4.8.1 Reservoir pressure summary

In the first MDT run a total of 25 pre-tests were attempted. 3 pre-tests did not seal to the formation, 10 were tight, while 12 measured the formation pressure.

Table 4.7 MDT pressures, Run 1A

Test no	DEPTH ()mMD)	DEPTH (mTVD)	FORM. Pressure (bar)	HYDROSTATIC PRESSURE (bar)		TEMP (°C)	GOOD SEAL (Y/N)	REMARKS	Mobility (mD/cP)
				BEFORE	AFTER				
MDT Pressures									
1	1417.5	1417.5	159.9	176.3	176.26	34.6	Y	Tight/Aborted	12.1
2	1418.5	1418.5	-	176.37	176.35	35.2	Y	Tight	-
3	1467.5	1467.5	-	182.46	-	37.5	Y	Tight	-
4	1457	1457	-	181.08	-	38.2	N	Lost seal	-
5	1457	1457	-	181.08	181.06	33.5	N	Lost seal	-
6	1448.2	1448.2	145.93	179.95	179.65	33.7	Y	Tight/ok	13.1
7	1511	1511	151.74	187.66	187.63	39.4	Y	Good	554.6
8	1525	1525	154.3	189.36	189.6	40.2	Y	Tight/Aborted	8.6
9	1530.5	1530.5	153.68	190.04	190.3	41.5	Y	Good	172.8
10	1540.7	1540.7	154.71	191.26	190.9	41.6	Y	Good	5.6
11	1552	1552	-	192.65	192.35	41.5	Y	Tight	-
12	1559	1559	-	193.48	193.18	41.7	N	Lost seal	15.2
13	1573	1573	157.93	195.2	195.18	42.1	Y	Tight	4.8
14	1610	1610	161.62	199.75	199.46	42.9	Y	Good	3.7
15	1625	1625	163.13	201.6	210.59	43.2	Y	Good	457.1
16	1804	1804	180.78	223.65	223.35	45.7	Y	Good	427.4
17	1850	1850	185.44	229.31	229.3	47.5	Y	Good	395.9
18	1880	1880	188.34	232.99	232.69	48.9	Y	Good	63.6
19	1950	1950	195.33	241.64	241.63	50.5	Y	Good	26
20	1975	1975	197.82	244.717	244.41	51.4	Y	Good	5627
21	1984	1984	198.71	245.86	245.5	52.4	Y	Good	240.7
22	1418.7	1418.7	-	176.06	-	44.7	Y	Tight/aborted	-
23	1418.2	1418.2	-	176.02	-	42.7	Y	Tight/aborted	-
24	1417.6	1417.6	-	175.93	-	41.4	Y	Tight/aborted	-
25	1416.9	1416.9	159.93	175.93	175.63	40.2	Y	Good/tight	1.4

Table 4.8 MDT pressures, Run 1B

MDT Sampling

Test no	DEPTH (mMD)	DEPTH (mTVD)	FORM. Pressure (bar)	HYDROSTATIC PRESSURE (bar)		TEMP (°C)	GOOD SEAL (Y/N)	REMARKS	Mobility (mD/cP)
				BEFORE	AFTER				
	1418.6	1418.6	159.86	-	-	-	Y	Sampling	2.7
26	1412.7	1412.7	159.8	175.3	175.25	41.5	Y	Tight/aborted	0.6
27	1399	1399	158.25	173.61	173.61	41.1	Y	Good/tight	1.4
28	1412	1412	159.55	175.23	175.21	40.1	Y	Tight/aborted	0.6

4.9 Reservoir fluid sampling

Wireline logs indicated that a sand stringer could be HC saturated. A rush mobilization of MDT sampling equipment was done, only with conventional sampling chambers. Unfortunately the drawdown can not be controlled with this sample configuration., therefore this resulted in a very high drawdown during sampling.

The sampling string included a 1gallon and a 2 ¾ gallon chamber. The 2 ¾ gallon chamber was drained offshore and contained mudfiltrate/water and approximately 3 litres (~0.003 sm^3) of gas.

The 1 gallon chamber was positioned so that the content was drained from the top, this was an attempt to drain the gas first, into a 1 litre geochemical bottle. The rest was drained offshore and contained mud filtrate/formation water with no gas.

Table 4.9 Samples collected

Depth mMD		Chamber no.	Oilphase bottle no.	Chamber volume	Opening Press bar	Drawdown bar	Volume cc
Run1B							
1418.6m		MPSR 024	-	2 ¾ Gallon	120	147	
1418.6m		MPSR 194	W1C5617	1 Gallon	110	147	1000

Flowing pressure only 13 bar in the beginning of each sampling.

Well: 6608/10-9
Field: Blåmeis
Rig: Stena Don

DRILLING FLUIDS

HOLE SIZE	HOLE TVD MD	CASING SIZE	CASING TVD MD	MUD TYPE	MW [g/cm³]	LGS [kg/m³]	10 sec. [Pa]	10 min. [Pa]	Fann 100 rpm [lb/sqft]	Fann 3 rpm [lb/sqft]	PV [cP]	FV [sec]	HTHP FL [ml]	YP [Pa]	pH	Activity	ES [Volt]	Ex. Lime [kg/m³]	OWR [vol %]	Total Volume Old Volume New Volume Usage [m³]
36"	460	30"	460	SW/ Bentonite sweeps, SW/CMC displ.mud	1.03 - 1.35															502 0 502 234 60 m3 kill mud mixed and transferred
				COMMENTS, Ref. Anchor/M-I, Operational Procedures - Rev. 0 - 20.03.00: 80 m3 of kill mud - density 1,6 sg - was built. The hole was drilled with sea water, pumping 5-8 m3 of high vis SW/bentonite sweeps every 15 m drilled. At TD the hole was swept with a 40 m3 high vis pill before displacing the hole to 1.35 sg SW/CMC displacement fluid and pulling out to run conductor. The kill mud was transferred to the 17 1/2" section.																
17 1/2"	730	13 3/8"	725	SW/ Bentonite sweeps, SW/CMC/ bentonite displ.mud	1.03 - 1.30															273 248 25 273
				COMMENTS, Ref. Anchor/M-I, Operational Procedures - Rev. 2 - 18.08.02: 60 m3 of kill mud - density 1.6 sg - was received from previous section. The hole was drilled with sea water, pumping 8-10 m3 of high vis SW/bentonite sweeps every 15 m drilled. At TD the hole was swept with with a 40 m3 high vis pill before displacing the hole to 1.30 sg mud - displacement fluid was mixed by diluting the kill mud to 1.30 sg.																
12 1/4"	2 031	NA		Glydril (KCL/ Pac/Glycol) 99% KCl	1.34	132 - 193	3 - 4	4 - 5	22 - 23	5 - 6	13 - 14	63 - 68	n/a 3.2 - 4.9 API	11 - 12	8.1 - 9.0					535 0 535 248
				COMMENTS, Ref. Anchor/M-I, Operational Procedures - Rev. 2 - 18.08.02: Saturated 99 % KCl brine was shipped to the rig. The KCl concentration was maintained at 120 - 146 kg/m3. Glycol concentration was maintained in the range of 3.5 - 4.2 % by volume.														

STATOIL

Title:
Geochemical evaluation of well 6608/11-3.

Document no.:	Contract no./project no.:	Filing no.:
200307010001		

Classification:	Distribution:
Statoil Internal	**Partners, NPD, Statoil**

Distribution date:	Rev. date:	Rev. no.:	Copy no.:
July 2003	**2003-07-01**		

Author(s)/Source(s):

May Ritt Pedersen, TEK F&T LET

Applied Petroleum Technology AS

Subjects:

6608/11-3, Blåmeis, source rock, thermal maturity

Remarks:

See summary on page iii

Valid from:	Updated:
Responsible publisher:	Authority to approve deviations: TEK F&T LET

Techn. responsible:	Name:	Date/Signature:
TEK F&T LET	May Ritt Pedersen	
Responsible:	Name:	Date/Signature:
Recommended:	Name:	Date/Signature:
TEK F&T LET	Leslie Leith	
Approved:	Name:	Date/Signature:
TEK F&T LET	Ivar Miljeteig	

1 Introduction

This report is the result of a geochemical base study of the well 6608/11-3 (Blåmeis prospect). The well is a dry well drilled offshore mid Norway (Figure 1). The well was drilled with water-based mud (Glydrill).

The objectives of the study were:

1. To identify potential source rocks
2. To determine the thermal maturity in the well
3. To discover any traces of hydrocarbons

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

Analysis	Cuttings	SWC	Core	Mud	Total
Sample preparation	24	21	4		49
TOC content	22	21	4		47
Rock-Eval	22	21	4		47
Vitrinite reflectance	5	10	1		16
Pyrolysis-GC	2		1		3
Thermal extraction-GC	1	3	2		6
Solvent extraction	4	3		3	10
Asphaltene precipitation	4	3		3	10
Iatroscan	4	3		3	10
MPLC separation	4	3		3	10
Saturates GC	4	3		3	10
Aromatic GC	4	3		3	10
Saturates GC-MS	4	3		3	10
Carbon isotopes	4	2			6

Full details of the analytical programme on a sample-by-sample basis are presented in table 1. Applied Petroleum Technology AS carried out the analyses. All the analytical work was performed in accordance with guidelines given in "The Norwegian Industry Guide to Organic Geochemical Analysis, 4th edition (2000)". The analytical data are presented in Appendix 1.

Sample depth	Sample type	Preparation	Lithology description	Vitrinite reflectance	TOC content	Rock-Eval	Pyrolysis-GC	Thermal extraction-GC	Solvent extraction	Bulk composition	Saturate GC	Aromatic GC	Saturate GC-MS	Carbon isotope
763	Cuttings	x	x		x	x								
862	Cuttings	x	x	x										
1060	Cuttings	x	x		x	x								
1160	Cuttings	x	x	x										
1260	Cuttings	x	x	x	x	x								
1370	Cuttings	x	x	x	x	x								
1390.5	SWC	x	x		x	x		x						
1409.5	SWC	x	x		x	x			x	x	x	x	x	
1410	Cuttings	x	x		x	x			x	x	x	x	x	x
1420	Cuttings	x	x		x	x			x	x	x	x	x	x
1431.5	SWC	x	x	x	x	x								
1445	Cuttings	x	x		x	x								
1446	SWC	x	x		x	x								
1457	Cuttings	x	x		x	x		x						
1461	SWC	x	x		x	x								
1469	Cuttings	x	x		x	x			x	x	x	x	x	x
1472	SWC	x	x		x	x								
1477	SWC	x	x		x	x								
1490	Cuttings	x	x		x	x								
1499	SWC	x	x	x	x	x								
1510	SWC	x	x		x	x		x						
1520	Cuttings	x	x		x	x								
1537	SWC	x	x	x	x	x								
1556	Cuttings	x	x		x	x								
1558	SWC	x	x		x	x			x	x	x	x	x	x
1578	SWC	x	x		x	x								
1595	Cuttings	x	x		x	x	x							
1608	SWC	x	x	x	x	x								
1625	Cuttings	x	x		x	x								
1643	Cuttings	x	x		x	x								
1645	SWC	x	x	x	x	x								
1697	Cuttings	x	x		x	x	x							
1728.5	SWC	x	x	x	x	x		x						
1751	Cuttings	x	x		x	x								
1787	Cuttings	x	x		x	x			x	x	x	x	x	x
1823	Cuttings	x	x		x	x								
1836	SWC	x	x	x	x	x			x	x	x	x	x	x
1877	SWC	x	x	x	x	x								

Table 1. Geochemical analytical programme

Sample depth	Sample type	Preparation	Lithology description	Vitrinite reflectance	TOC content	Rock-Eval	Pyrolysis-GC	Thermal extraction-GC	Solvent extraction	Bulk composition	Saturate GC	Aromatic GC	Saturate GC-MS	Carbon isotope
1915	SWC	x	x	x	x	x								
1935	SWC	x	x		x	x								
1949	SWC	x	x		x	x								
1955	Cuttings	x	x		x	x								
1955	SWC	x	x	x	x	x								
1985.23	Core	x	x		x	x								
1987.6	Core	x	x		x	x		x						
1988.75	Core	x	x		x	x		x						
1989.8	Core	x	x	x	x	x	x							
2003	Cuttings	x	x		x	x								
2031	Cuttings	x	x	x	x	x								
750	Mud								x	x	x	x	x	
1350	Mud								x	x	x	x	x	
1450	Mud								x	x	x	x	x	
		49	49	16	47	47	3	6	10	10	10	10	10	6

Table 1. Continued.

	Lower depth	20S	ββ	C27ββ	C28ββ	C29ββ	C30ββ	DIAST
Rock samples								
	1409.5	0.45	0.45	29	29	42	0.00	0.56
	1410	0.41	0.44	20	30	50	0.09	0.52
	1420	0.38	0.43	24	31	45	0.00	0.50
	1469	0.39	0.55	34	28	37	0.06	0.82
	1558	0.48	0.60	43	23	34	0.03	0.68
	1787	0.00	0.53	18	24	58	0.00	0.03
	1836	0.10	0.17	17	29	54	0.00	0.06
Mud samples								
	750	0.52	0.60	37	26	36	0.07	0.74
	1350	0.49	0.57	37	28	35	0.08	0.77
	1450	0.48	0.57	36	27	37	0.09	0.64

Table 2. Saturated hydrocarbon biomarker ratios (steranes)

Formation	Lower depth	22S	TSTM	TTX	30D	30AB-HOP	C28AB	TRICY	TETRACY	35H_34H	29H_30H	DEMET	GAMMA
Rock samples													
	1409.5	0.47	1.00	0.49	0.18	0.12	0.14	0.57	0.65	0.00	0.53	0.00	0.09
	1410	0.38	0.68	0.30	0.14	0.17	0.14	0.16	0.24	1.31	0.46	0.09	0.06
	1420	0.40	0.70	0.34	0.17	0.25	0.16	0.19	0.27	1.26	0.58	0.10	0.08
	1469	0.52	0.82	0.62	0.16	0.68	0.23	0.30	0.22	0.85	0.78	0.36	0.09
	1558	0.56	0.51	0.23	0.04	0.92	0.19	0.43	0.39	0.75	1.38	0.05	0.05
	1787	0.25	0.00	0.00	0.00	0.52	0.18	0.00	0.00	0.00	0.39	0.10	0.00
	1836	0.15	0.00	0.08	0.07	0.57	0.14	0.01	0.02	0.00	0.70	0.07	0.08
Mud samples													
	750	0.60	0.88	0.64	0.06	0.87	0.11	0.14	0.13	0.91	0.78	0.00	0.09
	1350	0.55	0.71	0.32	0.05	0.81	0.13	0.15	0.12	1.01	0.74	0.05	0.11
	1450	0.59	0.69	0.33	0.05	0.79	0.12	0.14	0.11	1.19	0.74	0.07	0.12

Table 3. Saturated hydrocarbon biomarker ratios (terpanes)

Ratio	Derivation	m/z
Triterpanes		
22S	32αβS/(32αβS+32αβR)	191
TSTM	27Ts/27Tm	191
TTX	30d/29βα	191
30D	30d/30αβ	191
29H_30H	29αβ/30αβ	191
30AB–HOP	30αβ/(30αβ+30βα)	191
C28AB	28αβ/30αβ	191
TRICY	(23/3)/30αβ	191
TETRACY	(24/4)/30αβ	191
35H_34H	(35αβR+35αβS)/(34αβR+34αβS)	191
DEMET	25nor30αβ/30αβ	191
OLEANAN	30O/30αβ	191
GAMMA	30G/30αβ	191
PPMH*	ppm 27Ts+27Tm+29αβ+29βα+30αβ+30βα+31αβS+31αβR+32αβS+32αβR+33αβS+33αβR +34αβS+34αβR+35αβS+35αβR	191
Steranes		
20S	29ααS/(29ααR+29ααS)	217
BB	(29βββR+29βββS)/(29βββR+29βββS+29αααR+29αααS)	217
C27BB	100*(27βββR+27βββS)/(27βββR+27βββS+28βββR+28βββS+29βββR+29βββS)	218
C28BB	100*(28βββR+28βββS)/(27βββR+27βββS+28βββR+28βββS+29βββR+29βββS)	218
C29BB	100*(29βββR+29βββS)/(27βββR+27βββS+28βββR+28βββS+29βββR+29βββS)	218
C30BB	(30βββR+30βββS)/(27βββR+27βββS+28βββR+28βββS+29βββR+29βββS)	218
DIAST	(27dβR+27dβS)/(27ααR+27ααS)	217
PPMS*	ppm 27βββR+27βββS+28βββR+28βββS+29βββR+29βββS	218
HOPST	Intensities(27Ts+27Tm+29αβ+29βα+30αβ+30βα+31αβS+31αβR+32αβS+32αβR+33αβS+33αβR+34αβS+34αβR +35αβS+35αβR)/Intensities(27βββR+27βββS+28βββR+28βββS+29βββR+29βββS)	

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

Table 4. Biomarkers and their derivation

STATOIL

Title:
Additional analysis of Grey Beds Formation in the well 6608/11-3.

Document no.:	Contract no./project no.:	Filing no.:
200309230002		

Classification:	Distribution:
Statoil Internal	**Partners, NPD, Statoil**

Distribution date:	Rev. date:	Rev. no.:	Copy no.:
October, 2003	**2003-09-23**		

Author(s)/Source(s):

May Ritt Pedersen, TEK F&T LET

Applied Petroleum Technology AS

Subjects:

6608/11-3, Blåmeis, source rock potential, Grey Beds

Remarks:

Additional analysis of the Grey Beds Formation in the well 6608/11-3

Valid from:	Updated:
Responsible publisher:	Authority to approve deviations: TEK F&T LET

Techn. responsible:	Name:	Date/Signature:
TEK F&T LET	May Ritt Pedersen	
Responsible:	Name:	Date/Signature:
Recommended: TEK F&T LET	Name: Leslie Leith	Date/Signature:
Approved: TEK F&T LET	Name: Ivar Miljeteig	Date/Signature:

Well	Sample depth	Smple type	Preparation	Lithology description	TOC content	Rock-Eval	Solvent extraction	Bulk composition	Saturate GC	Aromatic GC	Saturate GC-MS	Carbon Isotopes
6608/11-3	1989.8	Core	x	x	x	x	x	x	x	x	x	x
	2003	Cut	x	x	x	x	x	x	x	x	x	x
TOTAL			2	2	2	2	2	2	2	2	2	2

Table 1. Geochemical analytical programme.

Well	Lower depth	20S	ββ	C27ββ	C28ββ	C29ββ	C30ββ	DIAST
6608/11-3	1989.8	0.11	0.33	20	22	59	0.00	0.13
6608/11-3	2003	0.40	0.53	24	17	59	0.00	0.37

Table 2. Saturated hydrocarbon biomarker ratios (steranes).

Well	Lower depth	22S	TSTM	TTX	30D	30AB-HOP	C28AB	TRICY	TETRACY	35H_34H	29H_30H	DEMET	GAMMA
6608/11-3	1989.8	0.17	0.20	0.09	0.03	0.56	0.07	0.01	0.01	0.32	0.36	0.01	0.04
6608/11-3	2003	0.49	0.39	0.11	0.03	0.80	0.09	1.51	0.23	1.42	0.99	0.00	0.10

Table 3. Saturated hydrocarbon biomarker ratios (terpanes).

Address: **Applied Petroleum Technology AS**
P.O.Box 123
2027 Kjeller
Telephone: **+47 63 80 60 00**
Telefax: **+47 63 80 11 38**

Report number APT03-387	**Classification** Confidential
Report Title Petroleum Geochemistry Data Report - NOCS Well 6608/11-3	**Submitted**
Client Statoil ASA	**Service Order**
Client Reference May Ritt Pedersen	**Number of pages** 113
Distribution Statoil ASA (7) IFE (2) APT (1)	

Authors
Per Erling Johansen
Kjell Urdal
Bine Nyjordet
Ingrid Anne Munz
Ingar Johansen
Kristine Aasgaard
Lars Kirksæther

	Name	Date	Signature
Reviewed by	Nigel Mills	2003-4-11	
Approved by	Tore Haaland	2003-4-11	

Table 1. Number of analyses performed

Analysis	Cuttings	SWC	Core	Mud	Total
Lithology	24	21	4		49
TOC/Rock-Eval	22	21	4		47
TEGC	1	3	2		6
PyGC	2		1		3
Extraction	4	3		3	10
Asphaltenes	4	3		3	10
Iatroscan	4	3		3	10
MPLC	4	3		3	10
GC of Saturated hydrocarbons	4	3		3	10
GC of Aromatic hydrocarbons	4	3		3	10
GC-MS of Saturated hydrocarbons	4	3		3	10
Isotopes of fractions	17	8			25
Vitrinite reflectance	5	10	1		16

Table 2. Lithology Description

Well	Sample type	Lower Depth	APT ID	%	Lithology	Attributes
6608/11-3	DC	763	15921	100 %	SST	m-c
6608/11-3	DC	862	15922	100 %	SST	m-c
6608/11-3	DC	1060	15923	100 %	SST	f-m-c
6608/11-3	DC	1160	15924	100 %	SST	f-m-c
6608/11-3	DC	1260	15925	100 %	SST	f-m-c
6608/11-3	DC	1370	15926A	90%	CLYST	grn-gy, dk brn, tr blk, red brn
6608/11-3	DC	1370	15926B	10%	SST	f-m-c
6608/11-3	SWC	1390.50	15865A	80%	CLYST	gy-brn
6608/11-3	SWC	1390.50	15865B	10%	SLST	
6608/11-3	SWC	1390.50	15865C	10%	SST	f
6608/11-3	SWC	1409.50	15866A	50%	CLYST	gy-brn
6608/11-3	SWC	1409.50	15866B	50%	SLST	
6608/11-3	DC	1410	15927	100 %	CLYST	grn-gy, dk brn, red brn, tr SST
6608/11-3	DC	1420	15928	100 %	CLYST	grn-gy, dk brn,red brn, tr SST
6608/11-3	SWC	1431.50	15867A	70%	CLYST	gy
6608/11-3	SWC	1431.50	15867B	30%	SLST	tr SST
6608/11-3	DC	1445	15929	100 %	CLYST	lt-dk gy, dk brn, red brn, tr SST, tr PYR
6608/11-3	SWC	1446	15868	100 %	SST	f-m
6608/11-3	DC	1457	15930A	70%	SST	f-m-c
6608/11-3	DC	1457	15930B	30%	CLYST	gy-brn, red brn, tr PYR, mica
6608/11-3	SWC	1461	15869A	80%	SST	f-m
6608/11-3	SWC	1461	15869B	20%	CLYST	gy-brn
6608/11-3	DC	1469	15931A	70%	SST	f-m-c
6608/11-3	DC	1469	15931B	30%	CLYST	gy-brn, tr PYR, mica
6608/11-3	SWC	1472	15870A	70%	SST	f-m-c
6608/11-3	SWC	1472	15870B	30%	CLYST	gy-brn/dk brn
6608/11-3	SWC	1477	15871A	90%	CLYST	gy-brn
6608/11-3	SWC	1477	15871B	10%	SST	f-m
6608/11-3	DC	1490	15932A	70%	SST	f-m-c
6608/11-3	DC	1490	15932B	30%	CLYST	gy-brn, tr PYR, mica
6608/11-3	SWC	1499	15872A	70%	SST	f-m
6608/11-3	SWC	1499	15872B	30%	CLYST	gy-brn
6608/11-3	SWC	1510	15873	100 %	SST	f-m
6608/11-3	DC	1520	15933A	90%	SST	f-m-c
6608/11-3	DC	1520	15933B	10%	CLYST	gy-dk brn, tr PYR
6608/11-3	SWC	1537	15874A	70%	SST	f-m
6608/11-3	SWC	1537	15874B	20%	SLST	
6608/11-3	SWC	1537	15874C	10%	CLYST	gy-brn/dk brn-blk (coal?)
6608/11-3	DC	1556	15934A	90%	SST	f-m-c
6608/11-3	DC	1556	15934B	10%	CLYST	gy-brn, red brn
6608/11-3	SWC	1558	15875A	40%	SLST	
6608/11-3	SWC	1558	15875B	30%	SST	f
6608/11-3	SWC	1558	15875C	30%	CLYST	gy-brn/dk brn-blk (coal?)
6608/11-3	SWC	1578	15876A	70%	SLST	
6608/11-3	SWC	1578	15876B	20%	SST	f
6608/11-3	SWC	1578	15876C	10%	CLYST	gy-brn/dk brn-blk (coal?)
6608/11-3	DC	1595	15935A	70%	SST	f-m-c
6608/11-3	DC	1595	15935B	30%	CLYST	gy-dk brn, tr blk (coal?)
6608/11-3	SWC	1608	15877A	60%	SLST	

Well	Sample type	Lower Depth	APT ID	%	Lithology	Attributes
6608/11-3	SWC	1608	15877B	20%	SST	f
6608/11-3	SWC	1608	15877C	20%	CLYST	gy-brn/dk brn-blk (coal?)
6608/11-3	DC	1625	15936A	70%	SST	f-m-c
6608/11-3	DC	1625	15936B	30%	CLYST	gy-brn, dk brn, red brn
6608/11-3	DC	1643	15937	100 %	SST	f-m-c, tr CLYSTgy-brn, red-brn
6608/11-3	SWC	1645	15878A	80%	SST	f-m
6608/11-3	SWC	1645	15878B	20%	CLYST	gy-brn/dk brn-blk (coal?)
6608/11-3	DC	1697	15938A	70%	SST	f-m-c
6608/11-3	DC	1697	15938B	30%	CLYST	gy-dk brn, tr blk (coal?)
6608/11-3	SWC	1728.50	15879	100 %	SST	f-m, tr CLYST
6608/11-3	DC	1751	15939A	90%	SST	f-m-c
6608/11-3	DC	1751	15939B	10%	CLYST	gy-dk brn, tr blk (coal?)
6608/11-3	DC	1787	15940A	95%	CLYST	dk brn, tr SST
6608/11-3	DC	1787	15940B	5%	COAL	blk
6608/11-3	DC	1823	15941A	80%	SST	f-m-c
6608/11-3	DC	1823	15941B	20%	CLYST	gy-dk brn, tr blk (coal?)
6608/11-3	SWC	1836	15880	100 %	CLYST	gy-brn/dk brn, tr SST
6608/11-3	SWC	1877	15881A	90%	CLYST	gy-brn
6608/11-3	SWC	1877	15881B	10%	SST	f-m
6608/11-3	SWC	1915	15882A	40%	SST	f-m
6608/11-3	SWC	1915	15882B	30%	SLST	
6608/11-3	SWC	1915	15882C	30%	CLYST	gy-brn
6608/11-3	SWC	1935	15883A	40%	SST	f-m-c
6608/11-3	SWC	1935	15883B	40%	CLYST	gy-brn/dk brn
6608/11-3	SWC	1935	15883C	20%	SLST	
6608/11-3	SWC	1949	15884	100 %	SST	f-m-c
6608/11-3	SWC	1955	15885A	50%	SST	f-m-c
6608/11-3	SWC	1955	15885B	50%	CLYST	gy-brn/dk brn
6608/11-3	DC	1955	15942A	90%	SST	f-m-c
6608/11-3	DC	1955	15942B	10%	CLYST	gy-d brn, tr blk (coal?)
6608/11-3	COCH	1985.23	15886	100 %	SST	f-m-c, tr CLYST
6608/11-3	COCH	1987.60	15887	100 %	SST	f-m-c
6608/11-3	COCH	1988.75	15888	100 %	SST	f-m-c
6608/11-3	COCH	1989.80	15889A	50%	SST	m-c
6608/11-3	COCH	1989.80	15889B	50%	CLYST	gy-brn
6608/11-3	DC	2003	15943A	70%	SST	f-m-c
6608/11-3	DC	2003	15943B	30%	CLYST	gy-brn, dk brn, tr blk (coal?)
6608/11-3	DC	2031	15944	100 %	SST	f-m-c, tr CLYST gy-dk brn

Table 3. GC of saturated compounds (parameters)

Well	Sample type	Lower Depth	APT ID	CPI 1	Pr/n-C17	Ph/n-C18	(Pr/n-C17)/(Ph/n-C18))	Pr/Ph	n-C17/(n-C17C27)
6608/11-3	SWC	1409.5	15866			0.77			0.51
6608/11-3	DC	1410	15927		0.42	0.36	1.18	1.25	0.88
6608/11-3	DC	1420	15928		0.39	0.31	1.27	1.65	0.92
6608/11-3	DC	1469	15931		0.50	0.38	1.32	1.71	0.93
6608/11-3	SWC	1558	15875	1.56	0.65	0.47	1.38	1.51	0.52
6608/11-3	DC	1787	15940	3.72	3.49	0.76	4.57	3.46	0.07
6608/11-3	SWC	1836	15880	2.69	0.33	0.15	2.23	1.90	0.09
6608/11-3	Mud	750	15945		0.57	0.37	1.52	3.92	1.00
6608/11-3	Mud	1350	15946		0.51	0.32	1.59	2.80	1.00
6608/11-3	Mud	1450	15947		0.49	0.44	1.11	2.01	1.00

Table 4. GCMS SIR of saturated compounds (parameters)

Well	Sample type	Lower Depth	APT ID	%23:3	%28ab	%30D	%27Ts	%22S	%29Ts	%20S	%bb	%27dbS	%C27	%C29	28/29	24:4/23:3
6608/11-3	SWC	1409.5	15866	36.28	11.95	15.30	49.85	47.01	23.14	44.50	44.81	29.50	28.98	41.89	0.71	1.14
6608/11-3	DC	1410	15927	13.83	12.56	12.52	40.41	37.55	23.16	41.35	44.26	27.53	20.32	50.11	0.51	1.52
6608/11-3	DC	1420	15928	16.20	13.93	14.40	40.99	39.94	25.34	38.14	42.76	26.40	23.96	45.38	0.55	1.37
6608/11-3	DC	1469	15931	22.91	18.50	13.78	45.15	51.61	23.59	39.32	55.38	36.97	34.36	37.31	0.67	0.75
6608/11-3	SWC	1558	15875	30.03	16.17	3.87	33.83	55.98	17.48	47.95	60.14	31.18	42.83	34.48	0.63	0.92
6608/11-3	DC	1787	15940		15.04			25.31			52.79	1.26	18.28	58.22	0.83	
6608/11-3	SWC	1836	15880	0.82	11.89	6.82		14.64		10.16	16.73	2.16	16.94	54.01	0.80	2.87
6608/11-3	Mud	750	15945	12.61	9.54	5.68	46.95	59.85	16.03	52.51	60.01	34.20	37.41	36.16	0.79	0.92
6608/11-3	Mud	1350	15946	13.31	11.45	4.81	41.46	54.96	17.14	48.87	57.09	35.16	37.20	35.29	0.82	0.76
6608/11-3	Mud	1450	15947	12.47	10.93	4.82	40.83	58.55	17.10	47.57	57.12	30.71	35.99	36.89	0.73	0.80

%23:3 23:3/(23:3+30αβ)*100
%28αβ 28αβ/(28αβ+30αβ)*100
%30D 30D/(30D+30αβ)*100
%27Ts 27Ts/(27Ts/27Tm)*100
%22S (32αβS/(32αβS+32αβR)*100
%29Ts (29Ts/29Ts+30αβ)*100
%20S (29ααS/29ααS+29ααR)*100
%ββ (29ββ(R+S)/(29ββ(R+S)+29αα(R+S)*100
%27dβS 27dβS/(27dβS+27αα(R+S))*100
%C27 (27ββ(R+S)/(27ββ(R+S)+28ββ(R+S)+29ββ(R+S))*100
%C29 (29ββ(R+S)/(27ββ(R+S)+28ββ(R+S)+29ββ(R+S))*100
28/29 (28αα(R+S)+28ββ(R+S))/(29αα(R+S)+29ββ(R+S))
24:4/23:3 24:4/23:3

Table 5. TOC and Rock-Eval data

Well	Sample type	Lower Depth	APT ID	S1 (mg/g)	S2 (mg/g)	Tmax (°C)	PP (mg/g)	PI (wt ratio)	HI (mg HC/g TOC)	TOC (%)
6608/11-3	DC	763	15921	0.08	0.02	408	0.10	0.80	33	0.06
6608/11-3	DC	1060	15923	0.19	0.05	399	0.24	0.79	56	0.09
6608/11-3	DC	1260	15925	0.05	0.10	518	0.15	0.33	250	0.04
6608/11-3	DC	1370	15926A	0.41	0.46	359	0.87	0.47	131	0.35
6608/11-3	SWC	1390.50	15865A	3.24	2.47	354	5.71	0.57	155	1.59
6608/11-3	SWC	1409.50	15866A	3.25	4.15	382	7.40	0.44	305	1.36
6608/11-3	DC	1410	15927	1.50	2.65	399	4.15	0.36	177	1.50
6608/11-3	DC	1420	15928	1.57	3.33	395	4.90	0.32	228	1.46
6608/11-3	SWC	1431.50	15867A	1.02	1.46	351	2.48	0.41	521	0.28
6608/11-3	DC	1445	15929	1.08	3.10	362	4.18	0.26	646	0.48
6608/11-3	SWC	1446	15868	0.34	0.34	350	0.68	0.50	76	0.45
6608/11-3	DC	1457	15930A	1.33	1.46	356	2.79	0.48	247	0.59
6608/11-3	SWC	1461	15869B	1.73	2.31	362	4.04	0.43	226	1.02
6608/11-3	DC	1469	15931B	1.64	5.44	372	7.08	0.23	461	1.18
6608/11-3	SWC	1472	15870B	1.03	2.28	363	3.31	0.31	163	1.40
6608/11-3	SWC	1477	15871A	0.38	1.26	475	1.64	0.23	137	0.92
6608/11-3	DC	1490	15932B	0.64	1.11	362	1.75	0.37	396	0.28
6608/11-3	SWC	1499	15872B	1.38	2.36	355	3.74	0.37	241	0.98
6608/11-3	SWC	1510	15873	1.50	1.21	524	2.71	0.55	1008	0.12
6608/11-3	DC	1520	15933A	0.31	0.86	381	1.17	0.26	113	0.76
6608/11-3	SWC	1537	15874	2.30	4.75	430	7.05	0.33	152	3.13
6608/11-3	DC	1556	15934B	1.18	2.03	370	3.21	0.37	257	0.79
6608/11-3	SWC	1558	15875	3.17	5.13	431	8.30	0.38	120	4.29
6608/11-3	SWC	1578	15876	1.30	2.44	431	3.74	0.35	125	1.95
6608/11-3	DC	1595	15935B	2.71	8.70	367	11.41	0.24	280	3.11
6608/11-3	SWC	1608	15877C	1.49	4.22	430	5.71	0.26	211	2.00
6608/11-3	DC	1625	15936B	0.20	0.26	355	0.46	0.43	371	0.07
6608/11-3	DC	1643	15937	0.11	0.01	446	0.12	0.92	50	0.02
6608/11-3	SWC	1645	15878A	0.71	1.96	506	2.67	0.27	258	0.76

Well	Sample type	Lower Depth	APT ID	S1 (mg/g)	S2 (mg/g)	Tmax (°C)	PP (mg/g)	PI (wt ratio)	HI (mg HC/g TOC)	TOC (%)
6608/11-3	DC	1697	15938A	0.70	2.38	419	3.08	0.23	134	1.78
6608/11-3	DC	1697	15938B	18.53	79.64	419	98.17	0.19	174	45.90
6608/11-3	SWC	1728.50	15879	1.20	1.71	543	2.91	0.41	814	0.21
6608/11-3	DC	1751	15939B	15.32	80.21	418	95.53	0.16	166	48.30
6608/11-3	DC	1787	15940	23.35	109.92	418	133.27	0.18	194	56.70
6608/11-3	DC	1823	15941A	0.56	0.91	419	1.47	0.38	125	0.73
6608/11-3	SWC	1836	15880	0.45	6.08	438	6.53	0.07	211	2.88
6608/11-3	SWC	1877	15881A	1.42	3.45	352	4.87	0.29	150	2.30
6608/11-3	SWC	1915	15882C	0.62	2.21	484	2.83	0.22	316	0.70
6608/11-3	SWC	1935	15883B	0.67	1.30	345	1.97	0.34	481	0.27
6608/11-3	SWC	1949	15884	0.85	0.47	539	1.32	0.64	783	0.06
6608/11-3	SWC	1955	15885B	1.16	2.19	353	3.35	0.35	177	1.24
6608/11-3	DC	1955	15942A	0.57	0.49	411	1.06	0.54	89	0.55
6608/11-3	COCH	1985.23	15886	1.18	0.52	489	1.70	0.69	520	0.10
6608/11-3	COCH	1987.60	15887	1.58	0.54	506	2.12	0.75	771	0.07
6608/11-3	COCH	1988.75	15888	1.25	0.55	484	1.80	0.69	458	0.12
6608/11-3	COCH	1989.80	15889B	0.64	9.86	436	10.50	0.06	273	3.61
6608/11-3	DC	2003	15943B	1.94	4.78	368	6.72	0.29	354	1.35
6608/11-3	DC	2031	15944	0.11	0.09	457	0.20	0.55	113	0.08

Table 6. Pyrolysis GC (peak area)

Well	Sample type	Lower Depth	APT ID	%C1(UCM)	%C2-C5 (UCM)	%C6-C14 (UCM)	%C15+ (UCM)	%C1 (X-UCM)	%C2-C5 (X-UCM)	%C6-C14 (X-UCM)	%C15+ (X-UCM)	C1	C2-C5	C6-C14	C15+	C6-C14 (UCM)	C15+ (UCM)
6608/11-3	DC	1595	15935B	1.52	32.40	44.97	21.11	1.67	35.38	42.12	20.84	1.06e6	2.25e7	2.68e7	1.33e7	3.13e7	1.47e7
6608/11-3	DC	1697	15938B	8.39	13.41	30.60	47.59	11.68	18.66	33.73	35.93	2.85e7	4.55e7	8.22e7	8.76e7	1.04e8	1.61e8
6608/11-3	COCH	1989.80	15889B	5.63	11.75	29.35	53.27	11.00	22.95	49.43	16.62	2.09e6	4.37e6	9.40e6	3.16e6	1.09e7	1.98e7

Table 6. continued, Pyrolysis GC (peak area)

Well	Sample type	Lower Depth	APT ID	n-Heptene	Tol	n-Octene	mp-Xyl	Weight (mg)
6608/11-3	DC	1595	15935B	0.00e0	1.78e5	5.01e4	6.94e4	15.4
6608/11-3	DC	1697	15938B	4.77e5	2.22e6	4.18e5	1.27e6	5.9
6608/11-3	COCH	1989.80	15889B	1.51e5	2.34e5	1.32e5	1.01e5	7.9

Table 7. Extraction, Asphaltene precipitation and Iatroscan data

Well	Sample type	Lower Depth	APT ID	Rock weight (g)	EOM (mg)	EOM (mg/kg Rock)	SAT (wt% of EOM/Oil)	ARO (wt% of EOM/Oil)	POL (wt% of EOM/Oil)	ASP (wt% of EOM/Oil)	HC (wt% of EOM/Oil)
6608/11-3	SWC	1409.50	15866A	3.076	63	20484	0.0	0.0	76.5	23.5	
6608/11-3	DC	1410	15927	6.115	16	2616	0.0	0.0	80.6	19.4	
6608/11-3	DC	1420	15928	4.526	11	2430	0.0	0.1	91.7	8.2	0.1
6608/11-3	DC	1469	15931B	5.920	21	3547	0.0	0.0	100.0	0.0	
6608/11-3	SWC	1558	15875B	4.048	9	2223	0.0	0.0	100.0	0.0	
6608/11-3	DC	1787	15940	1.113	110	98841	1.0	1.0	80.2	17.8	2.0
6608/11-3	SWC	1836	15880	8.861	35	3950	9.3	3.3	75.1	12.3	12.6
6608/11-3	Mud	750	15945	7.672	151	19682	0.1	0.0	99.9	0.0	0.1
6608/11-3	Mud	1350	15946	6.916	139	20097	0.1	0.0	99.9	0.0	0.1
6608/11-3	Mud	1450	15947	6.243	130	20825	0.9	0.8	98.3	0.0	1.7

Table 8. GC of saturated compounds (peak area)

Well	Sample type	Lower Depth	APT ID	n-C10	n-C11	n-C12	i-C13	i-C14	n-C13	i-C15	n-C14	i-C16	n-C15	n-C16	i-C18	n-C17	Pr
6608/11-3	SWC	1409.50	15866A	0.00e0	0.00e0	5.76e2	1.73e2	0.00e0	5.69e2	2.56e2	1.14e3	2.12e3	1.37e3	1.58e3	6.18e2	1.88e3	0.00e0
6608/11-3	DC	1410	15927	2.87e3	5.64e3	4.13e3	1.00e3	7.45e2	7.00e3	1.57e3	1.60e4	8.60e3	2.21e4	2.23e4	4.39e3	1.49e4	6.29e3
6608/11-3	DC	1420	15928	5.33e3	1.24e4	1.22e4	3.11e3	2.24e3	1.68e4	3.78e3	3.60e4	1.80e4	5.16e4	4.78e4	0.00e0	3.84e4	1.49e4
6608/11-3	DC	1469	15931B	2.19e3	7.55e3	8.38e3	1.91e3	1.81e3	1.30e4	3.45e3	3.73e4	2.01e4	5.62e4	6.14e4	0.00e0	4.16e4	2.10e4
6608/11-3	SWC	1558	15875B	0.00e0	0.00e0	6.42e2	0.00e0	0.00e0	9.00e2	5.54e2	3.16e3	4.47e3	1.17e4	1.86e4	7.67e3	1.49e4	9.62e3
6608/11-3	DC	1787	15940	1.02e3	3.27e3	2.39e3	1.45e3	1.77e3	3.58e3	3.81e3	9.47e3	1.68e4	1.74e4	1.38e4	5.47e3	1.37e4	4.78e4
6608/11-3	SWC	1836	15880	1.34e3	4.17e3	5.95e3	1.58e3	1.63e3	1.31e4	3.62e3	2.20e4	1.79e4	4.01e4	4.58e4	6.78e3	5.93e4	1.97e4
6608/11-3	Mud	750	15945	1.18e3	2.29e3	4.86e3	1.87e3	1.53e3	2.23e4	2.05e4	8.63e4	9.89e4	2.65e5	2.79e5	9.95e4	1.16e5	6.60e4
6608/11-3	Mud	1350	15946	8.22e2	2.03e3	5.25e3	1.72e3	1.53e3	2.68e4	1.38e4	7.90e4	6.93e4	1.84e5	1.96e5	6.76e4	9.88e4	5.06e4
6608/11-3	Mud	1450	15947	1.04e3	2.43e3	5.62e3	2.02e3	1.40e3	2.83e4	1.45e4	8.07e4	7.63e4	1.92e5	2.02e5	7.54e4	1.08e5	5.29e4

Table 8. continued, GC of saturated compounds (peak area)

Well	Sample type	Lower Depth	APT ID	n-C18	Ph	n-C19	n-C20	n-C21	n-C22	n-C23	n-C24	n-C25	n-C26		n-C28	n-C29	n-C30
6608/11-3	SWC	1409.50	15866A	2.48e3	1.92e3	2.07e3	0.00e0	3.03e3	4.01e3	3.28e3	2.69e3	2.12e3	1.67e3	1.82e3	0.00e0	0.00e0	0.00e0
6608/11-3	DC	1410	15927	1.41e4	5.03e3	8.23e3	6.13e3	4.38e3	3.71e3	2.76e3	2.38e3	1.73e3	1.16e3	1.96e3	1.50e3	4.38e3	0.00e0
6608/11-3	DC	1420	15928	2.96e4	9.04e3	2.60e4	1.97e4	1.08e4	5.58e3	3.66e3	2.82e3	2.61e3	1.90e3	3.39e3	2.44e3	6.25e3	0.00e0
6608/11-3	DC	1469	15931B	3.21e4	1.22e4	2.74e4	2.05e4	1.14e4	6.70e3	4.30e3	3.05e3	3.26e3	1.97e3	2.94e3	2.13e3	5.42e3	0.00e0
6608/11-3	SWC	1558	15875B	1.36e4	6.37e3	1.55e4	1.58e4	1.39e4	1.14e4	1.13e4	1.06e4	1.44e4	1.14e4	1.37e4	8.49e3	1.52e4	6.28e3
6608/11-3	DC	1787	15940	1.81e4	1.38e4	2.73e4	1.72e4	2.27e4	2.19e4	4.12e4	2.85e4	7.32e4	4.59e4	1.81e5	7.06e4	3.05e5	5.41e4
6608/11-3	SWC	1836	15880	6.96e4	1.04e4	1.12e5	8.02e4	1.38e5	1.07e5	4.76e5	2.17e5	6.09e5	2.38e5	6.30e5	2.71e5	5.93e5	1.54e5
6608/11-3	Mud	750	15945	4.51e4	1.68e4	3.06e4	1.95e4	7.58e3	3.13e3	1.50e3	1.27e3	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0
6608/11-3	Mud	1350	15946	5.60e4	1.81e4	4.25e4	2.59e4	1.02e4	3.60e3	1.54e3	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0
6608/11-3	Mud	1450	15947	5.93e4	2.63e4	4.71e4	2.90e4	9.71e3	3.58e3	1.74e3	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0

Table 8. continued, GC of saturated compounds (peak area)

Well	Sample type	Lower Depth	APT ID	n-C31	n-C32	n-C33	n-C34	n-C35	n-C36
6608/11-3	SWC	1409.50	15866A	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0
6608/11-3	DC	1410	15927	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0
6608/11-3	DC	1420	15928	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0
6608/11-3	DC	1469	15931B	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0
6608/11-3	SWC	1558	15875B	8.98e3	4.82e3	3.16e3	0.00e0	0.00e0	0.00e0
6608/11-3	DC	1787	15940	1.83e5	2.94e4	7.91e4	9.75e3	1.48e5	9.27e3
6608/11-3	SWC	1836	15880	2.73e5	4.00e4	7.22e4	1.68e4	1.10e5	6.71e3
6608/11-3	Mud	750	15945	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0
6608/11-3	Mud	1350	15946	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0
6608/11-3	Mud	1450	15947	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0

Table 9. GC of saturated compounds (amounts in ng/g)

Well	Sample type	Lower Depth	APT ID	n-C10	n-C11	n-C12	i-C13	i-C14	n-C13	i-C15	n-C14	i-C16	n-C15	n-C16	i-C18	n-C17	Pr
6608/11-3	SWC	1409.50	15866A	0.00e0	0.00e0	5.25e2	1.57e2	0.00e0	5.19e2	2.33e2	1.04e3	1.93e3	1.25e3	1.44e3	5.63e2	1.71e3	0.00e0
6608/11-3	DC	1410	15927	1.06e4	2.08e4	1.52e4	3.70e3	2.75e3	2.58e4	5.79e3	5.90e4	3.18e4	8.17e4	8.23e4	1.62e4	5.49e4	2.32e4
6608/11-3	DC	1420	15928	2.01e4	4.67e4	4.58e4	1.17e4	8.44e3	6.34e4	1.42e4	1.36e5	6.77e4	1.94e5	1.80e5	0.00e0	1.45e5	5.61e4
6608/11-3	DC	1469	15931B	4.14e3	1.43e4	1.59e4	3.61e3	3.42e3	2.45e4	6.52e3	7.06e4	3.80e4	1.06e5	1.16e5	0.00e0	7.87e4	3.97e4
6608/11-3	SWC	1558	15875B	0.00e0	0.00e0	2.71e3	0.00e0	0.00e0	3.79e3	2.34e3	1.33e4	1.88e4	4.93e4	7.82e4	3.23e4	6.28e4	4.06e4
6608/11-3	DC	1787	15940	4.07e2	1.31e3	9.59e2	5.82e2	7.10e2	1.43e3	1.53e3	3.80e3	6.74e3	6.99e3	5.52e3	2.19e3	5.50e3	1.92e4
6608/11-3	SWC	1836	15880	1.59e3	4.98e3	7.09e3	1.89e3	1.94e3	1.56e4	4.32e3	2.62e4	2.14e4	4.78e4	5.46e4	8.08e3	7.07e4	2.35e4
6608/11-3	Mud	750	15945	4.36e2	8.43e2	1.79e3	6.90e2	5.65e2	8.22e3	7.55e3	3.18e4	3.65e4	9.77e4	1.03e5	3.67e4	4.29e4	2.43e4
6608/11-3	Mud	1350	15946	2.81e2	6.94e2	1.80e3	5.90e2	5.23e2	9.18e3	4.71e3	2.70e4	2.37e4	6.31e4	6.72e4	2.32e4	3.38e4	1.73e4
6608/11-3	Mud	1450	15947	3.04e2	7.06e2	1.63e3	5.87e2	4.07e2	8.24e3	4.21e3	2.35e4	2.22e4	5.58e4	5.89e4	2.20e4	3.13e4	1.54e4

Table 9. continued, GC of saturated compounds (amounts in ng/g)

Well	Sample type	Lower Depth	APT ID	n-C18	Ph	n-C19	n-C20	n-C21	n-C22	n-C23	n-C24	n-C25	n-C26	n-C27	n-C28	n-C29	n-C30
6608/11-3	SWC	1409.50	15866A	2.26e3	1.75e3	1.89e3	0.00e0	2.76e3	3.66e3	2.99e3	2.45e3	1.93e3	1.53e3	1.66e3	0.00e0	0.00e0	0.00e0
6608/11-3	DC	1410	15927	5.19e4	1.86e4	3.04e4	2.26e4	1.62e4	1.37e4	1.02e4	8.79e3	6.39e3	4.29e3	7.23e3	5.52e3	1.62e4	0.00e0
6608/11-3	DC	1420	15928	1.12e5	3.40e4	9.77e4	7.40e4	4.08e4	2.10e4	1.38e4	1.06e4	9.84e3	7.14e3	1.28e4	9.19e3	2.35e4	0.00e0
6608/11-3	DC	1469	15931B	6.08e4	2.32e4	5.19e4	3.89e4	2.15e4	1.27e4	8.14e3	5.78e3	6.17e3	3.72e3	5.56e3	4.03e3	1.03e4	0.00e0
6608/11-3	SWC	1558	15875B	5.72e4	2.68e4	6.52e4	6.65e4	5.84e4	4.82e4	4.77e4	4.47e4	6.07e4	4.81e4	5.79e4	3.58e4	6.42e4	2.65e4
6608/11-3	DC	1787	15940	7.27e3	5.55e3	1.09e4	6.91e3	9.09e3	8.77e3	1.65e4	1.14e4	2.94e4	1.84e4	7.27e4	2.83e4	1.22e5	2.17e4
6608/11-3	SWC	1836	15880	8.30e4	1.24e4	1.33e5	9.57e4	1.64e5	1.28e5	5.67e5	2.59e5	7.26e5	2.84e5	7.52e5	3.24e5	7.07e5	1.83e5
6608/11-3	Mud	750	15945	1.66e4	6.21e3	1.13e4	7.20e3	2.80e3	1.15e3	5.53e2	4.68e2	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0
6608/11-3	Mud	1350	15946	1.92e4	6.20e3	1.45e4	8.85e3	3.48e3	1.23e3	5.26e2	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0
6608/11-3	Mud	1450	15947	1.73e4	7.64e3	1.37e4	8.44e3	2.83e3	1.04e3	5.06e2	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0

Table 9. continued, GC of saturated compounds (amounts in ng/g)

Well	Sample type	Lower Depth	APT ID	n-C31	n-C32	n-C33	n-C34	n-C35	n-C36
6608/11-3	SWC	1409.50	15866A	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0
6608/11-3	DC	1410	15927	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0
6608/11-3	DC	1420	15928	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0
6608/11-3	DC	1469	15931B	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0
6608/11-3	SWC	1558	15875B	3.79e4	2.03e4	1.33e4	0.00e0	0.00e0	0.00e0
6608/11-3	DC	1787	15940	7.33e4	1.18e4	3.17e4	3.91e3	5.92e4	3.72e3
6608/11-3	SWC	1836	15880	3.25e5	4.78e4	8.62e4	2.00e4	1.31e5	8.00e3
6608/11-3	Mud	750	15945	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0
6608/11-3	Mud	1350	15946	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0
6608/11-3	Mud	1450	15947	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0

Table 10. GC of aromatic compounds (peak area)

Well	Sample type	Lower Depth	APT ID	2-MN	1-MN	P	3-MP	2-MP	9-MP	1-MP
6608/11-3	SWC	1409.50	15866A	0	0	0	0	0	0	0
6608/11-3	DC	1410	15927	0	0	0	0	0	0	0
6608/11-3	DC	1420	15928	0	0	0	0	0	0	0
6608/11-3	DC	1469	15931B	0	0	0	0	0	0	0
6608/11-3	SWC	1558	15875B	0	0	0	0	0	0	0
6608/11-3	DC	1787	15940	908	1011	0	0	0	0	0
6608/11-3	SWC	1836	15880	0	0	0	0	0	0	0
6608/11-3	Mud	750	15945	0	0	0	0	0	0	0
6608/11-3	Mud	1350	15946	0	0	0	0	0	0	0
6608/11-3	Mud	1450	15947	0	0	0	0	0	0	0

Table 11. GC of aromatic compounds (amounts in ng/g)

Well	Sample type	Lower Depth	APT ID	2-MN	1-MN	P	3-MP	2-MP	9-MP	1-MP
6608/11-3	SWC	1409.50	15866A	0	0	0	0	0	0	0
6608/11-3	DC	1410	15927	0	0	0	0	0	0	0
6608/11-3	DC	1420	15928	0	0	0	0	0	0	0
6608/11-3	DC	1469	15931B	0	0	0	0	0	0	0
6608/11-3	SWC	1558	15875B	0	0	0	0	0	0	0
6608/11-3	DC	1787	15940	366	407	0	0	0	0	0
6608/11-3	SWC	1836	15880	0	0	0	0	0	0	0
6608/11-3	Mud	750	15945	0	0	0	0	0	0	0
6608/11-3	Mud	1350	15946	0	0	0	0	0	0	0
6608/11-3	Mud	1450	15947	0	0	0	0	0	0	0

Table 12. GCMS SIR of saturated compounds (peak height)

m/e				177		191											
Well	Sample type	Lower Depth	APT ID	25nor28αβ	25nor30αβ	20/3	21/3	23/3	24/3	25/3R	25/3S	24/4	26/3R	26/3S	28/3R	28/3S	29/3R
6608/11-3	SWC	1409.50	15866A	5.90e4	0.00e0	7.83e4	1.33e5	3.01e5	1.25e5	3.89e4	6.34e4	3.44e5	4.13e4	3.86e4	4.19e4	1.44e4	4.36e4
6608/11-3	DC	1410	15927	1.00e5	1.34e5	1.44e5	1.89e5	2.82e5	1.30e5	4.89e4	9.32e4	4.28e5	4.95e4	5.23e4	1.16e5	2.20e4	6.25e4
6608/11-3	DC	1420	15928	6.52e4	9.60e4	1.04e5	1.25e5	2.02e5	1.00e5	4.05e4	9.41e4	2.78e5	3.84e4	3.83e4	0.00e0	2.25e4	4.00e4
6608/11-3	DC	1469	15931B	9.13e4	2.67e5	2.40e5	2.05e5	3.03e5	1.72e5	7.17e4	6.60e4	2.28e5	5.74e4	5.63e4	8.59e4	4.12e4	5.59e4
6608/11-3	SWC	1558	15875B	8.13e4	1.18e5	2.09e5	3.56e5	1.47e6	6.61e5	2.99e5	3.14e5	1.35e6	2.18e5	2.20e5	3.08e5	1.56e5	1.75e5
6608/11-3	DC	1787	15940	0.00e0	4.15e6	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0
6608/11-3	SWC	1836	15880	0.00e0	6.43e6	3.40e6	2.40e5	1.08e6	2.87e5	0.00e0	0.00e0	3.10e6	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0
6608/11-3	Mud	750	15945	0.00e0	0.00e0	5.76e4	5.02e4	7.37e4	4.14e4	2.15e4	1.93e4	6.78e4	2.01e4	1.76e4	2.21e4	1.59e4	2.33e4
6608/11-3	Mud	1350	15946	0.00e0	1.45e4	5.08e4	4.74e4	6.19e4	3.15e4	1.64e4	1.89e4	4.70e4	1.29e4	1.40e4	1.85e4	1.06e4	1.73e4
6608/11-3	Mud	1450	15947	0.00e0	2.38e4	5.63e4	4.91e4	6.22e4	3.14e4	1.58e4	1.69e4	4.95e4	1.59e4	1.35e4	2.11e4	1.33e4	2.81e4

Table 12. continued, GCMS SIR of saturated compounds (peak height)

m/e				191													
Well	Sample type	Lower Depth	APT ID	29/3S	27Ts	27Tm	30/3R	30/3S	28αβ	25nor30αβ	29αβ	29Ts	30d	29βα	30O	30αβ	30βα
6608/11-3	SWC	1409.50	15866A	2.23e4	2.25e5	2.26e5	0.00e0	0.00e0	7.17e4	0.00e0	2.81e5	1.59e5	9.55e4	1.94e5	1.65e5	5.29e5	2.05e6
6608/11-3	DC	1410	15927	0.00e0	5.43e5	8.01e5	0.00e0	0.00e0	2.52e5	1.56e5	8.06e5	5.30e5	2.52e5	8.53e5	3.56e5	1.76e6	3.88e6
6608/11-3	DC	1420	15928	0.00e0	3.45e5	4.96e5	0.00e0	0.00e0	1.69e5	1.03e5	5.98e5	3.55e5	1.76e5	5.14e5	2.03e5	1.04e6	1.83e6
6608/11-3	DC	1469	15931B	4.69e4	4.05e5	4.91e5	4.19e4	8.19e4	2.31e5	3.67e5	7.97e5	3.15e5	1.63e5	2.64e5	0.00e0	1.02e6	3.70e5
6608/11-3	SWC	1558	15875B	1.72e5	9.68e5	1.89e6	1.59e5	6.06e5	6.62e5	1.61e5	4.73e6	7.27e5	1.38e5	5.91e5	0.00e0	3.43e6	4.31e5
6608/11-3	DC	1787	15940	0.00e0	0.00e0	2.18e7	0.00e0	0.00e0	1.19e7	6.41e6	2.64e7	0.00e0	0.00e0	4.68e7	0.00e0	6.72e7	2.47e7
6608/11-3	SWC	1836	15880	0.00e0	0.00e0	5.55e7	0.00e0	0.00e0	1.77e7	9.38e6	9.14e7	0.00e0	9.60e6	1.13e8	0.00e0	1.31e8	6.92e7
6608/11-3	Mud	750	15945	4.41e3	1.21e5	1.37e5	0.00e0	0.00e0	5.38e4	0.00e0	4.01e5	9.75e4	3.08e4	4.79e4	0.00e0	5.11e5	6.10e4
6608/11-3	Mud	1350	15946	1.39e4	7.90e4	1.12e5	0.00e0	0.00e0	5.21e4	2.09e4	3.00e5	8.34e4	2.04e4	6.32e4	0.00e0	4.03e5	6.88e4
6608/11-3	Mud	1450	15947	1.50e4	8.18e4	1.19e5	0.00e0	0.00e0	5.36e4	3.20e4	3.24e5	9.01e4	2.21e4	6.71e4	0.00e0	4.37e5	8.40e4

Table 12. continued, GCMS SIR of saturated compounds (peak height)

m/e				191											217		
Well	Sample type	Lower Depth	APT ID	31αβS	31αβR	30G	32αβS	32αβR	33αβS	33αβR	34αβS	34αβR	35αβS	35αβR	21αα	21ββ	22αα
6608/11-3	SWC	1409.50	15866A	1.23e5	2.12e5	4.73e4	7.85e4	8.84e4	7.23e4	8.54e4	5.93e4	5.57e4	0.00e0	0.00e0	9.53e4	1.05e5	7.08e4
6608/11-3	DC	1410	15927	4.32e5	1.51e6	1.00e5	2.49e5	4.14e5	2.33e5	2.37e5	1.44e5	1.33e5	1.67e5	1.96e5	8.55e4	1.16e5	6.42e4
6608/11-3	DC	1420	15928	3.07e5	9.66e5	8.20e4	1.70e5	2.55e5	1.44e5	1.42e5	8.86e4	7.76e4	1.06e5	1.04e5	6.01e4	8.52e4	4.15e4
6608/11-3	DC	1469	15931B	3.66e5	5.98e5	8.94e4	2.10e5	1.96e5	1.41e5	9.17e4	8.81e4	5.97e4	7.39e4	5.19e4	1.36e5	1.42e5	1.00e5
6608/11-3	SWC	1558	15875B	1.12e6	1.09e6	1.73e5	4.89e5	3.85e5	2.43e5	1.56e5	1.16e5	7.90e4	8.57e4	6.04e4	1.61e5	5.66e5	1.23e5
6608/11-3	DC	1787	15940	2.50e6	0.00e0	0.00e0	2.14e6	6.33e6	0.00e0	0.00e0	1.83e6	2.85e6	0.00e0	0.00e0	0.00e0	2.19e6	0.00e0
6608/11-3	SWC	1836	15880	7.59e6	0.00e0	1.06e7	3.33e6	1.94e7	1.81e6	2.36e6	1.14e6	2.09e6	0.00e0	0.00e0	9.04e4	3.80e5	0.00e0
6608/11-3	Mud	750	15945	1.65e5	1.40e5	4.57e4	8.68e4	5.82e4	4.81e4	3.29e4	3.20e4	2.04e4	2.84e4	1.92e4	2.97e4	3.11e4	1.73e4
6608/11-3	Mud	1350	15946	1.24e5	2.74e5	4.61e4	5.68e4	4.66e4	3.89e4	2.47e4	2.13e4	1.62e4	2.14e4	1.63e4	2.05e4	2.19e4	1.18e4
6608/11-3	Mud	1450	15947	1.42e5	3.30e5	5.26e4	7.86e4	5.56e4	5.49e4	3.13e4	3.10e4	2.35e4	3.14e4	3.33e4	2.04e4	2.24e4	1.31e4

Table 12. continued, GCMS SIR of saturated compounds (peak height)

m/e				217													
Well	Sample type	Lower Depth	APT ID	22ββ	27dbS	27dbR	27daR	27daS	28dbS#1	28dbS#2	28dbR#1	28dbR#2	28daR	27ααS	27ββR+29dbS	27ββS	28daS
6608/11-3	SWC	1409.50	15866A	7.12e4	4.90e4	3.33e4	1.42e4	1.52e4	5.44e4	5.96e4	1.96e4	5.65e4	2.93e4	2.90e4	7.45e4	2.18e4	2.27e4
6608/11-3	DC	1410	15927	6.90e4	9.60e4	6.01e4	2.78e4	3.73e4	8.46e4	8.15e4	2.97e4	6.25e4	4.92e4	6.19e4	1.46e5	3.47e4	3.53e4
6608/11-3	DC	1420	15928	5.65e4	7.59e4	4.84e4	2.23e4	2.87e4	6.04e4	6.52e4	1.91e4	4.32e4	3.74e4	4.84e4	1.05e5	2.65e4	2.28e4
6608/11-3	DC	1469	15931B	8.76e4	1.36e5	8.44e4	3.47e4	4.77e4	6.97e4	5.90e4	3.06e4	4.79e4	3.67e4	6.74e4	1.32e5	7.23e4	3.65e4
6608/11-3	SWC	1558	15875B	3.86e5	4.14e5	2.66e5	1.04e5	1.39e5	2.89e5	1.67e5	9.23e4	1.34e5	8.69e4	3.62e5	5.98e5	4.45e5	1.04e5
6608/11-3	DC	1787	15940	0.00e0	3.40e5	3.67e5	2.82e5	0.00e0	4.15e5	3.87e5	5.82e5	4.20e5	0.00e0	2.59e7	4.23e6	4.14e5	2.57e6
6608/11-3	SWC	1836	15880	3.94e5	2.27e5	3.83e5	0.00e0	0.00e0	3.65e5	4.13e5	0.00e0	0.00e0	0.00e0	8.83e6	2.98e6	3.34e5	2.79e6
6608/11-3	Mud	750	15945	2.07e4	6.63e4	3.89e4	1.78e4	2.15e4	3.19e4	2.52e4	1.74e4	1.86e4	1.39e4	2.96e4	6.59e4	3.52e4	1.24e4
6608/11-3	Mud	1350	15946	1.55e4	4.94e4	2.89e4	1.30e4	1.47e4	2.06e4	2.06e4	1.25e4	1.29e4	9.95e3	2.04e4	4.34e4	2.24e4	8.62e3
6608/11-3	Mud	1450	15947	1.51e4	4.29e4	2.60e4	9.35e3	1.41e4	1.97e4	1.94e4	1.16e4	1.43e4	1.01e4	2.09e4	4.40e4	2.41e4	8.25e3

Table 12. continued, GCMS SIR of saturated compounds (peak height)

m/e				217													
Well	Sample type	Lower Depth	APT ID	27αaR	29dbR	29daR	28αaS	29daS	28ββR	28ββS	28αaR	29αaS	29ββR	29ββS	29αaR	30αaS	30ββR
6608/11-3	SWC	1409.50	15866A	8.82e4	5.07e4	2.78e4	4.66e4	3.99e4	3.36e4	3.74e4	1.67e4	4.62e4	4.68e4	3.74e4	5.76e4	2.43e4	1.72e4
6608/11-3	DC	1410	15927	1.91e5	1.04e5	6.31e4	8.10e4	8.57e4	7.61e4	7.70e4	4.34e4	1.26e5	1.31e5	1.11e5	1.78e5	6.94e4	3.84e4
6608/11-3	DC	1420	15928	1.63e5	7.52e4	4.08e4	5.49e4	5.08e4	4.42e4	5.68e4	3.99e4	7.77e4	8.44e4	6.77e4	1.26e5	4.77e4	2.69e4
6608/11-3	DC	1469	15931B	1.65e5	8.35e4	4.55e4	2.84e4	4.33e4	6.83e4	8.98e4	3.89e4	5.94e4	1.05e5	8.26e4	9.17e4	4.00e4	2.29e4
6608/11-3	SWC	1558	15875B	5.52e5	2.27e5	1.11e5	1.09e5	1.21e5	2.77e5	3.04e5	1.55e5	2.58e5	4.55e5	3.56e5	2.80e5	1.69e5	4.88e4
6608/11-3	DC	1787	15940	6.90e5	1.82e6	2.23e6	0.00e0	7.19e5	8.17e6	3.21e6	5.23e6	0.00e0	5.39e6	5.14e6	9.42e6	0.00e0	0.00e0
6608/11-3	SWC	1836	15880	1.44e6	1.72e6	1.38e6	7.15e6	2.00e6	6.13e6	2.72e6	4.80e6	2.19e6	4.33e6	0.00e0	1.94e7	0.00e0	0.00e0
6608/11-3	Mud	750	15945	9.80e4	3.51e4	1.83e4	1.37e4	1.73e4	2.96e4	3.86e4	1.69e4	2.63e4	4.07e4	3.45e4	2.38e4	1.56e4	1.07e4
6608/11-3	Mud	1350	15946	7.07e4	2.55e4	1.22e4	8.50e3	1.34e4	2.11e4	2.47e4	1.33e4	1.73e4	2.52e4	2.19e4	1.81e4	1.04e4	7.24e3
6608/11-3	Mud	1450	15947	7.60e4	2.56e4	1.42e4	1.01e4	1.28e4	2.00e4	2.46e4	1.37e4	1.90e4	3.02e4	2.30e4	2.09e4	1.38e4	9.09e3

Table 12. continued, GCMS SIR of saturated compounds (peak height)

m/e				217		218							
Well	Sample type	Lower Depth	APT ID	30ββS	30αaR	27ββR	27ββS	28ββR	28ββS	29ββR	29ββS	30ββR	30ββS
6608/11-3	SWC	1409.50	15866A	0.00e0	1.53e4	4.69e4	3.61e4	3.81e4	4.54e4	6.29e4	5.71e4	0.00e0	0.00e0
6608/11-3	DC	1410	15927	0.00e0	3.53e4	7.89e4	5.21e4	9.23e4	9.82e4	1.68e5	1.55e5	2.54e4	3.15e4
6608/11-3	DC	1420	15928	0.00e0	2.64e4	6.57e4	4.13e4	6.22e4	7.46e4	1.06e5	9.71e4	0.00e0	0.00e0
6608/11-3	DC	1469	15931B	0.00e0	1.41e4	1.28e5	9.53e4	8.10e4	1.03e5	1.28e5	1.15e5	1.76e4	1.96e4
6608/11-3	SWC	1558	15875B	2.62e4	2.60e4	8.50e5	7.06e5	3.76e5	4.48e5	6.76e5	5.76e5	4.40e4	6.43e4
6608/11-3	DC	1787	15940	0.00e0	0.00e0	1.98e6	1.69e6	3.14e6	1.59e6	6.35e6	5.34e6	0.00e0	0.00e0
6608/11-3	SWC	1836	15880	0.00e0	0.00e0	1.27e6	4.62e5	1.80e6	1.17e6	3.34e6	2.17e6	0.00e0	0.00e0
6608/11-3	Mud	750	15945	8.20e3	7.15e3	6.88e4	5.78e4	4.31e4	4.64e4	6.19e4	6.04e4	1.13e4	1.26e4
6608/11-3	Mud	1350	15946	0.00e0	0.00e0	4.34e4	3.40e4	2.65e4	3.07e4	3.67e4	3.67e4	8.81e3	8.10e3
6608/11-3	Mud	1450	15947	5.41e3	0.00e0	4.20e4	3.38e4	2.56e4	3.15e4	4.05e4	3.72e4	9.09e3	9.02e3

Table 13. GCMS SIR of saturated compounds (amounts in ng/g)

m/e				177		191											
Well	Sample type	Lower Depth	APT ID	25nor28αβ	25nor30αβ	20/3	21/3	23/3	24/3	25/3R	25/3S	24/4	26/3R	26/3S	28/3R	28/3S	29/3R
6608/11-3	SWC	1409.50	15866A	5.35e1	0.00e0	7.10e1	1.21e2	2.73e2	1.14e2	3.53e1	5.75e1	3.12e2	3.75e1	3.50e1	3.80e1	1.30e1	3.95e1
6608/11-3	DC	1410	15927	3.64e2	4.89e2	5.24e2	6.87e2	1.03e3	4.73e2	1.78e2	3.39e2	1.56e3	1.80e2	1.90e2	4.23e2	8.01e1	2.28e2
6608/11-3	DC	1420	15928	2.98e2	4.39e2	4.77e2	5.72e2	9.23e2	4.58e2	1.85e2	4.30e2	1.27e3	1.76e2	1.75e2	0.00e0	1.03e2	1.83e2
6608/11-3	DC	1469	15931B	2.12e2	6.18e2	5.57e2	4.75e2	7.02e2	4.00e2	1.66e2	1.53e2	5.28e2	1.33e2	1.31e2	1.99e2	9.56e1	1.30e2
6608/11-3	SWC	1558	15875B	4.13e2	5.99e2	1.06e3	1.81e3	7.49e3	3.36e3	1.52e3	1.59e3	6.87e3	1.11e3	1.12e3	1.57e3	7.92e2	8.91e2
6608/11-3	DC	1787	15940	0.00e0	1.33e3	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0
6608/11-3	SWC	1836	15880	0.00e0	5.55e3	2.93e3	2.07e2	9.31e2	2.47e2	0.00e0	0.00e0	2.68e3	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0
6608/11-3	Mud	750	15945	0.00e0	0.00e0	1.69e1	1.47e1	2.16e1	1.21e1	6.31e0	5.65e0	1.99e1	5.88e0	5.16e0	6.49e0	4.65e0	6.84e0
6608/11-3	Mud	1350	15946	0.00e0	6.27e0	2.20e1	2.05e1	2.68e1	1.36e1	7.11e0	8.18e0	2.03e1	5.59e0	6.06e0	8.02e0	4.58e0	7.47e0
6608/11-3	Mud	1450	15947	0.00e0	9.79e0	2.31e1	2.02e1	2.56e1	1.29e1	6.50e0	6.94e0	2.04e1	6.54e0	5.56e0	8.67e0	5.48e0	1.16e1

Table 13. continued, GCMS SIR of saturated compounds (amounts in ng/g)

m/e				191													
Well	Sample type	Lower Depth	APT ID	29/3S	27Ts	27Tm	30/3R	30/3S	28αβ	25nor30αβ	29αβ	29Ts	30d	29βα	30O	30αβ	30βα
6608/11-3	SWC	1409.50	15866A	2.02e1	2.04e2	2.05e2	0.00e0	0.00e0	6.51e1	0.00e0	2.55e2	1.44e2	8.66e1	1.76e2	1.50e2	4.80e2	1.86e3
6608/11-3	DC	1410	15927	0.00e0	1.98e3	2.92e3	0.00e0	0.00e0	9.19e2	5.66e2	2.94e3	1.93e3	9.16e2	3.11e3	1.30e3	6.40e3	1.41e4
6608/11-3	DC	1420	15928	0.00e0	1.58e3	2.27e3	0.00e0	0.00e0	7.73e2	4.72e2	2.73e3	1.62e3	8.04e2	2.35e3	9.26e2	4.78e3	8.38e3
6608/11-3	DC	1469	15931B	1.09e2	9.38e2	1.14e3	9.73e1	1.90e2	5.37e2	8.52e2	1.85e3	7.30e2	3.78e2	6.12e2	0.00e0	2.36e3	8.58e2
6608/11-3	SWC	1558	15875B	8.72e2	4.92e3	9.62e3	8.11e2	3.08e3	3.37e3	8.21e2	2.41e4	3.70e3	7.03e2	3.00e3	0.00e0	1.75e4	2.19e3
6608/11-3	DC	1787	15940	0.00e0	0.00e0	6.97e3	0.00e0	0.00e0	3.80e3	2.05e3	8.44e3	0.00e0	0.00e0	1.50e4	0.00e0	2.15e4	7.90e3
6608/11-3	SWC	1836	15880	0.00e0	0.00e0	4.79e4	0.00e0	0.00e0	1.52e4	8.09e3	7.88e4	0.00e0	8.28e3	9.77e4	0.00e0	1.13e5	5.97e4
6608/11-3	Mud	750	15945	1.29e0	3.56e1	4.03e1	0.00e0	0.00e0	1.58e1	0.00e0	1.17e2	2.86e1	9.02e0	1.40e1	0.00e0	1.50e2	1.79e1
6608/11-3	Mud	1350	15946	5.99e0	3.42e1	4.82e1	0.00e0	0.00e0	2.25e1	9.05e0	1.30e2	3.60e1	8.81e0	2.73e1	0.00e0	1.74e2	2.98e1
6608/11-3	Mud	1450	15947	6.19e0	3.36e1	4.88e1	0.00e0	0.00e0	2.21e1	1.31e1	1.33e2	3.71e1	9.10e0	2.76e1	0.00e0	1.80e2	3.45e1

Table 13. continued, GCMS SIR of saturated compounds (amounts in ng/g)

m/e				191											217		
Well	Sample type	Lower Depth	APT ID	31αβS	31αβR	30G	32αβS	32αβR	33αβS	33αβR	34αβS	34αβR	35αβS	35αβR	21αα	21ββ	22αα
6608/11-3	SWC	1409.50	15866A	1.12e2	1.92e2	4.29e1	7.12e1	8.02e1	6.56e1	7.75e1	5.38e1	5.05e1	0.00e0	0.00e0	8.65e1	9.52e1	6.42e1
6608/11-3	DC	1410	15927	1.57e3	5.49e3	3.64e2	9.05e2	1.51e3	8.50e2	8.63e2	5.24e2	4.84e2	6.09e2	7.12e2	3.11e2	4.22e2	2.34e2
6608/11-3	DC	1420	15928	1.40e3	4.41e3	3.75e2	7.76e2	1.17e3	6.59e2	6.49e2	4.05e2	3.55e2	4.84e2	4.76e2	2.75e2	3.90e2	1.90e2
6608/11-3	DC	1469	15931B	8.48e2	1.39e3	2.07e2	4.86e2	4.56e2	3.26e2	2.13e2	2.04e2	1.38e2	1.71e2	1.20e2	3.16e2	3.29e2	2.33e2
6608/11-3	SWC	1558	15875B	5.67e3	5.56e3	8.78e2	2.49e3	1.96e3	1.24e3	7.94e2	5.88e2	4.02e2	4.36e2	3.07e2	8.17e2	2.88e3	6.24e2
6608/11-3	DC	1787	15940	8.01e2	0.00e0	0.00e0	6.86e2	2.02e3	0.00e0	0.00e0	5.87e2	9.11e2	0.00e0	0.00e0	0.00e0	7.01e2	0.00e0
6608/11-3	SWC	1836	15880	6.55e3	0.00e0	9.12e3	2.87e3	1.67e4	1.56e3	2.04e3	9.83e2	1.80e3	0.00e0	0.00e0	7.80e1	3.28e2	0.00e0
6608/11-3	Mud	750	15945	4.84e1	4.09e1	1.34e1	2.54e1	1.71e1	1.41e1	9.65e0	9.38e0	5.97e0	8.34e0	5.63e0	8.70e0	9.13e0	5.07e0
6608/11-3	Mud	1350	15946	5.36e1	1.19e2	1.99e1	2.46e1	2.01e1	1.68e1	1.07e1	9.23e0	7.01e0	9.24e0	7.05e0	8.88e0	9.47e0	5.11e0
6608/11-3	Mud	1450	15947	5.84e1	1.36e2	2.16e1	3.23e1	2.29e1	2.26e1	1.29e1	1.28e1	9.66e0	1.29e1	1.37e1	8.38e0	9.23e0	5.40e0

Table 13. continued, GCMS SIR of saturated compounds (amounts in ng/g)

m/e				217													
Well	Sample type	Lower Depth	APT ID	22ββ	27dbS	27dbR	27daR	27daS	28dbS#1	28dbS#2	28dbR#1	28dbR#2	28daR	27ααS	27ββR+29dbS	27ββS	28daS
6608/11-3	SWC	1409.50	15866A	6.46e1	4.45e1	3.02e1	1.29e1	1.38e1	4.94e1	5.41e1	1.78e1	5.12e1	2.66e1	2.63e1	6.76e1	1.98e1	2.06e1
6608/11-3	DC	1410	15927	2.51e2	3.49e2	2.19e2	1.01e2	1.36e2	3.08e2	2.97e2	1.08e2	2.28e2	1.79e2	2.25e2	5.30e2	1.26e2	1.28e2
6608/11-3	DC	1420	15928	2.58e2	3.47e2	2.21e2	1.02e2	1.31e2	2.76e2	2.98e2	8.74e1	1.98e2	1.71e2	2.21e2	4.82e2	1.21e2	1.04e2
6608/11-3	DC	1469	15931B	2.03e2	3.16e2	1.96e2	8.06e1	1.11e2	1.62e2	1.37e2	7.09e1	1.11e2	8.51e1	1.56e2	3.06e2	1.68e2	8.47e1
6608/11-3	SWC	1558	15875B	1.96e3	2.11e3	1.35e3	5.26e2	7.05e2	1.47e3	8.49e2	4.69e2	6.80e2	4.42e2	1.84e3	3.04e3	2.26e3	5.29e2
6608/11-3	DC	1787	15940	0.00e0	1.09e2	1.17e2	9.04e1	0.00e0	1.33e2	1.24e2	1.86e2	1.34e2	0.00e0	8.29e3	1.35e3	1.32e2	8.21e2
6608/11-3	SWC	1836	15880	3.40e2	1.95e2	3.30e2	0.00e0	0.00e0	3.14e2	3.56e2	0.00e0	0.00e0	0.00e0	7.62e3	2.57e3	2.88e2	2.40e3
6608/11-3	Mud	750	15945	6.06e0	1.95e1	1.14e1	5.23e0	6.30e0	9.34e0	7.39e0	5.12e0	5.46e0	4.08e0	8.68e0	1.93e1	1.03e1	3.63e0
6608/11-3	Mud	1350	15946	6.70e0	2.13e1	1.25e1	5.64e0	6.33e0	8.89e0	8.92e0	5.39e0	5.57e0	4.30e0	8.81e0	1.87e1	9.68e0	3.73e0
6608/11-3	Mud	1450	15947	6.21e0	1.77e1	1.07e1	3.85e0	5.81e0	8.10e0	7.97e0	4.77e0	5.88e0	4.14e0	8.60e0	1.81e1	9.93e0	3.39e0

Table 13. continued, GCMS SIR of saturated compounds (amounts in ng/g)

m/e				217													
Well	Sample type	Lower Depth	APT ID	27αaR	29dbR	29daR	28αaS	29daS	28ββR	28ββS	28αaR	29αaS	29ββR	29ββS	29αaR	30αaS	30ββR
6608/11-3	SWC	1409.50	15866A	8.00e1	4.60e1	2.52e1	4.23e1	3.62e1	3.05e1	3.39e1	1.52e1	4.19e1	4.25e1	3.39e1	5.22e1	2.20e1	1.56e1
6608/11-3	DC	1410	15927	6.95e2	3.79e2	2.30e2	2.95e2	3.12e2	2.77e2	2.80e2	1.58e2	4.58e2	4.77e2	4.03e2	6.49e2	2.53e2	1.40e2
6608/11-3	DC	1420	15928	7.46e2	3.44e2	1.86e2	2.51e2	2.32e2	2.02e2	2.60e2	1.82e2	3.55e2	3.86e2	3.09e2	5.76e2	2.18e2	1.23e2
6608/11-3	DC	1469	15931B	3.82e2	1.94e2	1.06e2	6.59e1	1.00e2	1.58e2	2.08e2	9.02e1	1.38e2	2.43e2	1.92e2	2.13e2	9.28e1	5.32e1
6608/11-3	SWC	1558	15875B	2.81e3	1.16e3	5.65e2	5.52e2	6.16e2	1.41e3	1.54e3	7.90e2	1.31e3	2.31e3	1.81e3	1.42e3	8.58e2	2.48e2
6608/11-3	DC	1787	15940	2.21e2	5.83e2	7.14e2	0.00e0	2.30e2	2.61e3	1.03e3	1.67e3	0.00e0	1.73e3	1.65e3	3.02e3	0.00e0	0.00e0
6608/11-3	SWC	1836	15880	1.24e3	1.48e3	1.19e3	6.16e3	1.73e3	5.29e3	2.34e3	4.14e3	1.89e3	3.73e3	0.00e0	1.67e4	0.00e0	0.00e0
6608/11-3	Mud	750	15945	2.87e1	1.03e1	5.36e0	4.00e0	5.06e0	8.68e0	1.13e1	4.96e0	7.72e0	1.19e1	1.01e1	6.98e0	4.58e0	3.14e0
6608/11-3	Mud	1350	15946	3.06e1	1.10e1	5.28e0	3.67e0	5.80e0	9.13e0	1.07e1	5.76e0	7.47e0	1.09e1	9.45e0	7.81e0	4.51e0	3.13e0
6608/11-3	Mud	1450	15947	3.12e1	1.05e1	5.86e0	4.17e0	5.28e0	8.25e0	1.01e1	5.64e0	7.82e0	1.24e1	9.47e0	8.62e0	5.68e0	3.74e0

Table 13. continued, GCMS SIR of saturated compounds (amounts in ng/g)

m/e				217		218							
Well	Sample type	Lower Depth	APT ID	30ββS	30αaR	27ββR	27ββS	28ββR	28ββS	29ββR	29ββS	30ββR	30ββS
6608/11-3	SWC	1409.50	15866A	0.00e0	1.39e1	4.25e1	3.28e1	3.45e1	4.12e1	5.71e1	5.18e1	0.00e0	0.00e0
6608/11-3	DC	1410	15927	0.00e0	1.28e2	2.87e2	1.90e2	3.36e2	3.58e2	6.10e2	5.66e2	9.24e1	1.15e2
6608/11-3	DC	1420	15928	0.00e0	1.20e2	3.00e2	1.89e2	2.84e2	3.41e2	4.82e2	4.44e2	0.00e0	0.00e0
6608/11-3	DC	1469	15931B	0.00e0	3.28e1	2.98e2	2.21e2	1.88e2	2.40e2	2.97e2	2.66e2	4.09e1	4.55e1
6608/11-3	SWC	1558	15875B	1.33e2	1.32e2	4.32e3	3.59e3	1.91e3	2.28e3	3.44e3	2.93e3	2.24e2	3.27e2
6608/11-3	DC	1787	15940	0.00e0	0.00e0	6.34e2	5.41e2	1.00e3	5.07e2	2.03e3	1.71e3	0.00e0	0.00e0
6608/11-3	SWC	1836	15880	0.00e0	0.00e0	1.09e3	3.98e2	1.55e3	1.01e3	2.88e3	1.87e3	0.00e0	0.00e0
6608/11-3	Mud	750	15945	2.40e0	2.10e0	2.02e1	1.70e1	1.26e1	1.36e1	1.82e1	1.77e1	3.31e0	3.68e0
6608/11-3	Mud	1350	15946	0.00e0	0.00e0	1.88e1	1.47e1	1.15e1	1.33e1	1.59e1	1.59e1	3.81e0	3.50e0
6608/11-3	Mud	1450	15947	2.22e0	0.00e0	1.73e1	1.39e1	1.05e1	1.29e1	1.66e1	1.53e1	3.74e0	3.71e0

Table 14. Isotopes of fractions, d13C (‰ PDB)

Well	Sample type	Lower Depth	APT ID	δ13C-Oil/EOM	δ13C-Sat	δ13C-Aro	δ13C-Pol	δ13C-Asp
6608/11-3	DC	1410	15927	-30.1	-32.5	**	-30.1	-29.9
6608/11-3	DC	1420	15928	*	-31.1	**	*	-28.5
6608/11-3	DC	1469	15931B	-30.3	-31.4	-29.9	-30.2	**
6608/11-3	SWC	1558	15875B	-29.9	-30.8	**	-29.9	**
6608/11-3	DC	1787	15940	-29.6	-34.6	-28.7	-29.9	-28.4
6608/11-3	SWC	1836	15880	-30.4	-37.3	-31.0	-30.2	-28.7

* Below detection limit.

** Not analysed, not enough material

Table 15. Vitrinite Reflectance

Well	Sample type	Lower Depth	APT ID	Sample prep.	%Lithology	%Ro	Std. dev.	No. of measurements	Quality rating	Overall quality	Comment
6608/11-3	DC	862	15922	bulk	sst/clyst	barren					
6608/11-3	DC	1160	15924	bulk	sst/clyst	barren					
6608/11-3	DC	1260	15925	bulk	sst/clyst	barren					
6608/11-3	DC	1370	15926	bulk	sst/clyst	0.27	0.04	15	-oo--o	M	
6608/11-3	SWC	1431.50	15867	bulk	sst/clyst	barren					See data sheet
6608/11-3	SWC	1499	15872	bulk	clyst/coal	0.28	0.02	24	oooooo	G	Staining
6608/11-3	SWC	1537	15874	bulk	clyst	0.25	0.03	22	oooooo	G	
6608/11-3	SWC	1608	15877	bulk	clyst	0.26	0.04	24	ooo-oo	G	
6608/11-3	SWC	1645	15878	bulk	clyst/coal	0.29	0.02	24	oooooo	G	Staining
6608/11-3	SWC	1728.50	15879	bulk	sst/clyst	barren					See data sheet
6608/11-3	SWC	1836	15880	bulk	clyst	0.33	0.05	23	ooo-oo	M/G	
6608/11-3	SWC	1877	15881	bulk	clyst	0.30	0.05	22	oooo-o	M	Staining
6608/11-3	SWC	1915	15882	bulk	clyst	0.36	0.03	4	-±o--o	P	
6608/11-3	SWC	1955	15885	bulk	clyst/sst	0.37	0.03	22	oooo-o	M/G	Staining
6608/11-3	COCH	1989.80	15889	bulk	clyst	0.37	0.04	6	-oo--o	P	Staining
6608/11-3	DC	2031	15944	bulk	clyst/sst	0.34	0.05	27	ooo--o	M	

Legend to Vitrinite reflectance data

Lithology code		Sample quality		Sample preparation	
sst	Sandstone	G	Good	HF	Sample treatment with hydrofluoric acid prior to analysis
slst	Siltstone	M	Moderate		
clyst	Claystone	P	Poor	Bulk	Sample treated as bulk rock
sh	Shale	st	Hydrocarbon staining		
lst	Limestone				
coal	Coal				

Sample description and measurement evaluation (perfect sample characterised as: oooooo)

Sign order	Parameter	Sign	Sign legend:
1	Abundance of vitrinite	-o	- May give too low vitrinite reflectance sample value
2	Identification of vitrinite	-o+	o Reliable vitrinite reflectance sample value
3	Type of vitrinite	-o+	+ May give too high vitrinite reflectance sample value
4	Vitrinite fragment size	-o	
5	Vitrinite surface quality	-o	
6	Abundance of pyrite	o+	

Experimental Procedures

All procedures follow NIGOGA, 4th Edition. Below are brief descriptions of procedures/analytical conditions.

Sample preparation
Cuttings samples are washed in water to remove mud. When oil based mud is used, soap (Zalo) is added to the sample and the sample is washed thoroughly in warm water to remove mud and soap.

Extraction
A Soxtec Tecator instrument is used. Thimbles are pre extracted in dichloromethane with 7% (vol/vol) methanol, 10 min boiling and 20 min rinsing. The crushed sample is weighed accurately in the pre extracted thimbles and boiled for 1 hour and rinsed for 2 hours in approximately 80 cc of dichloromethane with 7% (vol/vol) methanol. Copper blades activated in concentrated hydrochloric acid are added to the extraction cups to cause free sulphur to react with the copper. An aliquot of 10% of the extract is transferred to a pre weighed bottle and evaporated to dryness. The amount of extractable organic matter is calculated from the weight of this 10% aliquot.

Deasphaltening
The extract is evaporated almost to dryness before a small amount of dichloromethane (3 times the amount of EOM) is added. Then pentane is added in access (40 times the volume of EOM and dichloromethane). The solution is stored for at least 12 hours in a dark place before the solution is filtered or centrifuged and the weight of the asphaltenes measured.

Iatroscan
An Iatroscan MK-5 (TLC/FID Analyser) instrument is used. 2 µl of extract or diluted oil is spotted on Chromarod S-III rods before elution in hexane (25 min), toluene (8 min) and dichloromethane with 7 % methanol (vol/vol). The solvent is allowed to evaporate before the rods are placed into the next eluation chamber. Before running the rods in the analyser, the rods are heated for 90 sec. in a heating chamber at 60 °C.

MPLC
The MPLC is constructed as described by Radke et al. (1980). The system includes two HPLC pumps, sample injector, sample collector, RI-detector, UV-detector and two packed columns. The pre column is filled with Kieselgel 100, which is heated at 600 °C for 2 hours to deactivate it. The main column is a LiChroprep Si60, which is heated at 120 °C for 2 hours to make it water free.
Approximately 30 mg of deasphaltened oil or EOM diluted in 1 ml hexane is injected and separated into a saturated, an aromatic and a polar fraction.

TOC and Rock-Eval
A Rock-Eval 6 instrument is used. The analysis is performed in two steps, pyrolysis and oxidation, when TOC is measured. Jet-Rock 1 was run as every tenth sample and checked against the acceptable range given in NIGOGA.

Temperature programme
Pyrolysis: 300 °C (3 min.) - 25 °C/min. - 650 °C (0 min.)
Oxidation: 400 °C (3 min.) - 25 °C/min. - 850 °C (5 min.)

TEGC
A HP5890 II instrument with an MSSV injector and an FID is used. The column is a CP-Sil-5 CB-MS, length 25 m, i.d. 0.25 mm, film thickness 0.25 µm.

Throughout the thermal extraction the oven temperature remains at 330 °C. The sample tube is placed in the injector system and then broken. The released volatile products are collected in the cold trap for four minutes before being released into the GC column, whereupon the following temperature programme is run:

Initial temperature: 20 °C (5 min. from breaking of sample tube) – heating rate: 5 °C/min. – final holding temperature: 310 °C (13 min.)

PyGC
A HP5890 II instrument with an MSSV injector and an FID is used. The column is a CP-Sil-5 CB-MS, length 25 m, i.d. 0.25 mm, film thickness 0.25 µm.

The pyrolysis oven is preheated to 330 °C. The sample tube is placed in the injector system and then broken. The temperature is then increased to 600 °C at a rate of 25 °C/min. The pyrolysis products are collected in the cold trap for fourteen minutes before being released into the GC column, whereupon the following temperature programme is run:

Initial temperature: 20 °C (15 min. from breaking of sample tube) – heating rate: 5 °C/min. – final hold temperature: 310 °C (23 min.)

Density
An Anton Parr instrument is used. Air and destilled water is used to calibrate the instrument. All measurments are done at 15°C. NSO-1 is used as a reference sample, and is run in each series of density measurments.
API gravity is calculated from the density.

API Gravity (°) = 141.5/Density (g/cm^3) – 131.5

Topping
A rotavapor is used and ~ 1ml of oil is weighted accurately into a small round bottum flask. The oil is evaporated for 15 min at 90°C with the water pump turned to maximum. After the evaporation the oil is weighted again.
One aliquot of NSO-1 is run as a reference sample together with the topping series.

GC of saturated fraction
A HP5890 II instrument is used. The column is a CP-Sil-5 CB-MS, length 60 m, i.d. 0.25 mm, film thickness 0.25 µm. C20D42 is used as an internal standards.

Temperature programme
50 °C (1 min.) - 4 °C/min. - 310 °C (25 min.)

GC of aromatic fraction
A HP5890 instrument is used. The column is a CP-Sil-5 CB-MS, length 60 m, i.d. 0.25 mm, film thickness 0.25 µm.

Temperature programme
50 °C (1 min.) - 4 °C/min. - 310 °C (25 min.)

GCMS of saturated fractions
A Micromass ProSpec high resolution instrument is used. The instrument is tuned to a resolution of 3000 and data is acquired in Selected Ion Recording (SIR) mode. The column used is a 60 m CP-Sil-5 CB-MS with an i.d. of 0.25 mm and a film thickness 0.25 µm. d4-27ααR is used as internal standard when quantitative results are requested.

Temperature programme
50 °C (1 min.) - 20 °C/min. - 120 °C - 2 °C/min - 320 °C (20 min.)

Vitrinite reflectance analysis
The samples are prepared either as "whole rock" or are treated with hydrochloric and hydrofluoric acid prior to further preparation. The aim of the acid treatment is to avoid soft and expanding mineral phases in order to ensure good polishing quality. The whole rock or the kerogen resulting from the acid treatment is embedded in an epoxy resin to make briquettes, ground flat and polished using 0.25 micron diamond paste and magnesium oxide as the two final steps.

The analytical equipment used is a Zeiss MPM 03 photometer microscope equipped with an Epiplan-Neofluar 40/0.90 oil objective. The sensitive measuring spot is kept constant for all measurements at about 2.5 micron in diameter. The measurements are made through a green band pass filter (546 nm) and in oil immersion (refractive index 1.515 at 18 °C). The readings are made without a polarizer and using a stationary stage. This procedure is called measurement of random reflectance (%Rm). The photometer is calibrated daily against a standard of known reflectance (%Rm = 0.588) and routinely (daily) checked against two other standards of significant different reflectances (%Rm = 0.879 and 1.696). A deviation from these values of less than ± 0.01 and ± 0.02 respectively is considered acceptable. The calibration is routinely checked during the course of measurements at least every hour, and a deviation of less than ± 0.005 is considered acceptable.

For each sample at least 20 points are measured if possible, and quality ratings are given to various important aspects, which may affect the measurements. These aspects are abundance of vitrinite, uncertainties in the identification of indigenous vitrinite, type of vitrinite, particle size, particle surface quality and abundance of pyrite.

Stable carbon isotope analysis of fractions
The samples are dissolved in a known amount of dichloromethane, and 1-2 mg of the sample (or as much as possible) is then transferred to a glass container. The solvent is evaporated in an oven at 50 °C. CuO and some silver wires are added to the containers, which are then sealed by melting in a vacuum. The samples are then combusted in an oven at 550 °C for 1 hour (Sofer, 1980). The combustion products CO_2 and H_2O are separated at –80°C before the isotopic ratio is determined on a Finnigan MAT 251 mass spectrometer.

A standard (NSO-1, topped oil) is analysed for each 10^{th} sample. The $\delta^{13}C$ value obtained for this standard is –28.77 ‰ PDB. The variation in the isotopic values for the standard by repeated analysis over a period of five years is ± 0.13 ‰.