B	2297.0	Pick		10250	15.6	41.1	43.3	26.8	17.2	21.6	34.4	

WHOLE OIL GC - PEAK AREA DATA AND RATIOS (TABLE 8)

Company	Statoil
Well	6608/10-7
Sample Type	Oil
Depth	1967.8m
Lab ID	G01032-51

COMPONENTS	Area
n-C4	105.41
n-C5	148.96
2,2-DMC4	17.30
CyC5	50.23
2,3-DMC4	55.26
2-MC5	154.22
3-MC5	121.87
n-C6	167.79
MCyC5	367.44
2,2-DMC5	14.44
2,4-DMC5	32.90
Benz	3.95
CyC6	676.98
2-MC6	55.10
2,3-DMC5	69.77
1,1-DMCyC5	90.60
3-MC6	121.00
c-1,3-DMCyC5	103.35
t-1,3-DMCyC5	96.58
t-1,2-DMCyC5	158.95
3-EC5	18.93
n-C7	231.33
MCyC6	1465.47
ECyC5	80.62
Tol	131.57

Ratios	
Benz/n_C6	0.02
n_C7/MCyC6	0.16
n_C6/MCyC5+2,2_DMC5	0.44
MCyC6/Tol	11.14
Benz/MCyC6	0.00
Tol/n_C7	0.57
CPI 1	1.11
CPI 2	1.04
CPI 3	0.98
Bias	1.36
Pristane/n_C17	1.09
Phytane/n_C18	0.68
Pristane/Phytane	2.03

COMPONENTS	Area
n-C8	263.30
m-Xyl	252.11
p-Xyl	79.22
n-C9	259.40
i-C10	148.95
n-C10	303.88
i-C11	191.54
n-C11	397.97
n-C12	356.61
i-C13	130.89
i-C14	202.73
n-C13	451.28
i-C15	403.70
n-C14	499.80
i-C16	408.18
n-C15	558.88
n-C16	529.13
i-C18	337.11
n-C17	483.21
Pristane	527.83
n-C18	384.84
Phytane	260.43
n-C19	410.96
n-C20	376.37
n-C21	329.00
n-C22	318.91
n-C23	299.52
n-C24	276.10
n-C25	254.46
n-C26	251.62
n-C27	211.44
n-C28	180.94
n-C29	194.00
n-C30	140.57
n-C31	99.17
n-C32	63.77
n-C33	117.19
n-C34	58.27
n-C35	52.19
n-C36	18.72
n-C37	32.03
n-C38	19.59
n-C39	12.41
n-C40	13.23
n-C41	10.37

SATURATES GC ALKANE (PEAK AREA) ABUNDANCES (TABLE 9)

Company Well Sample Type Depth Lab ID	Statoil 6608/10-7 Ctgs 1800m G01032-5X	Statoil 6608/10-7 Ctgs 1830m G01032-7X	Statoil 6608/10-7 Ctgs 1840m G01032-8X	Statoil 6608/10-7 Ctgs 1850m G01032-9X	Statoil 6608/10-7 Ctgs 1946m G01032-32
COMPONENTS	Area	Area	Area	Area	Area
nC-10			0.139	0.741	
nC-11		0.292	0.292	0.475	
nC-12	0.203	0.852	1.975	1.367	2.243
nC-13	1.300	4.028	12.713	7.357	7.114
iC-15	0.388	1.700	4.518	3.644	1.194
nC-14	4.617	10.821	35.826	25.412	6.248
iC-16	2.832	5.999	29.998	21.569	1.203
nC-15	10.368	16.350	64.645	59.215	2.863
nC-16	14.421	19.164	91.460	87.852	2.399
iC-18	6.392	15.995	86.134	61.649	2.021
n_C17	11.285	18.760	103.787	106.482	9.544
Pristane	9.082	26.474	144.506	123.662	5.523
n_C18	12.333	24.672	125.734	131.513	21.665
Phytane	6.018	16.091	80.961	69.579	2.965
n_C19	8.072	23.413	115.053	123.351	20.779
n_C20	7.743	23.955	97.488	129.694	24.261
n_C21	4.336	19.859	75.119	117.152	28.009
n_C22	5.614	21.273	80.334	116.481	43.642
n_C23	6.050	19.659	67.120	116.735	64.628
n_C24	3.804	19.792	59.284	103.432	81.125
n_C25	9.183	20.527	53.719	99.751	110.822
n_C26	5.428	16.734	49.086	84.594	120.154
n_C27	13.367	17.378	48.834	86.224	146.720
n_C28	5.711	14.930	51.392	73.530	135.901
n_C29	12.141	18.136	46.861	74.798	142.212
n_C30	4.044	14.541	38.104	45.503	104.013
n_C31	6.541	17.917	42.926	50.913	105.961
n_C32		6.763	14.353	29.595	70.141
n_C33		11.908	24.187	40.902	58.048
n_C34		5.031	16.599	23.209	27.595
n_C35			4.484	9.140	10.857
n_C36			5.797	8.459	13.904
Total abundance	171.071	431.874	1671.025	2031.394	1371.511
Ratios					
CPI 1		1.33	1.15	1.21	1.17
CPI 2		1.26	1.11	1.18	1.16
CPI 3		1.10	0.97	1.09	1.15
Bias		0.85	1.39	1.01	0.13
Pristane/n_C17	0.80	1.41	1.39	1.16	0.58
Phytane/n_C18	0.49	0.65	0.64	0.53	0.14
Pristane/Phytane	1.51	1.65	1.78	1.78	1.86

SATURATES GC ALKANE (PEAK AREA) ABUNDANCES (TABLE 9)

Company Well	Statoil 6608/10-7	Statoil 6608/10-7	Statoil 6608/10-7	Statoil 6608/10-7	Statoil 6608/10-7
Sample Type	Core	Core	Mud	Core	Oil
Depth	1955.29m	1960.98m	1961m	1965.49m	1967.8m
Lab ID	G01032-33	G01032-34	G01032-49	G01032-36	G01032-51
COMPONENTS	Area	Area	Area	Area	Area
nC-10	0.564	0.775		0.637	1.794
nC-11	0.405	0.666	0.800	1.648	16.846
nC-12	4.849	12.203	3.802	21.215	68.208
nC-13	31.460	73.495	8.282	97.007	177.858
iC-15	30.576	75.224	25.636	85.821	145.776
nC-14	78.478	192.806	16.244	207.793	272.657
iC-16	79.363	206.628	12.290	205.218	248.672
nC-15	144.950	380.533	30.108	365.868	393.828
nC-16	174.022	476.798	62.416	442.982	466.662
iC-18	137.398	422.983	34.600	257.223	262.464
n_C17	192.994	567.845	40.310	534.126	486.978
Pristane	254.101	735.516	32.721	666.403	614.500
n_C18	205.387	571.681	30.654	540.685	515.410
Phytane	135.703	373.423	14.060	329.980	318.726
n_C19	206.205	564.923	22.200	545.687	535.652
n_C20	203.536	550.523	22.446	527.364	508.470
n_C21	188.984	516.282	21.247	498.784	470.369
n_C22	186.364	507.211	20.035	480.918	482.123
n_C23	189.875	516.155	18.902	492.846	493.662
n_C24	180.372	497.248	16.950	458.629	478.941
n_C25	172.445	481.403	13.829	422.849	455.127
n_C26	163.941	441.349	12.310	372.692	419.657
n_C27	145.221	405.399	10.139	354.901	385.658
n_C28	131.520	351.693	6.236	299.041	316.500
n_C29	120.647	339.901	5.758	250.616	256.554
n_C30	87.610	234.196	1.918	188.142	192.298
n_C31	88.495	253.811	2.817	214.781	215.041
n_C32	52.198	139.354	1.168	103.156	114.363
n_C33	62.195	198.847	2.783	172.258	146.964
n_C34	48.548	106.134	2.834	79.302	79.109
n_C35	16.889	47.993	0.226	35.412	33.609
n_C36	10.280	29.848		15.223	24.540
Total abundance	3719.759	10259.200	489.117	9245.707	9512.168
Ratios					
CPI 1	1.09	1.16	1.18	1.18	1.13
CPI 2	1.07	1.12	1.19	1.12	1.10
CPI 3	0.98	1.02	1.09	1.06	1.05
Bias	0.97	0.97	2.36	1.07	1.00
Pristane/n_C17	1.32	1.30	0.81	1.25	1.26
Phytane/n_C18	0.66	0.65	0.46	0.61	0.62
Pristane/Phytane	1.87	1.97	2.33	2.02	1.93

SATURATES GC ALKANE (PEAK AREA) ABUNDANCES (TABLE 9)

Company Well	Statoil 6608/10-7	Statoil 6608/10-7	Statoil 6608/10-7	Statoil 6608/10-7	Statoil 6608/10-7
Sample Type	Core	Core	Core	Core	Core
Depth	1973.88m	1977.12m	1981.83m	1985.93m	2017.97m
Lab ID	G01032-37	G01032-39	G01032-41	G01032-43	G01032-46
COMPONENTS	Area	Area	Area	Area	Area
nC-10	0.722	0.809	0.529	0.349	
nC-11	0.371	0.210	0.196	0.110	
nC-12	9.291	6.260	3.391	0.921	0.789
nC-13	70.129	58.447	37.905	14.736	3.508
iC-15	97.358	94.042	54.783	32.488	1.124
nC-14	174.446	162.675	145.739	65.848	9.327
iC-16	228.165	228.227	176.623	117.348	8.232
nC-15	333.379	341.554	353.635	169.308	28.361
nC-16	408.813	443.517	520.270	245.747	60.530
iC-18	334.950	363.845	314.432	175.759	69.238
n_C17	474.749	511.329	645.093	319.674	115.566
Pristane	788.584	878.671	765.686	475.213	382.358
n_C18	518.402	548.989	686.945	371.055	143.048
Phytane	410.647	472.043	417.680	282.790	468.179
n_C19	515.797	544.572	732.778	356.034	230.081
n_C20	496.217	530.390	664.009	371.665	172.336
n_C21	446.305	466.777	638.281	311.673	109.057
n_C22	436.295	446.212	605.620	329.023	134.397
n_C23	437.709	443.983	615.046	332.038	151.261
n_C24	420.326	408.746	545.336	289.502	153.502
n_C25	389.249	387.074	530.550	282.807	151.467
n_C26	328.044	319.102	454.505	271.649	151.488
n_C27	315.517	306.294	427.335	237.244	129.058
n_C28	258.919	246.543	354.209	223.145	158.243
n_C29	217.319	207.080	368.319	203.003	101.422
n_C30	158.961	151.977	226.755	118.444	70.296
n_C31	196.738	193.660	265.434	182.802	143.620
n_C32	80.640	99.608	120.059	64.635	50.184
n_C33	169.646	166.478	189.384	134.062	129.517
n_C34	34.927	73.756	91.665	39.904	101.438
n_C35	25.555	24.973	36.122	20.608	88.868
n_C36	18.058	16.326	26.312	15.546	7.741
Total abundance	8785.844	9136.893	11010.510	6053.751	3523.446
Ratios					
CPI 1	1.26	1.22	1.24	1.26	1.18
CPI 2	1.16	1.16	1.19	1.17	1.10
CPI 3	1.08	1.08	1.06	0.96	0.83
Bias	1.11	1.19	1.10	0.99	0.69
Pristane/n_C17	1.66	1.72	1.19	1.49	3.31
Phytane/n_C18	0.79	0.86	0.61	0.76	3.27
Pristane/Phytane	1.92	1.86	1.83	1.68	0.82

SATURATES GC ALKANE (PEAK AREA) ABUNDANCES (TABLE 9)

Company Well Sample Type Depth Lab ID	Statoil 6608/10-7 Core 2073.5m G01032-18	Statoil 6608/10-7 Core 2089.72 G01032-48	Statoil 6608/10-7 Picked Ctgs 2222m G01032-22A	Statoil 6608/10-7 Picked Ctgs 2267m G01032-25B	Statoil 6608/10-7 Picked Ctgs 2297m G01032-28B
COMPONENTS	Area	Area	Area	Area	Area
nC-10	7.447				7.844
nC-11	2.060			0.141	0.713
nC-12	8.326		3.310	0.370	1.858
nC-13	10.606		10.156	0.423	4.021
iC-15	6.312		0.396	0.131	1.589
nC-14	12.255		6.085	0.239	2.014
iC-16	24.014		1.077	0.065	0.146
nC-15	16.388	0.246	4.411	0.419	2.004
nC-16	21.746	0.972	12.219	0.502	17.358
iC-18	30.403	0.911	7.309	0.492	10.712
n_C17	34.717	2.668	28.287	0.731	43.210
Pristane	403.926	2.940	5.834	0.802	27.503
n_C18	54.810	5.506	58.287	3.890	76.223
Phytane	99.708	5.440	14.358	1.611	25.959
n_C19	50.308	9.100	60.496	4.349	69.568
n_C20	91.863	12.180	147.104	5.479	94.905
n_C21	126.491	14.057	177.878	5.980	97.113
n_C22	329.274	14.443	548.350	10.246	205.156
n_C23	452.142	15.492	645.924	12.877	251.899
n_C24	541.117	15.046	942.809	13.488	333.463
n_C25	581.602	15.298	1003.864	15.721	359.848
n_C26	725.381	12.914	1174.478	14.095	402.502
n_C27	1184.149	12.568	1137.131	19.437	408.363
n_C28	554.226	9.557	973.009	10.936	338.842
n_C29	354.095	8.274	849.052	11.547	319.373
n_C30	531.991	5.079	687.009	9.898	257.573
n_C31	290.637	7.186	594.008	12.749	258.785
n_C32	199.727	3.536	345.461	4.666	138.950
n_C33	84.052	4.510	160.225	4.020	76.848
n_C34	128.273	2.409	123.998	1.442	63.826
n_C35	45.863	1.371	63.358	1.157	34.248
n_C36	10.627	0.894	43.254	1.088	25.592
Total abundance	6996.702	182.596	9825.826	168.480	3947.594
Ratios					
CPI 1	1.07	1.23	1.02	1.37	1.08
CPI 2	1.11	1.21	1.04	1.36	1.10
CPI 3	1.85	1.12	1.06	1.55	1.10
Bias	0.13	0.54	0.12	0.24	0.19
Pristane/n_C17	11.63	1.10	0.21	1.10	0.64
Phytane/n_C18	1.82	0.99	0.25	0.41	0.34
Pristane/Phytane	4.05	0.54	0.41	0.50	1.06

SATURATES GC ALKANE (PEAK CONCENTRATIONS) [ng/g EOM] (TABLE 9A)

Company Well Sample Type Depth Lab ID	Statoil 6608/10-7 Ctgs 1800m G01032-5X	Statoil 6608/10-7 Ctgs 1830m G01032-7X	Statoil 6608/10-7 Ctgs 1840m G01032-8X	Statoil 6608/10-7 Ctgs 1850m G01032-9X	Statoil 6608/10-7 Core 1955.29m G01032-33	Statoil 6608/10-7 Core 1960.98m G01032-34	Statoil 6608/10-7 Core 1965.49m G01032-36	Statoil 6608/10-7 Oil 1967.8m G01032-51	Statoil 6608/10-7 Core 1973.88m G01032-37	Statoil 6608/10-7 Core 1977.12m G01032-39	Statoil 6608/10-7 Core 1981.83m G01032-41	Statoil 6608/10-7 Core 1985.93m G01032-43	Statoil 6608/10-7 Core 2017.97m G01032-46
COMPONENTS	ng/g EOM	ng/g EOM	ng/g EOM	ng/g EOM	ng/g EOM	ng/g EOM	ng/g EOM	ng/g Oil	ng/g EOM	ng/g EOM	ng/g EOM	ng/g EOM	ng/g EOM
nC-10			2284	12863	72716	36795	30267	108004	27429	30222	21647	13786	
nC-11		8141	4784	8259	52221	31632	78313	1013972	14076	7855	8022	4329	
nC-12	21033	23753	32395	23751	625250	579435	1008365	4105460	352921	233978	138723	36340	28063
nC-13	134408	112279	208575	127784	4056477	3489861	4610895	10705384	2663808	2184743	1550880	581666	124708
IC-15	40149	47378	74129	63292	3942386	3572004	4079233	8774319	3698086	3515247	2241469	1282435	39974
nC-14	477435	301634	587763	441405	10118829	9155324	9876737	16411397	6626244	6080721	5962923	2599254	331581
IC-16	292823	167229	492161	374658	10232923	9811669	9754377	14967702	8666711	8531039	7226579	4632173	292670
nC-15	1072062	455735	1060575	1028571	18689709	18069464	17390328	23704710	12663226	12767171	14469037	6683230	1008295
nC-16	1491080	534189	1500514	1526001	22438181	22640609	21055701	28088613	15528516	16578520	21286943	9700564	2151984
IC-18	660939	445857	1413144	1070857	17715915	20085180	12226250	15797846	12722898	13600386	12865034	6937872	2461580
n_C17	1166840	522920	1702750	1849611	24884412	26963935	25387931	29311441	18033061	19113291	26394095	12618717	4108642
Pristane	939038	737933	2370799	2148040	32763487	34925723	31675289	36987108	29953904	32844417	31328180	18758434	13593750
n_C18	1275197	687710	2062828	2284416	26482376	27146068	25699675	31022818	19691222	20521016	28106489	14646915	5085689
Phytane	622245	448531	1328261	1208601	17497385	17731845	15684498	19184269	15598214	17644811	17089472	11162777	16644905
n_C19	834604	652601	1887591	2142637	26587771	26825180	25937463	32241200	19592263	20355896	29981731	14053976	8179946
n_C20	800654	667723	1599420	2252811	26243731	26141390	25066521	30605054	18848518	19825779	27168038	14670990	6126966
n_C21	448320	553543	1232422	2034952	24367394	24515492	23708050	28311736	16952634	17447966	26115372	12302910	3877234
n_C22	580454	592965	1317984	2023300	24029588	24084729	22858866	29019271	16572402	16679232	24779051	12987749	4778134
n_C23	625555	547970	1101193	2027706	24482313	24509420	23425807	29713781	16626144	16595934	25164722	13106777	5377702
n_C24	393325	551675	972634	1796638	23256973	23611632	21799410	28827694	15965859	15278766	22312513	11427742	5457361
n_C25	949544	572172	881325	1732697	22234847	22859269	20098745	27394354	14785392	14468688	21707568	11163450	5385034
n_C26	561271	466455	805321	1469408	21138339	20957299	17714668	25259401	12460565	11927926	18596162	10723014	5385753
n_C27	1382116	484405	801187	1497724	18724573	19250218	16869053	23212963	11984727	11449167	17484507	9364890	4588313
n_C28	590507	416162	843149	1277240	16958012	16699995	14213938	19050287	9834894	9215703	14492534	8808381	5625913
n_C29	1255303	505525	768811	1299253	15556140	16140067	11912209	15442135	8254746	7740574	15069844	8013304	3605791
n_C30	418150	405319	625148	790389	11296353	11120691	8942736	11574527	6038048	5680838	9277720	4675442	2499202
n_C31	676273	499408	704261	884378	11410495	12052149	10208902	12943437	7472982	7238951	10860264	7215864	5106056
n_C32		188518	235483	514066	6730355	6617164	4903184	6883598	3063048	3723319	4912216	2551396	1784167
n_C33		331935	396824	710469	8019337	9442174	8187733	8845827	6443915	6222890	7748683	5291937	4604638
n_C34		140246	272335	403153	6259692	5039723	3769349	4761630	1326681	2756987	3750495	1575155	3606353
n_C35			73571	158758	2177709	2278908	1683216	2022927	970685	933486	1477922	813463	3159482
n_C36			95106	146932	1325474	1417299	723595	1477059	685935	610255	1076543	613659	275209
Total abundance	17688289	12038017	27415266	35285746	479621174	487154482	439464358	572542488	333725327	341533717	450496987	238964135	125267032

ALKANE GCMS - PEAK HEIGHT DATA (TABLE 12)

Well Name	6608/10-7	6608/10-7	6608/10-7	6608/10-7	6608/10-7	6608/10-7	6608/10-7	
Depth (m)	1800.0	1830.0	1840.0	1850.0	1960.98	1961.0	1967.8	
Sample type	Ctgs	Ctgs	Ctgs	Ctgs	Core	Mud	Oil	
LAB ID	G01032-5X	G01032-7X	G01032-8X	G01032-9X	G01032-34	G01032-49	G01032-51	
Compound	Ion	Pk Ht	Pk Ht	Pk Ht	Pk Ht	Pk Ht	Pk Ht	
INT STD	m/z 217	864	5522	6141	7667	5156	344	9218
25nor28ab	m/z 177	12932	15730	7920	11236	3903	3136	5965
25nor30ab	m/z 177	264	29100	14546	20508	2432	2846	3795
23/3	m/z 191	6457	5682	4894	5741	2480	2112	4165
24/3	m/z 191	5608	5348	4018	4914	2223	1748	3688
25/3R	m/z 191	2121	2399	1589	1939	955	1002	1536
25/3S	m/z 191	2298	2471	1626	2141	998	984	1594
24/4	m/z 191	6767	5700	4641	5822	3360	2608	5309
26/3R	m/z 191	1799	2217	1272	1622	777	774	1278
26/3S	m/z 191	1728	2359	1518	1946	1031	802	1470
27Ts	m/z 191	11515	14209	7678	11089	6897	4791	9790
27Tm	m/z 191	13489	15154	8188	11330	8003	4936	12606
28ab	m/z 191	5104	7316	3667	5262	4460	2518	7068
25nor30ab	m/z 191	850	35500	17558	25322	2956	3482	4420
29ab	m/z 191	5804	19454	9488	14077	22760	10570	35163
29Ts	m/z 191	7922	20120	9080	13080	6299	4428	10489
30d	m/z 191	7070	10991	4828	6952	4019	2066	6233
29ba	m/z 191	4076	5219	2510	3524	2914	1465	4758
30ab	m/z 191	6117	36462	16694	26519	45910	17410	72153
30ba	m/z 191	5135	8172	3519	5169	5890	2229	9132
31abS	m/z 191	1394	10892	4975	7391	13989	5376	21947
31abR	m/z 191	8517	8633	3640	5914	9678	3853	15554
30G	m/z 191	2789	25248	9769	15122	11746	5056	18555
32abS	m/z 191	497	8107	3540	5280	8281	3122	13814
32abR	m/z 191	1087	6113	2683	3974	5725	2057	9855
33abS	m/z 191	481	6330	2690	4167	5358	1962	9646
33abR	m/z 191	270	3743	1390	2264	3480	1210	5771
34abS	m/z 191	299	5595	2101	3258	3366	1173	6010
34abR	m/z 191	118	2965	1154	1773	2071	739	3807
35abS	m/z 191	129	3706	1471	2275	2272	796	4200
35abR	m/z 191	111	2164	879	1375	1463	480	2839
27dbS	m/z 217	892	12983	7243	10335	6075	4853	9475
27dbR	m/z 217	881	8523	4708	6621	3956	3206	6219
28daR + 27aaS	m/z 217	1917	6771	3587	5244	3824	3129	5680
29dbS + 27bbR	m/z 217	9349	15091	6830	10551	6096	3839	10134
27aaR	m/z 217	1568	6644	3311	4705	2396	2340	3852
29dbR	m/z 217	6179	9694	4546	6327	3792	2446	5856
28aaR	m/z 217	1277	3870	1761	2629	1317	1080	2266
29aaS	m/z 217	4715	7392	3262	4716	3047	2032	4773
29bbR	m/z 217	7484	11915	5193	7670	5248	3188	8022
29bbS	m/z 217	8328	8800	4022	6134	3976	2537	5953
29aaR	m/z 217	2949	9636	3889	6226	3564	2427	5659
27bbR	m/z 218	3854	10407	5326	7898	5754	4662	8468
27bbS	m/z 218	726	9571	4696	7309	5754	3898	7135
28bbR	m/z 218	6820	10911	5028	7297	4780	3581	6851
28bbS	m/z 218	5199	7775	3500	5078	3333	2481	5000
29bbR	m/z 218	10283	16748	7209	10654	7658	4533	11843
29bbS	m/z 218	8539	13929	6040	9275	6101	4038	9703
30bbR	m/z 218	2960	5129	2010	3205	2117	1188	3162
30bbS	m/z 218	2632	4868	1915	2828	1795	1037	2985

ALKANE GCMS - PEAK HEIGHT DATA (TABLE 12)

Well Name	6608/10-7	6608/10-7	6608/10-7	6608/10-7	6608/10-7	6608/10-7	
Depth (m)	1977.12	1985.93	2017.97	2073.50	2222.0	2297.0	
Sample type	Core	Core	Core	Core	Pick	Pick	
LAB ID	G01032-39	G01032-43	G01032-46	G01032-18	G01032-22A	G01032-28B	
Compound	Ion	Pk Ht	Pk Ht	Pk Ht	Pk Ht	Pk Ht	Pk Ht
INT STD	m/z 217	6796	6407	4835	2099		
25nor28ab	m/z 177	4521	4915	4754	81921	467	203
25nor30ab	m/z 177	2714	2969	2444	1214	47	30
23/3	m/z 191	3055	3113	2519	489	37	38
24/3	m/z 191	2810	2940	2385	173	22	27
25/3R	m/z 191	27	1242	957	183	10	10
25/3S	m/z 191	1231	1282	1052	172	5	5
24/4	m/z 191	4038	4273	3132	3974	31	41
26/3R	m/z 191	913	990	839	477	9	15
26/3S	m/z 191	1221	1277	1046	1319	15	10
27Ts	m/z 191	8100	8064	6367	4198	37	20
27Tm	m/z 191	9843	10051	8085	20480	259	300
28ab	m/z 191	5349	5727	5306	170202	188	156
25nor30ab	m/z 191	3212	3592	2783	8208	69	33
29ab	m/z 191	26052	27403	21822	31684	304	408
29Ts	m/z 191	8000	7999	6516	25419	60	57
30d	m/z 191	4832	5011	4265	3893	152	128
29ba	m/z 191	3476	3630	3324	52290	543	523
30ab	m/z 191	55280	58349	47634	74856	1460	1420
30ba	m/z 191	6879	7401	6029	81270	94	72
31abS	m/z 191	16478	16649	13088	6452	119	158
31abR	m/z 191	11128	12349	9749	54645	632	563
30G	m/z 191	14076	15175	11813	125856	950	651
32abS	m/z 191	9755	10119	8363	1180	27	13
32abR	m/z 191	6778	6875	6286	13554	180	157
33abS	m/z 191	6469	6778	5719	1128		
33abR	m/z 191	4122	4206	3395	3499	26	58
34abS	m/z 191	4114	4127	3471	465		
34abR	m/z 191	2636	2630	2198	1081		
35abS	m/z 191	2585	2793	2158			
35abR	m/z 191	1797	1652	1504	162		
27dbS	m/z 217	7340	7451	6081	246	14	23
27dbR	m/z 217	4543	4829	4067	1197	4	6
28daR + 27aaS	m/z 217	4540	4543	3883	3652	68	22
29dbS + 27bbR	m/z 217	7038	7223	5891	1924	45	81
27aaR	m/z 217	2934	3142	2694	571	15	16
29dbR	m/z 217	4580	4691	3915	1277	70	69
28aaR	m/z 217	1710	1749	1491	6465	52	45
29aaS	m/z 217	3822	3924	3221	3286	36	46
29bbR	m/z 217	6206	6680	5442	10582	65	63
29bbS	m/z 217	4807	5062	4336	11822	67	56
29aaR	m/z 217	4507	4523	4315	16772	111	117
27bbR	m/z 218	6835	6998	5719	1209	17	24
27bbS	m/z 218	5991	5949	4879	558	22	27
28bbR	m/z 218	5595	5864	4695	3585	46	44
28bbS	m/z 218	3892	4342	3469	1579	21	29
29bbR	m/z 218	9007	9488	7827	15629	94	84
29bbS	m/z 218	7414	8087	6601	12594	83	71
30bbR	m/z 218	2405	2611	2187	1478	7	6
30bbS	m/z 218	2185	2272	1868	8626	38	24

ALKANE GCMS - PEAK CONCENTRATIONS [in ppm] (TABLE 13)

Well Name	6608/10-7	6608/10-7	6608/10-7	6608/10-7	6608/10-7	6608/10-7	
Depth (m)	1800.0	1830.0	1840.0	1850.0	1960.98	1961.0	
Sample type	Ctgs	Ctgs	Ctgs	Ctgs	Core	Mud	
LAB ID	G01032-5X	G01032-7X	G01032-8X	G01032-9X	G01032-34	G01032-49	
Compound	Ion	ppm	ppm	ppm	ppm	ppm	ppm
INT STD	m/z 217	50.0	50.0	50.0	50.0	50.0	50.0
25nor28ab	m/z 177	748.4	142.4	64.5	73.3	37.8	455.8
25nor30ab	m/z 177	15.3	263.5	118.4	133.7	23.6	413.7
23/3	m/z 191	373.7	51.4	39.8	37.4	24.0	307.0
24/3	m/z 191	324.5	48.4	32.7	32.0	21.6	254.1
25/3R	m/z 191	122.7	21.7	12.9	12.6	9.3	145.6
25/3S	m/z 191	133.0	22.4	13.2	14.0	9.7	143.0
24/4	m/z 191	391.6	51.6	37.8	38.0	32.6	379.1
26/3R	m/z 191	104.1	20.1	10.4	10.6	7.5	112.5
26/3S	m/z 191	100.0	21.4	12.4	12.7	10.0	116.6
27Ts	m/z 191	666.4	128.7	62.5	72.3	66.9	696.4
27Tm	m/z 191	780.6	137.2	66.7	73.9	77.6	717.4
28ab	m/z 191	295.4	66.2	29.9	34.3	43.3	366.0
25nor30ab	m/z 191	49.2	321.4	143.0	165.1	28.7	506.1
29ab	m/z 191	335.9	176.1	77.3	91.8	220.7	1536.3
29Ts	m/z 191	458.4	182.2	73.9	85.3	61.1	643.6
30d	m/z 191	409.1	99.5	39.3	45.3	39.0	300.3
29ba	m/z 191	235.9	47.3	20.4	23.0	28.3	212.9
30ab	m/z 191	354.0	330.2	135.9	172.9	445.2	2530.5
30ba	m/z 191	297.2	74.0	28.7	33.7	57.1	324.0
31abS	m/z 191	80.7	98.6	40.5	48.2	135.7	781.4
31abR	m/z 191	492.9	78.2	29.6	38.6	93.9	560.0
30G	m/z 191	161.4	228.6	79.5	98.6	113.9	734.9
32abS	m/z 191	28.8	73.4	28.8	34.4	80.3	453.8
32abR	m/z 191	62.9	55.4	21.8	25.9	55.5	299.0
33abS	m/z 191	27.8	57.3	21.9	27.2	52.0	285.2
33abR	m/z 191	15.6	33.9	11.3	14.8	33.7	175.9
34abS	m/z 191	17.3	50.7	17.1	21.2	32.6	170.5
34abR	m/z 191	6.8	26.8	9.4	11.6	20.1	107.4
35abS	m/z 191	7.5	33.6	12.0	14.8	22.0	115.7
35abR	m/z 191	6.4	19.6	7.2	9.0	14.2	69.8
27dbS	m/z 217	51.6	117.6	59.0	67.4	58.9	705.4
27dbR	m/z 217	51.0	77.2	38.3	43.2	38.4	466.0
28daR + 27aaS	m/z 217	110.9	61.3	29.2	34.2	37.1	454.8
29dbS + 27bbR	m/z 217	541.0	136.6	55.6	68.8	59.1	558.0
27aaR	m/z 217	90.7	60.2	27.0	30.7	23.2	340.1
29dbR	m/z 217	357.6	87.8	37.0	41.3	36.8	355.5
28aaR	m/z 217	73.9	35.0	14.3	17.1	12.8	157.0
29aaS	m/z 217	272.9	66.9	26.6	30.8	29.5	295.3
29bbR	m/z 217	433.1	107.9	42.3	50.0	50.9	463.4
29bbS	m/z 217	481.9	79.7	32.7	40.0	38.6	368.8
29aaR	m/z 217	170.7	87.3	31.7	40.6	34.6	352.8
27bbR	m/z 218	223.0	94.2	43.4	51.5	55.8	677.6
27bbS	m/z 218	42.0	86.7	38.2	47.7	55.8	566.6
28bbR	m/z 218	394.7	98.8	40.9	47.6	46.4	520.5
28bbS	m/z 218	300.9	70.4	28.5	33.1	32.3	360.6
29bbR	m/z 218	595.1	151.6	58.7	69.5	74.3	658.9
29bbS	m/z 218	494.2	126.1	49.2	60.5	59.2	586.9
30bbR	m/z 218	171.3	46.4	16.4	20.9	20.5	172.7
30bbS	m/z 218	152.3	44.1	15.6	18.4	17.4	150.7

ALKANE GCMS - PEAK CONCENTRATIONS [in ppm] (TABLE 13)

Well Name	6608/10-7	6608/10-7	6608/10-7	6608/10-7	6608/10-7	
Depth (m)	1967.8	1977.12	1985.93	2017.97	2073.50	
Sample type	Oil	Core	Core	Core	Core	
LAB ID	G01032-51	G01032-39	G01032-43	G01032-46	G01032-18	
Compound	Ion	ppm	ppm	ppm	ppm	ppm
INT STD	m/z 217	50.0	50.0	50.0	50.0	50.0
25nor28ab	m/z 177	32.4	33.3	38.4	49.2	1951.4
25nor30ab	m/z 177	20.6	20.0	23.2	25.3	28.9
23/3	m/z 191	22.6	22.5	24.3	26.0	11.6
24/3	m/z 191	20.0	20.7	22.9	24.7	4.1
25/3R	m/z 191	8.3	0.2	9.7	9.9	4.4
25/3S	m/z 191	8.6	9.1	10.0	10.9	4.1
24/4	m/z 191	28.8	29.7	33.3	32.4	94.7
26/3R	m/z 191	6.9	6.7	7.7	8.7	11.4
26/3S	m/z 191	8.0	9.0	10.0	10.8	31.4
27Ts	m/z 191	53.1	59.6	62.9	65.8	100.0
27Tm	m/z 191	68.4	72.4	78.4	83.6	487.9
28ab	m/z 191	38.3	39.4	44.7	54.9	4054.4
25nor30ab	m/z 191	24.0	23.6	28.0	28.8	195.5
29ab	m/z 191	190.7	191.7	213.9	225.7	754.7
29Ts	m/z 191	56.9	58.9	62.4	67.4	605.5
30d	m/z 191	33.8	35.6	39.1	44.1	92.7
29ba	m/z 191	25.8	25.6	28.3	34.4	1245.6
30ab	m/z 191	391.4	406.7	455.4	492.6	1783.1
30ba	m/z 191	49.5	50.6	57.8	62.3	1935.9
31abS	m/z 191	119.0	121.2	129.9	135.3	153.7
31abR	m/z 191	84.4	81.9	96.4	100.8	1301.7
30G	m/z 191	100.6	103.6	118.4	122.2	2998.0
32abS	m/z 191	74.9	71.8	79.0	86.5	28.1
32abR	m/z 191	53.5	49.9	53.7	65.0	322.9
33abS	m/z 191	52.3	47.6	52.9	59.1	26.9
33abR	m/z 191	31.3	30.3	32.8	35.1	83.3
34abS	m/z 191	32.6	30.3	32.2	35.9	11.1
34abR	m/z 191	20.6	19.4	20.5	22.7	25.8
35abS	m/z 191	22.8	19.0	21.8	22.3	0.0
35abR	m/z 191	15.4	13.2	12.9	15.6	3.9
27dbS	m/z 217	51.4	54.0	58.1	62.9	5.9
27dbR	m/z 217	33.7	33.4	37.7	42.1	28.5
28daR + 27aaS	m/z 217	30.8	33.4	35.5	40.2	87.0
29dbS + 27bbR	m/z 217	55.0	51.8	56.4	60.9	45.8
27aaR	m/z 217	20.9	21.6	24.5	27.9	13.6
29dbR	m/z 217	31.8	33.7	36.6	40.5	30.4
28aaR	m/z 217	12.3	12.6	13.6	15.4	154.0
29aaS	m/z 217	25.9	28.1	30.6	33.3	78.3
29bbR	m/z 217	43.5	45.7	52.1	56.3	252.1
29bbS	m/z 217	32.3	35.4	39.5	44.8	281.6
29aaR	m/z 217	30.7	33.2	35.3	44.6	399.5
27bbR	m/z 218	45.9	50.3	54.6	59.1	28.8
27bbS	m/z 218	38.7	44.1	46.4	50.5	13.3
28bbR	m/z 218	37.2	41.2	45.8	48.6	85.4
28bbS	m/z 218	27.1	28.6	33.9	35.9	37.6
29bbR	m/z 218	64.2	66.3	74.0	80.9	372.3
29bbS	m/z 218	52.6	54.5	63.1	68.3	300.0
30bbR	m/z 218	17.2	17.7	20.4	22.6	35.2
30bbS	m/z 218	16.2	16.1	17.7	19.3	205.5

ALKANE GCMS - PEAK HEIGHT RATIOS (TABLE 14)

Well Name		6608/10-7	6608/10-7	6608/10-7	6608/10-7	6608/10-7	6608/10-7	6608/10-7	6608/10-7
Depth (m)		1800.0	1830.0	1840.0	1850.0	1960.98	1961.0	1967.8	1977.12
Sample type		Ctgs	Ctgs	Ctgs	Ctgs	Core	Mud	Oil	Core
LAB ID		G01032-5X	G01032-7X	G01032-8X	G01032-9X	G01032-34	G01032-49	G01032-51	G01032-39
Ratio	Ion								
27Ts/27Tm	m/z 191	0.85	0.94	0.94	0.98	0.86	0.97	0.78	0.82
30ba/30ab	m/z 191	0.84	0.22	0.21	0.19	0.13	0.13	0.13	0.12
29ba/29ab	m/z 191	0.70	0.27	0.26	0.25	0.13	0.14	0.14	0.13
31abS/31abR	m/z 191	0.16	1.26	1.37	1.25	1.45	1.40	1.41	1.48
32abS/32abR	m/z 191	0.46	1.33	1.32	1.33	1.45	1.52	1.40	1.44
(35abS+35abR)/(31abS+31abR)	m/z 191	0.02	0.30	0.27	0.27	0.16	0.14	0.19	0.16
(35abS+35abR)/(34abS+34abR)	m/z 191	0.58	0.69	0.72	0.73	0.69	0.67	0.72	0.65
29ab/(29ab+30ab)	m/z 191	0.49	0.35	0.36	0.35	0.33	0.38	0.33	0.32
28ab/30ab	m/z 191	0.83	0.20	0.22	0.20	0.10	0.14	0.10	0.10
30G/30ab	m/z 191	0.46	0.69	0.59	0.57	0.26	0.29	0.26	0.25
30d/30ab	m/z 191	1.16	0.30	0.29	0.26	0.09	0.12	0.09	0.09
(23/3)/30ab	m/z 191	1.06	0.16	0.29	0.22	0.05	0.12	0.06	0.06
(24/4)/(26/3R+26/3S)	m/z 191	1.92	1.25	1.66	1.63	1.86	1.65	1.93	1.89
(24/4)/30ab	m/z 191	1.11	0.16	0.28	0.22	0.07	0.15	0.07	0.07
30ab/(29aaS+29bbR+29bbS+29aaR)	191,217	0.26	0.97	1.02	1.07	2.90	1.71	2.96	2.86
29aaS/(29aaS+29aaR)	m/z 217	0.62	0.43	0.46	0.43	0.46	0.46	0.46	0.46
(29bbR+29bbS)/(29aaS+29bbR+29bbS+29aaR)	m/z 217	0.67	0.55	0.56	0.56	0.58	0.56	0.57	0.57
27aaR/(27aaR+28aaR+29aaR) %	m/z 217	27.06	32.97	36.95	34.70	32.93	40.02	32.71	32.06
28aaR/(27aaR+28aaR+29aaR) %	m/z 217	22.04	19.21	19.65	19.39	18.10	18.47	19.24	18.69
29aaR/(27aaR+28aaR+29aaR) %	m/z 217	50.90	47.82	43.40	45.91	48.98	41.51	48.05	49.25
(27bbR+27bbS)/(27bbR+27bbS+28bbR+28bbS+29bbR+29bbS) %	m/z 218	12.93	28.81	31.52	32.01	34.48	36.91	31.84	33.11
(28bbR+28bbS)/(27bbR+27bbS+28bbR+28bbS+29bbR+29bbS) %	m/z 218	33.93	26.95	26.82	26.05	24.30	26.14	24.19	24.49
(29bbR+29bbS)/(27bbR+27bbS+28bbR+28bbS+29bbR+29bbS) %	m/z 218	53.14	44.24	41.66	41.95	41.22	36.96	43.97	42.39

ALKANE GCMS - PEAK HEIGHT RATIOS (TABLE 14)

Well Name		6608/10-7	6608/10-7	6608/10-7	6608/10-7	6608/10-7
Depth (m)		1985.93	2017.97	2073.50	2222.0	2297.0
Sample type		Core	Core	Core	Pick	Pick
LAB ID		G01032-43	G01032-46	G01032-18	G01032-22A	G01032-28B
Ratio	Ion					
27Ts/27Tm	m/z 191	0.80	0.79	0.20	0.14	0.07
30ba/30ab	m/z 191	0.13	0.13	1.09	0.06	0.05
29ba/29ab	m/z 191	0.13	0.15	1.65	1.79	1.28
31abS/31abR	m/z 191	1.35	1.34	0.12	0.19	0.28
32abS/32abR	m/z 191	1.47	1.33	0.09	0.15	0.08
(35abS+35abR)/(31abS+31abR)	m/z 191	0.15	0.16			
(35abS+35abR)/(34abS+34abR)	m/z 191	0.66	0.65			
29ab/(29ab+30ab)	m/z 191	0.32	0.31	0.30	0.17	0.22
28ab/30ab	m/z 191	0.10	0.11	2.27	0.13	0.11
30G/30ab	m/z 191	0.26	0.25	1.68	0.65	0.46
30d/30ab	m/z 191	0.09	0.09	0.05	0.10	0.09
(23/3)/30ab	m/z 191	0.05	0.05	0.01	0.03	0.03
(24/4)/(26/3R+26/3S)	m/z 191	1.88	1.66	2.21	1.29	1.64
(24/4)/30ab	m/z 191	0.07	0.07	0.05	0.02	0.03
30ab/(29aaS+29bbR+29bbS+29aaR)	191,217	2.89	2.75	1.76	5.23	5.04
29aaS/(29aaS+29aaR)	m/z 217	0.46	0.43	0.16	0.24	0.28
(29bbR+29bbS)/(29aaS+29bbR+29bbS+29aaR)	m/z 217	0.58	0.56	0.53	0.47	0.42
27aaR/(27aaR+28aaR+29aaR) %	m/z 217	33.38	31.69	2.40	8.43	8.99
28aaR/(27aaR+28aaR+29aaR) %	m/z 217	18.58	17.54	27.15	29.21	25.28
29aaR/(27aaR+28aaR+29aaR) %	m/z 217	48.05	50.76	70.45	62.36	65.73
(27bbR+27bbS)/(27bbR+27bbS+28bbR+28bbS+29bbR+29bbS) %	m/z 218	31.79	31.93	5.03	13.78	18.28
(28bbR+28bbS)/(27bbR+27bbS+28bbR+28bbS+29bbR+29bbS) %	m/z 218	25.06	24.60	14.69	23.67	26.16
(29bbR+29bbS)/(27bbR+27bbS+28bbR+28bbS+29bbR+29bbS) %	m/z 218	43.15	43.47	80.28	62.54	55.56

Carbon Isotope Ratio Data (Table 16)

Well Name	LAB ID	Depth (m)	Sample type	SATS	AROMS	OIL	NSO	ASPH
6608/10-7	G01032-5X	1800.0	Ctgs	-27.55	-27.88			
6608/10-7	G01032-8X	1840.0	Ctgs	-27.86	-27.33			
6608/10-7	G01032-9X	1850.0	Ctgs	-28.84	-27.64			
6608/10-7	G01032-34	1960.98	Core	-28.33	-27.63			
6608/10-7	G01032-49	1961.0	Mud	-27.88	-29.09			
6608/10-7	G01032-51	1967.80	Oil	-28.93	-27.76	-28.00	-27.77	-27.19
6608/10-7	G01032-39	1977.12	Core	-28.26	-27.22			
6608/10-7	G01032-43	1985.93	Core	-28.58	-27.34			
6608/10-7	G01032-46	2017.97	Core	-28.80	-27.91			
6608/10-7	G01032-18	2073.50	Core	-29.10	-26.16			
6608/10-7	G01032-22A	2222.0	Pick	too small	-26.56			
6608/10-7	G01032-28B	2297.0	Pick	too small	-27.28			

Appendix 1 - NGS & RRI Quality Control Standard Data

Robertson AGR Rock Standard - TOC and Rock Eval Pyrolysis Data

TOC Data

Date	Std S/N	Std Name	S1 mg/g
09/07/2001	1543	AGR Std	2.40
09/07/2001	1543	AGR Std	2.19
09/07/2001	1543	AGR Std	2.28
11/07/2001	1543	AGR Std	2.34
11/07/2001	1543	AGR Std	2.19
11/07/2001	1543	AGR Std	2.31
23/07/2001	1543	AGR Std	2.19
23/07/2001	1543	AGR Std	2.29
23/07/2001	1543	AGR Std	2.28
11/09/2001	1543	AGR Std	2.25
11/09/2001	1543	AGR Std	2.34
11/09/2001	1543	AGR Std	2.24
Most likely Value	1543	AGR Std	2.29
Permissible Range	1543	AGR Std	2.18-2.41

Rock Eval II Data

Date	Std S/N	Std Name	S1 mg/g	S2 mg/g	Tmax deg C
03/08/2001	1674	AGR Std	0.54	6.38	438
03/08/2001	1674	AGR Std	0.55	5.96	435
03/08/2001	1674	AGR Std	0.57	6.08	437
03/08/2001	1674	AGR Std	0.60	6.84	437
03/08/2001	1674	AGR Std	0.57	6.66	435
03/08/2001	1674	AGR Std	0.56	7.18	436
06/08/2001	1674	AGR Std	0.57	6.56	438
06/08/2001	1674	AGR Std	0.53	6.38	438
12/09/2001	1674	AGR Std	0.57	6.30	438
Most likely Value	1674	AGR Std	0.61	6.61	437
Permissible Range	1674	AGR Std	0.55-0.67	5.95-7.27	434-440

NGS Standard NSO-1 and SR-1 Data

Topping Data

Date	Std S/N	C15+ Wt %
09/07/2001	NSO-1 1663	74.5
Most likely Value		77.0
Permissible Range		70-83

Asphaltene Precipitation Data

Date	Std S/N	Asphalt Wt % of topped oil
20/08/2001	NSO-1 1663	1.0
Most likely Value		1.9
Permissible Range		1.0-4.0

Solvent Extraction Data

Date	Std S/N	Extraction Yield mg/kg
04/07/2001	SR-1	4350
12/07/2001	SR-1	4365
Most likely Value		4800
Permissible Range		4300-5800

LC Data

Date	Std S/N	Sats norm Wt % of deasph	Aroms norm Wt % of deasph	NSOs norm Wt % of deasph
21/08/2001	NSO-1 1663	65.2	24.3	10.5
Most likely Value		57.0	27.0	16.0
Permissible Range		56-58	26-30	13-19

Iatroscan Data

Date	Std S/N	Sats norm Wt % of deasph	Aroms norm Wt % of deasph	NSOs norm Wt % of deasph
17/08/2001	NSO-1 1663	53.9	38.4	7.6
Most likely Value		58.0	36.0	8.0
Permissible Range		40-60	25-42	5-13
Date	Std S/N	Sats norm raw peak areas	Aroms norm raw peak areas	NSOs norm raw peak areas
17/08/2001	NSO-1 1663	48.0	37.1	14.9
Most likely Value		42.0	41.0	10.0
Permissible Range		40-50	36-48	9-17

WHOLE OIL GC - PEAK AREA DATA AND RATIOS

Company	
Well	
Sample Type	NGS Std
Depth	NSO-1
Lab ID	

COMPONENTS	Area
n-C4	774.56
n-C5	1652.15
2,2-DMC4	54.80
CyC5	275.07
2,3-DMC4	140.82
3-MC5	1118.63
n-C6	2445.83
MCyC5	1262.98
2,2-DMC5	60.45
2,4-DMC5	138.79
Benz	1006.73
CyC6	2280.77
3-MC6	1008.62
c-1,3-DMCyC5	333.66
t-1,3-DMCyC5	312.11
t-1,2-DMCyC5	576.38
3-EC5	88.87
n-C7	3056.89
MCyC6	4165.40
ECyC5	259.09
Tol	2656.91
n-C8	3217.07
m-Xyl	1837.04
p-Xyl	451.37

Ratios	
Benz/n_C6	0.41
n_C7/MCyC6	0.73
n_C6/MCyC5+2,2_DMC5	1.85
MCyC6/Tol	1.57
Benz/MCyC6	0.24
Tol/n_C7	0.87
CPI 1	1.01
CPI 2	0.99
CPI 3	0.99
Bias	2.01
Pristane/n_C17	0.58
Phytane/n_C18	0.47
Pristane/Phytane	1.50

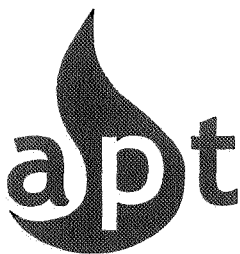
COMPONENTS	Area
n-C9	3494.36
i-C10	1022.25
n-C10	3070.15
i-C11	579.82
n-C11	3007.29
n-C12	2666.53
i-C13	589.45
i-C14	612.22
n-C13	2603.39
i-C15	846.34
n-C14	2315.01
i-C16	948.94
n-C15	2345.73
n-C16	2078.13
i-C18	908.92
n-C17	1813.70
Pristane	1044.06
n-C18	1470.28
Phytane	696.72
n-C19	1279.62
n-C20	1146.70
n-C21	931.73
n-C22	855.01
n-C23	739.42
n-C24	654.27
n-C25	540.99
n-C26	488.95
n-C27	447.07
n-C28	415.76
n-C29	391.65
n-C30	349.21
n-C31	275.46
n-C32	230.31
n-C33	219.62
n-C34	161.44
n-C35	111.39
n-C36	83.25
n-C37	90.38
n-C38	64.40
n-C39	63.58
n-C40	57.28
n-C41	43.81

Appendix 2

Petroleum geochemistry data report

- **molecular and stable isotope composition of gas sample
from the NOCS well 6608/10-7**

**Petroleum Geochemistry Data Report-
Molecular and stable isotope composition of a gas
sample from NOCS Well 6608/10-7**



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Client Statoil	Service Order 4500395152
Client Reference John Scotchmer	Number of pages 5
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Approved by	Nigel Mills	2001-12-05	

1 Introduction

One gas sample from well 6608/10-7, MDT 1967.8 has been analysed for gas and isotopic composition.

On the sample $C_1 - C_5$ and CO_2 are quantified. The $\delta^{13}C$ value is measured on methane, ethane, propane, the butanes and CO_2 , and the $\delta^{18}O$ value is measured on CO_2 . In addition the δD value is measured on methane.

2 Analytical procedures

Aliquots of 0.2 ml are sampled with a syringe for analysis on a Porabond Q column connected with flame ionisation (FID) and thermal conductivity (TCD) detectors. The detection limit for the hydrocarbon gas components is 0.001 $\mu l/ml$, for CO_2 0.05 $\mu l/ml$.

For the isotope analysis 5-10 ml of the gas is sampled with a syringe and then separated into the different gas components by a Carlo Erba 4200 gas chromatograph. The hydrocarbon gas components are oxidised in separate CuO-ovens in order to prevent cross contamination. The combustion products CO_2 and H_2O are frozen into collection vessels and separated.

The combustion water is reduced with zinc metal in sealed quartz tubes to prepare hydrogen for isotopic analysis. The isotopic measurements are performed on a Finnigan MAT 251 and a Finnigan Delta mass spectrometer.

IFEs value on NBS 22 is $-29.77 \pm .06\text{‰}$ PDB.

The analytical procedures are tested with a laboratory gas standard mixture. Based on repeated analysis of the gas standard, the reproducibility in the $\delta^{13}C$ value is better than 0.5‰ PDB for all components. The reproducibility in the δD value is likewise better than 10‰.

3 Results

The normalised volume composition of the gas sample is shown in Table 1. The stable isotope composition is shown in Table 2.

The molecular composition related to the carbon isotope variations in methane from the sample is plotted in Figure 1 (Schoell, 1983), the carbon and hydrogen variations in methane are plotted in Figure 2 (Schoell, 1983) and the carbon isotope variation in ethane related to the carbon isotope variations in methane in Figure 3 (Schoell, 1983).

Table 1 Volume composition of a gas sample (normalised values) from well 6608/10-7

Sample	APT id	C ₁ %	C ₂ %	C ₃ %	iC ₄ %	nC ₄ %	iC ₅ %	nC ₅ %	CO ₂ %	Sum C ₁ -C ₅	Wet- ness	iC ₄ / nC ₄
MDT 1967.8	11884	90.7	2.4	2.2	1.3	1.6	0.8	0.4	0.6	99.4	7.6	0.79

Table 2 Isotopic composition of a gas sample from well 6608/10-7

Sample	APT id	C ₁ $\delta^{13}\text{C}$	C ₁ δD	C ₂ $\delta^{13}\text{C}$	C ₃ $\delta^{13}\text{C}$	iC ₄ $\delta^{13}\text{C}$	nC ₄ $\delta^{13}\text{C}$	CO ₂ $\delta^{13}\text{C}$	CO ₂ $\delta^{18}\text{O}$
MDT 1967.8	11884	-50.5	-205	-27.4	-24.9	-25.3	-25.8	-8.8	-5.8

4 Literature

Schoell, M. (1983). Genetic characterisation of natural gases. *The American Association of Petroleum Geologists Bulletin*, 67,2225-2238.