

3.3 FMT results

One FMT run was performed The FMT log was
run with sample chambers to collect a sample of the formation fluid if possible.

All the pressure points showed tight formation.

FMT results:

no	m MD RKB	m TVD RKB	Form Bar	Hyd. before Kpa	Hyd after Kpa	Pressure gradient g/cm ³	Permeability
1	3798.4	3795.3	-	64634	64533	-	Tight
2	3798.2	3795.3	-	64602	64504	-	Tight
3	3950	3946.9	-	67179	67068	-	Tight
4	4000.2	3996.9	-	68133	67973	-	Tight
5	4003.2	3999.9	-	68021	67928	-	Tight
6	4112	4108.6	-	70058	69955	-	Tight
7	4137.5	4134.1	-	70540	70436	-	Tight
8	4149.2	4145.8	-	70599	70510	-	Tight
9	4190.1	4186.7	-	71363	71264	-	Tight
10	4269.3	4265.8	-	72734	72638	-	Tight
11	4305.4	4301.8	-	73308	73170	-	Tight
12	4307.1	4303.5	-	73233	73180	-	Tight
13	3819.6	3816.6	-	64823	64775	-	Tight
14	3820	3817	-	64800	64759	-	Tight

Anchor Drilling Fluids											Anchor Drilling Fluids		
MUD VOLUME DISTRIBUTION SUMMARY													
WELL: 6406/12-2				AREA: HALTENBANKEN					RIG: DEEPSEA BERGEN				
Hole size	Hole From-to	Hole Length	Mud Built	Volume Received	Volume Backloaded	Dumped	Transferred to slop	Lost to Formation	Lost on Surface Equipment	Mud left between csg/csg plus left in hole	Cuttings Volume Drilled	Mud transf. to next Section	Mud type used for interval
inch	m	m	m3	m3	m3	m3	m3	m3	m3	m3	m3	m3	
36	353 - 422	69	320	0	0	146	0	0	0	0	45,3	174	BENTONITE/CMC EHV
26	422 - 917	495	341	0	0	496	0	0	0	0	169,6	19	BENTONITE/CMC EHV
12 1/4	917 - 2316	1399	417	138	296	145	0	0	42	91	106,4	0	ANCO 2000
8 1/2	2316 - 4367	2051	245	390	473	5	18	0	83	56	75,1	0	ANCO VERT
Total		4014	1323	528	769	792	18	0	125	147	396,3		
COMMENTS: 36" SECTION: Returns to seabed.													
26" SECTION: Returns to seabed.													
12 1/4" SECTION: Anco 2000 with KCl/polymer/glycol. Left 91 m3 behind casing. Received 138 m3 Anco 2000 from well 25/7-3. Transferred 296 m3 Anco 2000 to pontoontank.													
8 1/2" SECTION: Cuttings and slop was sent for destruction onshore. By accident was 5 m3 Anco Vert lost to sea, no other losses to sea.													
Total mud losses to sea:		834	m3										

Water base mud Properties, daily record

Well: 6406/12-2

Operator: STATOIL

Anchor Drilling Fluids

Rig: Deepsea Bergen

FSR no.	Date	Depth	M.W.	F.	F.Vis	VG-meter readings @								A.V.	P.V.	Y.P.	Gel	Gel	pH	API	HTHP	Cl-	Pf	Mf	Ca++	Solids	Oil	Sand	MBT	KCl	HGS	LGS
.	1995	.	Temp	.	.	600	300	200	100	60	30	6	3	.	.	.	10s	10 m	.	110°C x 1000	.	.	.	corr	.	.	.	kg/m3	kg/m3	kg/m3	kg/m3	
.	.	m	sg	oC	s/qt.	rpm	rpm	rpm	rpm	rpm	rpm	rpm	rpm	cP	cP	Pa	Pa	Pa	.	ml	ml	kg/m3	ml	ml	mg/l	vol%	vol%	vol%	kg/m3	kg/m3	kg/m3	kg/m3
36" Section: Bentonite Spud Mud.																																
1	01-09	421	1,03		100+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	02-09	427	1,06		100+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26" Section: Bentonite Spud Mud.																																
3	03-09	917	1,06		100+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	04-09	917	1,20		100+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5	05-09	917	1,20		100+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12 1/4" Section: Anco 2000 Mud																																
6	06-09	1011	1,36	25	48	45	31	25	17	13	10	7	6	23	14	8,5	3,0	7,0	8,5	2,6		61	0,00	1,0	360	10,1		0,4	9	116	377	29
7	07-09	1798	1,55	41	51	70	49	39	27	20	15	9	8	35	21	14,0	3,5	6,0	9,0	2,6		70	0,05	0,8	580	15,7		1,2	18	126	377	47
8	08-09	2316	1,55	47	55	84	57	48	35	27	20	11	9	42	27	15,0	4,0	8,0	8,5	2,8		72	0,00	0,8	620	16,4		0,8	37	122	596	56
9	09-09	2316	1,55	21	63	87	60	49	34	27	19	10	9	44	27	16,5	4,0	8,0	8,7	2,8		72	0,00	0,8	620	16,4		0,8	37	122	596	56
10	10-09	2316	1,55	21	62	87	60	49	34	27	19	10	9	44	27	16,5	4,0	8,0	8,7	2,8		72	0,00	0,8	600	16,4		0,8	37	123	596	56
11	11-09	2319	1,55	28	64	75	50	40	29	22	17	9	8	38	25	12,5	3,5	8,0	10,2	3,0		72	0,10	0,7	600	16,4		0,8	37	122	596	56

Oil base mud Properties, daily record

Well: 6406/12-2

Operator: STATOIL

Anchor Drilling Fluids

Rig: Deepsea Bergen

FSR no.	Date 1995	Depth m	M.W. sg	F. oC	F.Vis s/qt	VG-meter readings @ 50 C								A.V. cP	P.V. cP	Y.P. Pa	Gel 10s Pa	Gel 10 m Pa	ES volts	Mp	Excess Lime kg/m3	HTHP ml 150°C	CaCl2 kg/m3	WFS activity	Solids vol%	Oil vol%	Water vol%	Oil/water vol%	Sand vol%	OOC g/kg	HGS kg/m3	LGS kg/m3
						600 rpm	300 rpm	200 rpm	100 rpm	60 rpm	30 rpm	6 rpm	3 rpm																			
8 1/2" Section: Anco Vert OBM																																
11	11-09	2425	1,60	33	118	99	57	42	26	19	14	9	7	50	42	7,5	6,0	14,5	1040	4,0	14,8	2,0	138	0,93	23,5	60,0	16,5	78/22	0,5	857	68	
12	12-09	3170	1,70	37	115	130	74	53	32	24	16	9	8	65	56	9,0	6,5	13,5	810	3,5	13,0	1,8	111	0,94	28,0	54,0	18,0	75/25	0,7	904	159	
13	13-09	3460	1,70	32	105	118	68	49	31	22	15	9	7	59	50	9,0	5,5	13,0	900	3,0	11,1	1,8	147	0,92	28,0	55,5	16,5	77/23	0,6	86,3	906	154
14	14-09	3614	1,70	41	75	107	61	44	27	20	14	8	6	54	46	7,5	5,5	12,0	1400	3,1	11,5	1,9	147	0,92	27,5	56,0	16,5	77/23	0,6	110,5	930	127
15	15-09	3731	1,70	36	86	108	62	46	29	21	15	8	7	54	46	8,0	5,5	12,0	1200	2,8	10,4	2,0	152	0,91	28,0	56,0	16,0	78/22	0,5	117,8	909	152
16	16-09	3758	1,71	28	110	107	61	46	29	21	15	8	7	54	46	7,5	5,5	12,0	1100	2,7	10,0	2,0	152	0,91	28,0	56,0	16,0	78/22	0,5	144,0	935	136
17	17-09	3797	1,71	30	110	106	61	46	28	20	14	8	7	53	45	8,0	5,5	12,0	1060	2,4	8,9	2,0	152	0,91	28,0	56,0	16,0	78/22	0,7	106,7	935	136
18	18-09	3824	1,71	27	113	105	60	44	27	20	14	8	7	53	45	7,5	5,5	12,0	1100	2,4	8,9	1,8	152	0,91	28,0	56,0	16,0	78/22	0,7	136,2	935	136
19	19-09	3849	1,70	28	108	105	60	43	27	21	14	8	7	53	45	7,5	5,5	12,0	1100	2,0	7,4	1,6	156	0,91	28,0	56,5	15,5	78/22	0,5	107,6	912	150
20	20-09	3877	1,70	35	84	99	57	41	25	19	14	8	7	50	42	7,5	5,0	11,5	1100	2,0	7,4	2	137	0,93	28,0	56,5	15,5	78/22	0,5	117,0	915	150
21	21-09	3892	1,71	25	100	103	60	45	28	21	14	8	7	52	43	8,5	5,5	12,5	1200	1,8	6,7	2,0	137	0,93	27,5	57,0	15,5	79/21	0,5	95,0	965	106
22	22-09	3917	1,71	21	110	100	58	42	26	19	13	8	7	50	42	8,0	5,5	12,5	1200	2,6	9,6	2,2	166	0,90	28,0	57,0	15,5	78/22	0,5	116,7	936	134
23	23-09	3925	1,71	24	121	97	56	41	25	18	13	8	7	49	41	7,5	5,5	12,5	1200	2,7	9,9	2,2	147	0,92	28,0	57,0	15,5	78/22	0,5	122,9	939	135
24	24-09	3967	1,71	24	126	101	60	43	26	19	14	9	7	51	41	9,5	5,5	12,5	1200	2,8	10,4	2,2	157	0,91	28,0	57,5	14,5	80/20	0,6	119,5	945	131
25	25-09	3987	1,70	26	92	104	61	45	28	21	15	9	7	52	43	9,0	6,0	13,5	1200	2,2	8,1	2	142	0,92	28,0	57,0	15,0	79/21	0,8	119,5	918	149
26	26-09	3997	1,71	23	119	106	62	46	29	21	15	9	8	53	44	9,0	6,5	13,5	1200	2,9	10,7	2	137	0,93	28,0	56,5	15,5	78/22	0,8	116,7	942	134
27	27-09	4002	1,71	15	167	111	64	47	31	23	16	10	8	56	47	8,5	7,0	15,0	900	2,4	8,9	2,4	133	0,93	28,0	56,0	16,0	78/22	0,8	107,4	939	135
28	28-09	4007	1,71	23	150	113	64	48	32	22	16	10	8	57	49	7,5	7,0	16,0	1100	2,2	8,1	2,5	152	0,91	28,0	56,0	16,0	78/22	1,0	107,4	935	136
29	29-09	4061	1,70	49	95	105	62	48	30	23	16	11	7	53	43	9,5	6,0	15,5	1200	2,0	7,4	2	173	0,90	29,0	57,0	14,0	80/20	0,6	107,4	873	200
30	30-09	4123	1,70	49	91	118	69	52	33	25	17	11	7	59	49	10,0	6,5	16,5	1200	2,5	9,3	2	173	0,90	29,0	57,0	14,0	80/20	0,5	107,4	873	200
31	01-10	4169	1,71	49	88	114	67	50	31	23	16	12	7	57	47	10,0	7,0	17,0	1250	2,3	8,5	2,2	174	0,90	29,0	58,0	13,0	82/18	0,6	107,4	880	197
32	02-10	4212	1,70	44	94	115	67	49	30	22	15	10	6	58	48	9,5	7,0	17,0	1410	2,5	9,3	2,6	204	0,87	29,0	58,5	12,5	82/18	0,8	107,4	879	195
33	03-10	4214	1,70	25	156	123	73	54	34	26	18	11	8	62	50	11,5	7,0	17,0	1240	2,3	8,5	2,5	185	0,89	29,0	58,0	13,0	82/18	0,7	107,4	878	197
34	04-10	4227	1,71	42	96	120	70	51	32	23	16	11	8	60	50	10,0	7,5	17,0	1240	2,2	8,1	2,3	180	0,89	28,5	58,5	13,0	82/18	0,7	112,2	929	153
35	05-10	4277	1,70	49	100	131	76	56	35	26	18	9	8	66	55	10,5	7,0	19,0	1480	3,0	11,1	2	177	0,90	29,2	58,0	12,8	82/18	0,8	103,1	871	208
36	06-10	4343	1,71	48	101	141	82	61	37	28	19	10	8	71	59	11,5	7,0	20,0	1600	2,2	8,1	2,2	163	0,91	30	57,0	13,0	81/19	0,8	98,1	861	236
37	07-10	4367	1,71	40	135	136	80	60	37	28	19	10	8	68	56	12,0	6,5	19,5	1980	1,7	6,3	2,1	163	0,91	31	56,0	13,0	81/19	0,8	88,0	840	275
38	08-10	4367	1,72	20	na	152	90	67	41	31	21	11	9	76	62	14,0	7,0	21,0	2000	2,3	8,5	2,0	212	0,86	31	57,0	12,0	83/17	0,7	na	841	271
39	09-10	4367	1,72	18	na	154	92	68	42	31	21	12	10	77	62	15,0	7,0	21,0	1980	2,2	8,1	2,0	200	0,88	31	57,0	12,0	83/17	0,7	na	842	271
40	10-10	4367	1,72	26	na	158	94	70	43	34	22	12	10	79	64	15,0	7,0	21,0	1980	2,2	8,1	2,0	188	0,89	31	57,0	12,0	83/17	0,8	na	843	272
41	11-10	4367	1,72	19	na	153	89	66	42	32	21	11	9	77	64	12,5	7,0	21,0	2000	2,2	8,1	2,0	188	0,89	32	56,0	12,0	82/18	0,9	na	796	327

Oil base mud Properties, daily record

Well: 6406/12-2

Operator: STATOIL

Anchor Drilling Fluids

Rig: Deepsea Bergen

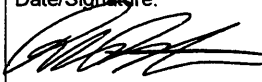
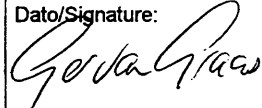
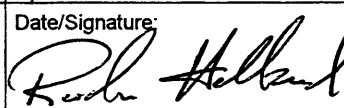
FSR no.	Date	Depth	M.W.	F.	F.Vis	VG-meter readings @ 50 C								A.V.	P.V.	Y.P.	Gel 10s	Gel 10 m	ES	Mp	Excess Lime	HTHP 150°C	CaCl2	WFS activity	Solids	Oil	Water	Oil/water	Sand	OOO	HGS	LGS
•	•	m	sg	oC	s/qt.	600 rpm	300 rpm	200 rpm	100 rpm	60 rpm	30 rpm	6 rpm	3 rpm	cP	cP	Pa	Pa	Pa	volts	•	kg/m3	ml	kg/m3	vol%	vol%	vol%	vol%	vol%	g/kg	kg/m3	kg/m3	
8 1/2" Section: Anco Vert OBM																																
42	12-10	3800	1,45	15	na	220	133	101	65	48	33	17	14	110	87	23,0	17,0	51,0	400	1,7	6,3	na	100	0,95	19	55,0	26,0	68/32	na	na	621	97
43	13-10	3800	1,71	16	150	125	70	51	31	23	15	8	7	63	55	7,5	4,0	8,0	700	1,4	5,2	na	113	0,94	31	50,0	19,0	72/28	0,5	na	928	125
44	14-10	3800	1,70	10	140	155	92	77	49	34	25	12	10	78	63	14,5	7,0	15,0	1100	2,0	7,4	na	113	0,94	31	50,0	19,0	72/28	0,5	na	902	141
45	15-10	2100	1,61	10	120	103	59	45	26	18	12	5	4	52	44	7,5	3,0	5,5	680	1,9	7,0	na	102	0,95	26,5	55,5	18,0	76/24	0,5	na	739	223
46	16-10	0	1,61	10	128	105	59	45	26	18	12	5	4	53	46	6,5	3,0	5,5	620	1,9	7,0	na	111	0,9	26,5	55,5	18,0	76/24	0,5	na	738	222
47	17-10	0	0,61	10	128	105	59	45	26	18	12	5	4	53	46	6,5	3,0	5,5	620	1,9	7,0	na	111	0,9	26,5	55,5	18,0	76/24	0,5	na	738	222

Title: Geochemical evaluation of well 6406/12-2		
Document no.: LTEK-PE0996	Contract no./project no.:	Filing no.:

Classification:	Distribution: PL157, PARTNERS + NPD, LTEK
-----------------	---

Distribution date: 28.3.96	Rev. date:	Rev. no.:	Copy no.:
--------------------------------------	------------	-----------	-----------

Author(s)/Source(s): Richard Patience Geolab Nor IFE	
Subjects:	<div style="border: 2px solid black; padding: 5px; width: fit-content; margin: auto;"> <p>BA 96-0431-1 19 APR. 1996 REGISTRERT OLJEDIREKTORATET</p> </div>
Remarks: See summary on p. i	
Valid from:	Updated:
Responsible publisher: LTEK/PE	Authority to approve deviations: LTEK-PE

Techn. responsible: LTEK-PE	Name: R. PATIENCE	Date/Signature:  21/3/96
Responsible:	Name:	Date/Signature:
Recommended: LTEK/PE	Name: G. VAN GRAAS	Date/Signature:  21/3/96
Approved: LTEK-PE	Name: R. HELLAND	Date/Signature:  22.3.96

1 Introduction

This report presents the results of a standard geochemical evaluation of well 6406/12-2, Haltenbanken. The well was drilled using Anco 2000 with 5% glycol in the 12 1/4" hole (906m MD RKB to 2308m RKB) and an oil-based mud system in the 8 1/2" hole (2308m RKB to TD at 4367m RKB), and was classified as dry. Weak fluorescence was reported in occasional core samples from 3735 to 4003 m MD RKB. Cores were taken using the Baker Hughes gel coring system. Geochemical analyses are restricted to the core samples with the exception of vitrinite reflectance measurements which were obtained at regular intervals throughout the well.

The aims of this project were to evaluate the source rock potential and type of the cored interval, to determine the thermal maturity profile for the well and to document the efficacy of the gel coring system in preventing penetration by the oil-based mud.

Mudrock lithology referred to here follows that given in the geochemical data report ("siltstone") (Appendix 2) for convenience, rather than that in the Core Descriptions ("claystone") (Appendix 1). This is in order to facilitate location of the relevant samples and associated data in Appendix 2, and is not meant to indicate that this lithological description is correct.

A total of 27 cuttings samples and 17 core samples were analysed according to the following analytical programme :

ANALYSES	NUMBER OF SAMPLES		
	cuttings	core	total
TOC		17	17
Rock Eval pyrolysis		17 [#]	17 [#]
Vitrinite reflectance	27	2*	29
Kerogen description		14	14
Thermal extraction & pyrolysis GC		16	16
Solvent extraction/asph. precipitation		14	14
Iatroscan separation		14	14
MPLC separation		14	14
GC whole extract		14	14
GC saturates		14	14
GC aromatics		14	14
GC-MS saturates/whole extract		14	14
GC-MS aromatics		14	14
δ ¹³ C of kerogens, whole extracts and fractions		14	14

3 samples also re-analysed immediately after crushing

* from same depths as two of the plugs for other analyses.

The core plugs for TOC and THA analysis included 12 centre portions (two of which were further subdivided into sandstone and siltstone lithologies, making 14 samples in total) and two offcuts ("ende avkapp") (one of which was subdivided into the two lithologies) from plugs drilled laterally through the unslabbed core. This was in order to investigate how far the mud penetrated into the

centre of the core. Only the 14 centre portions were analysed further (so-called follow-up analyses) after initial TOC and Rock Eval, with the exception of thermal extract- and pyrolysis-GC, where two offcuts were also included.

In addition, three of the centre portions were re-analysed by Rock Eval pyrolysis immediately after crushing, in order to investigate the possible effect of storing crushed samples for a period of time prior to analysis, and a sample of the gel coating the core was analysed by thermal extract-GC and GCMS.

The analytical work was performed in accordance with the guidelines given in "The Norwegian Industry Guide to Organic Geochemical Analyses (1993)". The analyses were carried out by Geolab Nor, with the exception of vitrinite reflectance (IFE). Because of the extensive contamination of the cuttings by the oil-based mud, the samples were analysed both prior and subsequent to solvent extraction.

TD:	4367
KB:	23 m
WATER DEPTH:	334 m

<u>CASING</u>	<u>m MD RKB</u>
30"	418
20"	906
9 5/8"	2308

<u>CORED INTERVALS</u>	<u>Driller's depth</u>	<u>Logger's depth</u>
	<u>mRKB</u>	<u>mRKB</u>
Core # 1	3731-3758	3732.4-3759.4
Core # 2	3797-3824	3799.4-3826.4

LTEK-PE0996 2

TABLE 1. BIOMARKER RATIOS CALCULATED FROM RAW DATA IN APPENDIX 2

Well	Depth mRKB	Sample type	Lithology	28ab/H	H/S	ppmH	ppmS	3R/H	4R/H	35/34H	29/30H	Dem/H	O/H	G/H
6406/12-2	3731.6	core-plug	sltst	0.019	7.31			0.14	0.07	0.73	0.35	0.02	0.02	0.01
6406/12-2	3733.53	core-plug	sltst	0.019	6.84			0.16	0.07	0.78	0.35	0.02	0.02	0.02
6406/12-2	3735.67	core-plug	sltst	0.019	6.13			0.14	0.07	0.75	0.35	0.02	0.02	
6406/12-2	3738.17	core-plug	sltst	0.024	5.95			0.13	0.07	0.80	0.33	0.03	0.03	0.00
6406/12-2	3741.78	core-plug	sltst	0.018	5.12			0.14	0.08	0.81	0.33	0.02	0.02	0.01
6406/12-2	3744.18	core-plug	sltst	0.016	5.13			0.15	0.10	0.93	0.33	0.02	0.02	0.01
6406/12-2	3747.11	core-plug	sltst	0.016	5.18			0.16	0.09	0.96	0.32	0.02	0.02	
6406/12-2	3750.63	core-plug	sltst	0.014	6.22			0.16	0.11	1.03	0.32	0.02	0.02	0.02
6406/12-2	3753.42	core-plug	sltst	0.016	4.41			0.17	0.11	1.17	0.34	0.02	0.02	0.00
6406/12-2	3755.84	core-plug	sltst	0.014	6.22			0.16	0.10	1.06	0.30	0.02	0.02	0.01
6406/12-2	3810.8	core-plug	sltst	0.031	11.22			0.18	0.09	0.93	0.35	0.03	0.03	0.00
6406/12-2	3810.8	core-plug	sst	0.015	7.07			0.29	0.08	0.91	0.37	0.02	0.02	0.01
6406/12-2	3813.58	core-plug	sltst	0.035	4.59			0.25	0.09	0.95	0.37	0.03	0.03	0.01
6406/12-2	3813.58	core-plug	sst	0.031	4.32			0.22	0.07	0.97	0.35	0.03	0.03	0.02

Derivation of biomarker ratios reported in Table 1

<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
Ts/Tm	$27Ts / 27Tm$	191
TtX	$30d / 29\beta\alpha$	191
30D/H	$30d / 30\alpha\beta$	191
29/30H	$29\alpha\beta / 30\alpha\beta$	191
30 $\alpha\beta$	$30\alpha\beta / (30\alpha\beta + 30\beta\alpha)$	191
28 $\alpha\beta$ /H	$28\alpha\beta / 30\alpha\beta$	191
3R/H	$(23/3) / 30\alpha\beta$	191
4R/H	$(24/4) / 30\alpha\beta$	191
35/34H	$(35\alpha\beta R + 35\alpha\beta S) / (34\alpha\beta R + 34\alpha\beta S)$	191
Dem/H	$25nor30\alpha\beta / 30\alpha\beta$	191
O/H	$30O / 30\alpha\beta$	191
G/H	$30G / 30\alpha\beta$	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
$\beta\beta$	$(29\beta\beta R + 29\beta\beta S) / (29\beta\beta R + 29\beta\beta S + 29\alpha\alpha R + 29\alpha\alpha S)$	217
%C27	$100 * (27\beta\beta R + 27\beta\beta S) / (27\beta\beta R + 27\beta\beta S + 28\beta\beta R + 28\beta\beta S + 29\beta\beta R + 29\beta\beta S)$	218
%C28	$100 * (28\beta\beta R + 28\beta\beta S) / (27\beta\beta R + 27\beta\beta S + 28\beta\beta R + 28\beta\beta S + 29\beta\beta R + 29\beta\beta S)$	218
%C29	$100 * (29\beta\beta R + 29\beta\beta S) / (27\beta\beta R + 27\beta\beta S + 28\beta\beta R + 28\beta\beta S + 29\beta\beta R + 29\beta\beta S)$	218
C30/st	$(30\beta\beta R + 30\beta\beta S) / (27\beta\beta R + 27\beta\beta S + 28\beta\beta R + 28\beta\beta S + 29\beta\beta R + 29\beta\beta S)$	218
Dia/reg	$(27d\beta R + 27d\beta S) / (27\alpha\alpha R + 27\alpha\alpha S)$	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
H/S	$\text{Intensities}(27Ts + 27Tm + 29\alpha\beta + 29\beta\alpha + 30\alpha\beta + 30\beta\alpha + 31\alpha\beta S + 31\alpha\beta R + 32\alpha\beta S + 32\alpha\beta R + 33\alpha\beta S + 33\alpha\beta R + 34\alpha\beta S + 34\alpha\beta R + 35\alpha\beta S + 35\alpha\beta R) / \text{Intensities}(27\beta\beta R + 27\beta\beta S + 28\beta\beta R + 28\beta\beta S + 29\beta\beta R + 29\beta\beta S)$	

* 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 (TtX)	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

REPORT:

DATA REPORT
Coring System Test, NOCS 6406/12-2

CLIENTS:

Statoil

**RESPONSIBLE
SCIENTIST:**

Ian L. Ferriday

**RESPONSIBLE
TECHNICIAN:**

Anne Reitan Talukder

DATE: 25.01.96

GEOLAB PROJECT: 66239

CLIENTS REF.: DTJ 020034

Table 1: Analytical Program

<u>Analysis type</u>	<u>No of samples</u>	<u>Tables</u>
Lithology description	14	2
TOC	17	4
Rock-Eval pyrolysis	20	4
Thermal extraction GC (GHM, S ₁)	17	-
Pyrolysis GC (GHM, S ₂)	16	5
Iatroscan TLC Separation	14	7
Soxtec Extraction of organic matter	15	8a
MPLC separation	14	8b-d
EOM GC	15	-
Saturated hydrocarbon GC	14	9
Aromatic hydrocarbon GC	14	10a-b
Vitrinite reflectance	0	-
Visual kerogen microscopy	14	6
Isotope composition C ₁₅ + fractions and kerogen	14	11a-b
GC - MS of saturated and aromatic HC	14	12a-k
Thermal Extraction GC-MS	1	

Table 2 : Lithology description for well NOCS 6406/12-2

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int Cvd	TOC%	%	Lithology description			
3731.16	swc					0012
	2.62	100	Sltst	:	dsk brn	0012-1L
3733.53	swc				Ende avkapp	0014
	3.13	100	Sltst	:	dsk brn	0014-1L
3733.53	swc					0013
	3.10	100	Sltst	:	dsk brn	0013-1L
3735.67	swc					0015
	2.04	100	Sltst	:	dsk brn	0015-1L
3738.17	swc					0016
	2.79	100	Sltst	:	dsk brn to brn blk	0016-1L
3741.78	swc					0017
	2.59	100	Sltst	:	dsk brn to brn blk	0017-1L
3744.18	swc					0018
	3.05	100	Sltst	:	dsk brn	0018-1L
3747.11	swc					0019
	1.86	100	Sltst	:	dsk brn	0019-1L
3750.63	swc					0020
	2.69	100	Sltst	:	dsk brn	0020-1L

Table 2 : Lithology description for well NOCS 6406/12-2

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
3753.42	swc					0021
	2.05	100	Sltst	: dsk brn		0021-1L
3755.84	swc					0022
	3.44	100	Sltst	: dsk brn		0022-1L
3810.80	swc					0023
	3.23	70	Sltst	: dsk brn, s		0023-1L
	0.52	30	S/Sst	: lt gy		0023-2L
3810.80	swc			Ende avkapp		0024
	3.43	65	Sltst	: dsk brn, s		0024-1L
	0.47	35	S/Sst	: lt gy		0024-2L
3813.58	swc					0025
	0.80	55	S/Sst	: lt gy		0025-2L
	3.35	45	Sltst	: dsk brn, s		0025-1L

Table 4a: Rock-Eval table for well NOCS 6406/12-2

Depth unit of measure: m

Depth	Typ	Lithology	S1	S2	S3	S2/S3	TOC	HI	OI	PP	PI	Tmax	Sample
3731.16	swc	Sltst : dsk brn	4.14	10.73	0.15	71.53	2.62	410	6	14.9	0.28	440	0012-1L
3733.53	swc	Sltst : dsk brn .. Ende avkapp	4.13	13.99	0.39	35.87	3.13	447	12	18.1	0.23	441	0014-1L
3733.53	swc	Sltst : dsk brn	3.68	13.69	0.30	45.63	3.10	442	10	17.4	0.21	442	0013-1L
3735.67	swc	Sltst : dsk brn	3.29	6.68	0.24	27.83	2.04	327	12	10.0	0.33	440	0015-1L
3738.17	swc	Sltst : dsk brn to brn blk	3.71	9.09	0.44	20.66	2.79	326	16	12.8	0.29	442	0016-1L
3741.78	swc	Sltst : dsk brn to brn blk	3.60	8.08	0.45	17.96	2.59	312	17	11.7	0.31	443	0017-1L
3744.18	swc	Sltst : dsk brn	4.04	10.94	0.32	34.19	3.05	359	10	15.0	0.27	442	0018-1L
3747.11	swc	Sltst : dsk brn	3.83	5.95	0.32	18.59	1.86	320	17	9.8	0.39	440	0019-1L
3750.63	swc	Sltst : dsk brn	3.34	8.44	0.30	28.13	2.69	314	11	11.8	0.28	442	0020-1L
3753.42	swc	Sltst : dsk brn	2.76	6.74	0.33	20.42	2.05	329	16	9.5	0.29	442	0021-1L
3755.84	swc	Sltst : dsk brn	3.50	12.08	0.37	32.65	3.44	351	11	15.6	0.22	440	0022-1L
3810.80	swc	Sltst : dsk brn	1.60	11.24	0.43	26.14	3.23	348	13	12.8	0.12	437	0023-1L
3810.80	swc	S/Sst : lt gy	1.92	0.83	0.48	1.73	0.52	160	92	2.7	0.70	442	0023-2L
3810.80	swc	Sltst : dsk brn Ende avkapp	1.53	12.48	0.48	26.00	3.43	364	14	14.0	0.11	437	0024-1L
3810.80	swc	S/Sst : lt gy Ende avkapp	1.96	1.01	0.44	2.30	0.47	215	94	3.0	0.66	440	0024-2L
3813.58	swc	Sltst : dsk brn	1.58	11.13	0.41	27.15	3.35	332	12	12.7	0.12	438	0025-1L

Table 4a: Rock-Eval table for well NOCS 6406/12-2

Depth unit of measure: m

Depth	Typ	Lithology	S1	S2	S3	S2/S3	TOC	HI	OI	PP	PI	Tmax	Sample
3813.58	swc	S/Sst : lt gy	4.08	1.72	0.31	5.55	0.80	215	39	5.8	0.70	438	0025-2L
3731.16	swc	Sltst : pl brn	3.49	8.03	0.46	17.46	-	-	-	11.5	0.30	443	0060-1L
3733.53	swc	Sltst : pl brn	3.62	12.65	0.19	66.58	-	-	-	16.3	0.22	446	0061-1L
3755.84	swc	Sltst : pl brn	3.04	11.31	0.14	80.79	-	-	-	14.4	0.21	445	0062-1L

Table 4b: Rock-Eval table for well RE, STD

Depth unit of measure: m

Depth	Typ	Lithology	S1	S2	S3	S2/S3	TOC	HI	OI	PP	PI	Tmax	Sample
1.00	std	bulk	0.41	18.85	2.22	8.49	-	-	-	19.3	0.02	421	0058-0B
2.00	std	bulk	0.42	18.51	2.21	8.38	-	-	-	18.9	0.02	420	0059-0B

Table 5 : Pyrolysis GC Data (S2 peak) as Percentage of Total Area for Well NOCS 6406/12-2

Depth unit of measure: m

Depth	Typ	Lithology	C1	C2-C5	C6-C14	C15+	S2 from Rock-Eval	Sample
3731.16	swc	Sltst : dsk brn	5.63	18.60	37.42	38.35	-	0012-1L
3733.53	swc	Sltst : dsk brn Ende avkapp	6.17	20.02	37.25	36.56	-	0014-1L
3733.53	swc	Sltst : dsk brn	5.96	18.80	37.38	37.86	-	0013-1L
3735.67	swc	Sltst : dsk brn	6.18	21.22	38.85	33.75	-	0015-1L
3738.17	swc	Sltst : dsk brn to brn blk	5.58	17.82	37.65	38.95	-	0016-1L
3741.78	swc	Sltst : dsk brn to brn blk	6.23	18.60	38.77	36.40	-	0017-1L
3744.18	swc	Sltst : dsk brn	6.35	18.85	38.02	36.78	-	0018-1L
3747.11	swc	Sltst : dsk brn	6.12	18.10	39.19	36.60	-	0019-1L
3750.63	swc	Sltst : dsk brn	6.83	20.44	38.62	34.11	-	0020-1L
3753.42	swc	Sltst : dsk brn	6.83	17.84	38.12	37.21	-	0021-1L
3755.84	swc	Sltst : dsk brn	6.74	21.50	38.31	33.45	-	0022-1L
3810.80	swc	Sltst : dsk brn	7.71	20.27	35.72	36.30	-	0023-1L
3810.80	swc	S/Sst : lt gy	6.54	27.01	36.93	29.52	-	0023-2L
3810.80	swc	Sltst : dsk brn Ende avkapp	6.69	17.81	35.90	39.60	-	0024-1L
3813.58	swc	Sltst : dsk brn	6.78	17.20	36.53	39.50	-	0025-1L
3813.58	swc	S/Sst : lt gy	7.49	24.71	39.01	28.79	-	0025-2L

Table 6: Visual Kerogen Composition Data: NOCS 6406/12-2

Depth Units: m

Depth	Spl	Lith	Amorphous			Algal/Phytoplankton						Herbaceous				Woody				Coaly			SCI		
			AM%	FA	HA	AP%	Cy	Ta	Bo	Di	De	HE%	SP	Cu	De	WO%	FL	NF	De	CO%	FS	De			
3731.16	swc	Sltst	45	*	*	Tr	*							25	**	*	*	15		**	*	15	**	*	6.0-6.5
3733.53	swc	Sltst	60	*	*	Tr	*							20	**	*	*	5		**	*	15	**	*	6.0-6.5
3735.67	swc	Sltst	40	*	*	Tr	*		*					25	**	*	*	15		**	*	20	**	*	6.0
3738.17	swc	Sltst	55	*	*	Tr	*		*					25	**	*	*	5		**	*	15	**	*	6.0
3741.78	swc	Sltst	30	*	*	Tr	*		*					30	**	*	*	10		**	*	30	**	*	6.5?
3744.18	swc	Sltst	60	*	*	Tr	*		*					10	*	*	*	10		**	*	20	**	*	6.0-6.5
3747.11	swc	Sltst	60	*	*	Tr	*		*					10	*	*	*	15		**	*	15	**	*	6.5
3750.63	swc	Sltst	65	*	*	Tr	*		*					10	*	**	*	10	*	**	*	15	**	*	6.5?
3753.42	swc	Sltst	40	*	*	Tr	*		*					20	*	**	*	30	*	**	*	10	**	*	6.5
3755.84	swc	Sltst	75	*	*	Tr	*		*					5	*	*	*	10	*	*	**	10	*	**	6.5-7.0?

Table 6 (Contd): Visual Kerogen Composition Data: NOCS 6406/12-2

Depth Units: m

Depth	Spl	Lith	Amorphous			Algal/Phytoplankton					Herbaceous				Woody				Coaly			SCI			
			AM%	FA	HA	AP%	Cy	Ta	Bo	Di	De	HE%	SP	Cu	De	WO%	FL	NF	De	CO%	FS		De		
3810.80	swc	Sltst	35	*	*	Tr	*			*				30	*	**	*	15	*	*	*	20	*	*	6.0-6.5
3810.80	swc	S/Sst	50	*	*	Tr	*							Tr	*	*	**	Tr		*	**	50	*	**	6.5?
3813.58	swc	Sltst	35	*	*	Tr	*			*				30	*	**	*	15	*	*	*	20	*	*	6.0-6.5
3813.58	swc	S/Sst	70	*		Tr	*							10	*	*	**	10		*	**	10	*	**	6.0-6.5

Table 7A: Results of TLC-FID analysis: Absolute yields in mg/g rock for well NOCS 6406/12-2

Depth unit of measure: m

<u>Depth</u>	<u>S Tp</u>	<u>F Tp</u>	<u>Lithology</u>	<u>EOM weighed</u>	<u>Sat HC</u>	<u>Aro HC</u>	<u>Resins</u>	<u>Asp</u>	<u>Tot HC</u>	<u>Tot Pol</u>	<u>EOM calcul.</u>	<u>Sample</u>
3731.16	ccp	L	SILTSTONE	7.73	3.79	2.17	1.55	1.08	5.96	2.64	8.59	0012-1L
3733.53	ccp	L	SILTSTONE	5.21	2.18	2.39	1.88	0.50	4.58	2.38	6.96	0013-1L
3735.67	ccp	L	SILTSTONE	7.00	3.28	2.89	1.53	0.83	6.16	2.36	8.53	0015-1L
3738.17	ccp	L	SILTSTONE	7.39	2.72	3.71	1.64	1.28	6.43	2.93	9.36	0016-1L
3741.78	ccp	L	SILTSTONE	6.81	2.93	3.04	1.79	0.78	5.97	2.57	8.54	0017-1L
3744.18	ccp	L	SILTSTONE	7.94	2.80	3.12	1.87	1.39	5.92	3.26	9.18	0018-1L
3747.11	ccp	L	SILTSTONE	7.02	2.98	2.79	1.73	0.65	5.78	2.38	8.15	0019-1L
3750.63	ccp	L	SILTSTONE	4.29	1.66	2.24	1.14	0.59	3.90	1.72	5.62	0020-1L
3753.42	ccp	L	SILTSTONE	5.52	1.57	3.02	1.38	0.71	4.59	2.09	6.68	0021-1L
3755.84	ccp	L	SILTSTONE	7.20	1.87	3.77	1.72	1.27	5.64	2.99	8.63	0022-1L
3810.80	ccp	L	SILTSTONE	2.94	0.43	0.99	0.33	1.43	1.42	1.76	3.17	0023-1L
3810.80	ccp	L	SANDSTONE/SAND	2.76	2.03	0.29	0.53	0.27	2.32	0.80	3.12	0023-2L
3813.58	ccp	L	SILTSTONE	3.02	1.02	0.91	0.50	1.16	1.94	1.66	3.59	0025-1L
3813.58	ccp	L	SANDSTONE/SAND	6.62	4.31	1.45	1.13	0.72	5.76	1.84	7.61	0025-2L

Table 7B: Results of TLC-FID analysis: Rel. percentages of sep. fractions for well NOCS 6406/12-2

Depth unit of measure: m

<u>Depth</u>	<u>Typ</u>	<u>Lithology</u>	<u>Sat HC</u>	<u>Aro HC</u>	<u>Resins</u>	<u>Asp</u>	<u>Tot HC</u>	<u>Tot Pol</u>	<u>Sample</u>
3731.16	ccp	Sltst	43.39	24.79	17.80	14.02	68.18	31.82	0012-1L
3733.53	ccp	Sltst	30.56	33.48	26.27	9.69	64.04	35.96	0013-1L
3735.67	ccp	Sltst	37.51	33.08	17.52	11.89	70.59	29.41	0015-1L
3738.17	ccp	Sltst	27.83	38.00	16.83	17.34	65.83	34.17	0016-1L
3741.78	ccp	Sltst	33.40	34.71	20.43	11.46	68.11	31.89	0017-1L
3744.18	ccp	Sltst	29.67	33.00	19.83	17.50	62.67	37.33	0018-1L
3747.11	ccp	Sltst	36.09	33.76	20.95	9.19	69.86	30.14	0019-1L
3750.63	ccp	Sltst	28.45	38.41	19.45	13.69	66.85	33.15	0020-1L
3753.42	ccp	Sltst	22.95	44.03	20.17	12.85	66.98	33.02	0021-1L
3755.84	ccp	Sltst	20.92	42.19	19.24	17.65	63.11	36.89	0022-1L
3810.80	ccp	Sltst	12.59	29.20	9.70	48.51	41.79	58.21	0023-1L
3810.80	ccp	S/Sst	64.17	9.15	16.76	9.92	73.32	26.68	0023-2L
3813.58	ccp	Sltst	25.87	23.11	12.66	38.35	48.99	51.01	0025-1L
3813.58	ccp	S/Sst	55.82	18.77	14.57	10.83	74.60	25.40	0025-2L

Table 8 a: Weight of EOM and Chromatographic Fraction for well NOCS 6406/12-2

Depth unit of measure: m

Depth	Typ	Lithology	Rock Extracted (g)	EOM (mg)	Sat (mg)	Aro (mg)	Asph (mg)	NSO (mg)	HC (mg)	Non-HC (mg)	TOC (e) (%)	Sample
3731.16	swc	Sltst : dsk brn	7.2	56.0	25.1	15.4	7.8	7.6	40.5	15.5	2.20	0012-1L
3733.53	swc	Sltst : dsk brn	10.1	52.8	25.1	15.7	5.1	7.0	40.7	12.1	3.27	0013-1L
3735.67	swc	Sltst : dsk brn	10.3	72.0	42.1	16.5	8.6	4.8	58.7	13.4	2.23	0015-1L
3738.17	swc	Sltst : dsk brn to brn blk	10.4	77.2	32.3	23.6	13.4	7.9	55.9	21.3	2.83	0016-1L
3741.78	swc	Sltst : dsk brn to brn blk	9.6	65.0	33.9	17.0	7.4	6.7	50.9	14.1	2.45	0017-1L
3744.18	swc	Sltst : dsk brn	10.1	80.6	39.7	18.0	14.1	8.8	57.7	22.9	2.94	0018-1L
3747.11	swc	Sltst : dsk brn	10.0	70.3	38.9	17.5	6.5	7.5	56.4	13.9	1.80	0019-1L
3750.63	swc	Sltst : dsk brn	10.6	45.3	23.6	10.0	6.2	5.5	33.6	11.7	1.26	0020-1L
3753.42	swc	Sltst : dsk brn	10.3	57.0	22.4	22.1	7.3	5.2	44.5	12.5	2.01	0021-1L
3755.84	swc	Sltst : dsk brn	10.1	72.8	28.8	24.0	12.9	7.2	52.8	20.0	3.49	0022-1L
3810.80	swc	Sltst : dsk brn	10.1	29.7	5.6	8.3	14.4	1.4	13.9	15.8	3.08	0023-1L
3810.80	swc	S/Sst : lt gy	6.3	17.4	9.1	1.3	1.7	5.2	10.5	6.9	0.56	0023-2L
3813.58	swc	Sltst : dsk brn	12.5	37.7	8.6	4.6	14.5	10.0	13.2	24.5	1.99	0025-1L
3813.58	swc	S/Sst : lt gy	10.5	69.6	50.0	9.8	7.5	2.3	59.8	9.8	0.88	0025-2L

Table 8 b: Concentration of EOM and Chromatographic Fraction (wt ppm rock) for well NOCS 6406/12-2

Depth unit of measure: m

Depth	Typ	Lithology	EOM	Sat	Aro	Asph	NSO	HC	Non-HC	Sample
3731.16	swc	Sltst : dsk brn	7734	3464	2133	1084	1052	5598	2136	0012-1L
3733.53	swc	Sltst : dsk brn	5207	2471	1544	504	686	4015	1191	0013-1L
3735.67	swc	Sltst : dsk brn	7003	4097	1607	832	465	5705	1298	0015-1L
3738.17	swc	Sltst : dsk brn to brn blk	7394	3097	2260	1282	753	5358	2036	0016-1L
3741.78	swc	Sltst : dsk brn to brn blk	6806	3549	1774	780	701	5324	1481	0017-1L
3744.18	swc	Sltst : dsk brn	7940	3912	1774	1389	865	5686	2254	0018-1L
3747.11	swc	Sltst : dsk brn	7022	3886	1744	645	747	5630	1392	0019-1L
3750.63	swc	Sltst : dsk brn	4289	2231	948	587	522	3179	1109	0020-1L
3753.42	swc	Sltst : dsk brn	5517	2172	2137	709	498	4309	1208	0021-1L
3755.84	swc	Sltst : dsk brn	7200	2846	2371	1271	711	5218	1982	0022-1L
3810.80	swc	Sltst : dsk brn	2940	550	825	1426	137	1376	1564	0023-1L
3810.80	swc	S/Sst : lt gy	2757	1448	207	274	827	1656	1101	0023-2L
3813.58	swc	Sltst : dsk brn	3018	692	367	1157	800	1060	1958	0025-1L
3813.58	swc	S/Sst : lt gy	6615	4748	935	716	215	5683	932	0025-2L

Table 8 c: Concentration of EOM and Chromatographic Fraction (mg/g TOC(e)) for well NOCS 6406/12-2

Depth unit of measure: m

Depth	Typ	Lithology	EOM	Sat	Aro	Asph	NSO	HC	Non-HC	Sample
3731.16	swc	Sltst : dsk brn	351.58	157.46	97.00	49.28	47.84	254.46	97.12	0012-1L
3733.53	swc	Sltst : dsk brn	159.24	75.58	47.23	15.44	20.99	122.81	36.43	0013-1L
3735.67	swc	Sltst : dsk brn	314.08	183.73	72.11	37.34	20.89	255.84	58.23	0015-1L
3738.17	swc	Sltst : dsk brn to brn blk	261.29	109.46	79.88	45.32	26.64	189.34	71.96	0016-1L
3741.78	swc	Sltst : dsk brn to brn blk	277.81	144.89	72.44	31.84	28.64	217.33	60.48	0017-1L
3744.18	swc	Sltst : dsk brn	270.10	133.07	60.35	47.25	29.42	193.43	76.67	0018-1L
3747.11	swc	Sltst : dsk brn	390.17	215.90	96.90	35.85	41.51	312.80	77.37	0019-1L
3750.63	swc	Sltst : dsk brn	340.46	177.07	75.31	46.60	41.49	252.37	88.08	0020-1L
3753.42	swc	Sltst : dsk brn	274.52	108.08	106.34	35.30	24.80	214.42	60.11	0021-1L
3755.84	swc	Sltst : dsk brn	206.33	81.57	67.96	36.42	20.38	149.53	56.80	0022-1L
3810.80	swc	Sltst : dsk brn	95.47	17.87	26.81	46.32	4.47	44.68	50.79	0023-1L
3810.80	swc	S/Sst : lt gy	492.42	258.66	37.07	48.96	147.72	295.73	196.68	0023-2L
3813.58	swc	Sltst : dsk brn	151.68	34.80	18.47	58.18	40.23	53.27	98.41	0025-1L
3813.58	swc	S/Sst : lt gy	751.81	539.56	106.29	81.45	24.52	645.85	105.97	0025-2L

Table 8 d: Composition of material extracted from the rock (%) for well NOCS 6406/12-2

Depth unit of measure: m

Depth	Typ	Lithology	Sat	Aro	Asph	NSO	HC	Non-HC	Sat	HC	Sample
			EOM	EOM	EOM	EOM	EOM	EOM	Aro	Non-HC	
3731.16	swc	Sltst : dsk brn	44.79	27.59	14.02	13.61	72.38	27.63	162.33	261.99	0012-1L
3733.53	swc	Sltst : dsk brn	47.46	29.66	9.70	13.18	77.12	22.88	160.03	337.09	0013-1L
3735.67	swc	Sltst : dsk brn	58.50	22.96	11.89	6.65	81.46	18.54	254.81	439.33	0015-1L
3738.17	swc	Sltst : dsk brn to brn blk	41.89	30.57	17.34	10.19	72.46	27.54	137.03	263.12	0016-1L
3741.78	swc	Sltst : dsk brn to brn blk	52.15	26.08	11.46	10.31	78.23	21.77	200.00	359.36	0017-1L
3744.18	swc	Sltst : dsk brn	49.27	22.34	17.49	10.89	71.61	28.39	220.49	252.27	0018-1L
3747.11	swc	Sltst : dsk brn	55.33	24.84	9.19	10.64	80.17	19.83	222.79	404.30	0019-1L
3750.63	swc	Sltst : dsk brn	52.01	22.12	13.69	12.19	74.13	25.87	235.13	286.52	0020-1L
3753.42	swc	Sltst : dsk brn	39.37	38.74	12.86	9.04	78.11	21.89	101.63	356.73	0021-1L
3755.84	swc	Sltst : dsk brn	39.53	32.94	17.65	9.88	72.47	27.53	120.02	263.27	0022-1L
3810.80	swc	Sltst : dsk brn	18.72	28.08	48.52	4.68	46.80	53.20	66.67	87.97	0023-1L
3810.80	swc	S/Sst : lt gy	52.53	7.53	9.94	30.00	60.06	39.94	697.71	150.36	0023-2L
3813.58	swc	Sltst : dsk brn	22.94	12.18	38.36	26.53	35.12	64.88	188.45	54.13	0025-1L
3813.58	swc	S/Sst : lt gy	71.77	14.14	10.83	3.26	85.91	14.09	507.62	609.48	0025-2L

Table 9: Saturated Hydrocarbon Ratios for well NOCS 6406/12-2

Depth unit of measure: m			Pristane	Pristane	Pristane/nC17	Phytane		nC17	
Depth	Typ	Lithology	nC17	Phytane	Phytane/nC18	nC18	CPI1	nC17+nC27	Sample
3731.16	swc	Sltst : dsk brn	1.02	1.60	1.46	0.70	1.07	0.69	0012-1L
3733.53	swc	Sltst : dsk brn	1.02	1.52	1.37	0.75	1.07	0.73	0013-1L
3735.67	swc	Sltst : dsk brn	0.98	1.49	1.30	0.75	1.03	0.71	0015-1L
3738.17	swc	Sltst : dsk brn to brn blk	0.98	1.37	1.24	0.79	1.01	0.74	0016-1L
3741.78	swc	Sltst : dsk brn to brn blk	0.98	1.26	1.11	0.88	1.00	0.73	0017-1L
3744.18	swc	Sltst : dsk brn	0.92	1.24	1.10	0.84	0.96	0.75	0018-1L
3747.11	swc	Sltst : dsk brn	0.82	1.16	1.02	0.80	0.95	0.76	0019-1L
3750.63	swc	Sltst : dsk brn	0.80	1.12	1.02	0.79	0.97	0.77	0020-1L
3753.42	swc	Sltst : dsk brn	0.66	1.13	1.00	0.66	0.96	0.78	0021-1L
3755.84	swc	Sltst : dsk brn	0.70	1.06	0.95	0.74	0.95	0.76	0022-1L
3810.80	swc	Sltst : dsk brn	0.67	1.35	1.32	0.51	1.13	0.89	0023-1L
3810.80	swc	S/Sst : lt gy	0.47	1.27	1.22	0.39	1.03	0.92	0023-2L
3813.58	swc	Sltst : dsk brn	0.96	1.59	1.51	0.63	1.05	0.67	0025-1L
3813.58	swc	S/Sst : lt gy	1.05	1.55	1.51	0.70	1.05	0.59	0025-2L

Table 10a: Aromatic Hydrocarbon Ratios for well NOCS 6406/12-2

Depth unit of measure: m

Depth	Typ	Lithology	MNR	DMNR	BPhR	2/1MP	MPI1	MPI2	Rc	DBT/P	4/1MDBT (3+2) /1MDBT	Sample	
3731.16	swc	Sltst : dsk brn	0.95	1.22	0.23	0.66	0.61	0.62	0.77	0.21	4.52	0.80	0012-1L
3733.53	swc	Sltst : dsk brn	0.80	1.21	0.25	0.71	0.61	0.66	0.77	0.28	9.06	0.80	0013-1L
3735.67	swc	Sltst : dsk brn	0.77	1.34	0.27	0.67	0.52	0.55	0.71	0.30	-	-	0015-1L
3738.17	swc	Sltst : dsk brn to brn blk	0.78	1.12	0.29	0.70	0.59	0.65	0.76	0.28	13.46	0.85	0016-1L
3741.78	swc	Sltst : dsk brn to brn blk	0.76	1.10	0.31	0.69	0.61	0.66	0.77	0.34	12.25	0.82	0017-1L
3744.18	swc	Sltst : dsk brn	0.71	1.04	0.33	0.69	0.59	0.64	0.75	0.37	11.97	0.79	0018-1L
3747.11	swc	Sltst : dsk brn	0.78	1.12	0.38	0.60	0.52	0.56	0.71	0.37	12.72	0.87	0019-1L
3750.63	swc	Sltst : dsk brn	0.57	0.95	0.29	0.63	0.53	0.57	0.72	0.40	13.15	0.80	0020-1L
3753.42	swc	Sltst : dsk brn	0.70	0.98	0.43	0.68	0.59	0.62	0.75	0.47	4.74	0.93	0021-1L
3755.84	swc	Sltst : dsk brn	0.69	0.94	0.48	0.71	0.61	0.65	0.76	0.47	12.74	1.00	0022-1L
3810.80	swc	Sltst : dsk brn	-	0.82	0.17	0.75	0.54	0.61	0.73	0.15	9.89	1.02	0023-1L

Table 10a: Aromatic Hydrocarbon Ratios for well NOCS 6406/12-2

Depth unit of measure: m

Depth	Typ	Lithology	MNR	DMNR	BPhR	2/1MP	MPI1	MPI2	Rc	DBT/P	4/1MDBT	(3+2) /1MDBT	Sample
3810.80	swc	S/Sst : lt gy	-	-	-	0.74	0.56	0.60	0.73	-	-	-	0023-2L
3813.58	swc	Sltst : dsk brn	0.89	1.45	0.48	0.81	0.61	0.67	0.76	0.19	14.15	1.20	0025-1L
3813.58	swc	S/Sst : lt gy	0.84	1.41	0.38	0.77	0.57	0.62	0.74	-	-	-	0025-2L

Table 10b: Aromatic Hydrocarbon Ratios for well NOCS 6406/12-2

Depth unit of measure: m

Depth	Typ	Lithology	F1	F2	Sample
3731.16	swc	Sltst : dsk brn	0.40	0.20	0012-1L
3733.53	swc	Sltst : dsk brn	0.39	0.21	0013-1L
3735.67	swc	Sltst : dsk brn	0.38	0.20	0015-1L
3738.17	swc	Sltst : dsk brn to brn blk	0.39	0.21	0016-1L
3741.78	swc	Sltst : dsk brn to brn blk	0.39	0.21	0017-1L
3744.18	swc	Sltst : dsk brn	0.38	0.21	0018-1L
3747.11	swc	Sltst : dsk brn	0.35	0.19	0019-1L
3750.63	swc	Sltst : dsk brn	0.35	0.19	0020-1L
3753.42	swc	Sltst : dsk brn	0.38	0.20	0021-1L
3755.84	swc	Sltst : dsk brn	0.39	0.21	0022-1L
3810.80	swc	Sltst : dsk brn	0.38	0.21	0023-1L
3810.80	swc	S/Sst : lt gy	0.38	0.20	0023-2L
3813.58	swc	Sltst : dsk brn	0.40	0.22	0025-1L
3813.58	swc	S/Sst : lt gy	0.38	0.21	0025-2L

Table 11a: Tabulation of carbon isotope data for EOM/EOM - fractions for well NOCS 6406/12-2

Depth unit of measure: m

Depth	Typ	Lithology	EOM	Saturated	Aromatic	NSO	Asphaltenes	Kerogen	Sample
3731.16	swc	Sltst	-29.86	-30.70	-29.45	-29.53	-29.10	-27.46	0012-1
3733.53	swc	Sltst	-29.91	-30.87	-29.50	-29.45	-29.10	-27.91	0013-1
3735.67	swc	Sltst	-29.78	-30.82	-29.05	-27.25	-28.85	-27.79	0015-1
3738.17	swc	Sltst	-29.52	-30.67	-29.04	-29.29	-28.74	-27.77	0016-1
3741.78	swc	Sltst	-29.59	-30.62	-29.11	-29.21	-28.82	-27.91	0017-1
3744.18	swc	Sltst	-29.62	-30.71	-28.32	-29.33	-28.80	-27.49	0018-1
3747.11	swc	Sltst	-29.52	-30.41	-29.09	-29.12	-28.77	-27.89	0019-1
3750.63	swc	Sltst	-29.16	-30.15	-28.45	-29.03	-28.47	-27.56	0020-1
3753.42	swc	Sltst	-30.05	-30.80	-28.72	-29.91	-29.73	-29.01	0021-1
3755.84	swc	Sltst	-29.38	-30.12	-28.32	-29.21	-29.02	-28.33	0022-1
3810.80	swc	Sltst	-27.67	-28.08	-26.55	-28.20	-27.75	-26.66	0023-1
3810.80	swc	S/Sst	-28.38	-26.99	-26.45	-28.02	-28.06	-27.07	0023-2
3813.58	swc	Sltst	-27.70	-29.32	-27.45	-28.27	-27.22	-26.79	0025-1
3813.58	swc	S/Sst	-28.96	-29.63	-28.02	-28.02	-28.01	-27.16	0025-2

Table 11b: Tabulation of cv values from carbon isotope data for well NOCS 6406/12-2

Depth unit of measure: m

Depth	Typ	Lithology	Saturated	Aromatic	cv value	Sample
3731.16	swc	Sltst	-30.70	-29.45	0.64	0012-1
3733.53	swc	Sltst	-30.87	-29.50	0.96	0013-1
3735.67	swc	Sltst	-30.82	-29.05	1.83	0015-1
3738.17	swc	Sltst	-30.67	-29.04	1.48	0016-1
3741.78	swc	Sltst	-30.62	-29.11	1.19	0017-1
3744.18	swc	Sltst	-30.71	-28.32	3.18	0018-1
3747.11	swc	Sltst	-30.41	-29.09	0.71	0019-1
3750.63	swc	Sltst	-30.15	-28.45	1.47	0020-1
3753.42	swc	Sltst	-30.80	-28.72	2.52	0021-1
3755.84	swc	Sltst	-30.12	-28.32	1.68	0022-1
3810.80	swc	Sltst	-28.08	-26.55	0.45	0023-1
3810.80	swc	S/Sst	-26.99	-26.45	-2.08	0023-2
3813.58	swc	Sltst	-29.32	-27.45	1.59	0025-1
3813.58	swc	S/Sst	-29.63	-28.02	1.11	0025-2

Table 12a: Variation in Triterpane Distribution (peak height) SIR for Well NOCS 6406/12-2

Depth unit of measure: m

Depth	Lithology	Ratio1	Ratio2	Ratio3	Ratio4	Ratio5	Ratio6	Ratio7	Ratio8	Ratio9	Rat.10	Rat.11	Rat.12	Rat.13	Rat.14	Sample
3731.16	Sltst	0.51	0.34	0.10	0.35	0.26	0.12	0.02	0.05	0.02	0.09	0.92	0.25	0.08	59.74	0012-1
3733.53	Sltst	0.59	0.37	0.11	0.35	0.26	0.12	0.02	0.06	0.02	0.11	0.93	0.26	0.07	60.28	0013-1
3735.67	Sltst	0.66	0.40	0.12	0.35	0.26	0.13	0.02	0.06	0.02	0.10	0.93	0.26	0.08	59.31	0015-1
3738.17	Sltst	0.70	0.41	0.12	0.33	0.25	0.13	0.02	0.07	0.02	0.10	0.93	0.25	0.07	60.12	0016-1
3741.78	Sltst	0.64	0.39	0.12	0.33	0.25	0.12	0.02	0.05	0.02	0.11	0.94	0.25	0.07	59.88	0017-1
3744.18	Sltst	0.52	0.34	0.12	0.33	0.25	0.15	0.02	0.05	0.02	0.13	0.93	0.25	0.07	60.00	0018-1
3747.11	Sltst	0.58	0.37	0.12	0.32	0.24	0.13	0.02	0.05	0.02	0.15	0.94	0.25	0.07	59.50	0019-1
3750.63	Sltst	0.47	0.32	0.12	0.32	0.24	0.15	0.01	0.05	0.01	0.15	0.94	0.24	0.07	60.13	0020-1
3753.42	Sltst	0.57	0.36	0.14	0.34	0.25	0.16	0.02	0.05	0.02	0.17	0.94	0.25	0.07	59.30	0021-1
3755.84	Sltst	0.52	0.34	0.12	0.30	0.23	0.15	0.01	0.05	0.01	0.16	0.94	0.23	0.07	60.16	0022-1
3810.80	Sltst	1.55	0.61	0.14	0.35	0.26	0.22	0.03	0.09	0.03	0.15	0.92	0.26	0.08	60.38	0023-1
3810.80	S/Sst	1.24	0.55	0.11	0.37	0.27	0.14	0.01	0.04	0.01	0.20	0.94	0.27	0.06	61.01	0023-2
3813.58	Sltst	0.92	0.48	0.12	0.37	0.27	0.24	0.04	0.09	0.03	0.20	0.92	0.27	0.09	58.99	0025-1
3813.58	S/Sst	0.76	0.43	0.11	0.35	0.26	0.23	0.03	0.09	0.03	0.19	0.92	0.26	0.08	60.19	0025-2