2.8.3 FMT Pressure and sampling

Schlumberger`s Modular Dynamic Tester was used for formation pressure measurements and reservoir fluid sampling in well 6406/1-2. There were a total of 2 separate MDT runs (table 2.8.1).The first run tried 3 pressure points before getting stuck. All the tree points were either tight or supercharged.
After fishing the MDT tool a second attempt were made to sample This time one valid pressure point and a total of 6 sample bottles and the 1 gallon chamber were filled.
The samples were sending to Core lab in Aberdeen for PVT analysis.

The reservoir hydrocarbon samples taken at 4178 m RT were all found to have more than 90 % mud contamination. Due to this strong contamination the PVT program was reduced.

Test No.	Depth mMD RKB	Initial Hydrostatic Pressure Quartz	Initial Hydrostatic Pressure Strain	Formation Pressure Quartz	Formation Pressure Strain	Final Hydrostatic Pressure Quartz	Final Hydrostatic Pressure Strain	Formation Pressure sg EMW	Mud Gradient g/cc	Test Temp. degC	Pretest Volume cc	Quartz Mobility md/cp	Remarks
1	**4186**	**811.7**	**811.4**			**811.8**	**811.1**	**#####**	**-**	**143.3**	**13.8**		**Tight**
2	**4184**	**811.7**	**811.5**			**811.7**	**811.3**	**#####**	**-**	**143.6**	**8.1**		**Supercharged**
3	**4180**	**811.6**	**811.3**			**811.6**	**811.3**	**#####**	**-**	**142.7**	**5.5**		**Tight**
4	**4177.5**	**811.4**	**809.150**			**811.2**	**809.1**	**#####**	**-**	**143.5**	**20**		**Supercharged**
								-	**-**				
1b	**4178**	**806.5**	**806.0**	**748.9**	**748.40**			**1.830**	**1.980**	**141.8**	**20**	**2.6**	**Sampling**

Table 8.2.1 MDT summary.

- •I Sample taken at 4178mMD RT / 4171.8 mTVD RT
- •4 MPSR, 2 SPMC and 1 gallon samples

•Formation pressure	748.946 bar
•Hydrostatic pressure	806.530 bar
•Formation Temperature	146.0° C
•Mobility	2.6 md/cp

•1 Gallon chamber:

Density	0.814 g/cm^3
GOR	380 m^3 / m^3

Table 2.8.2
Sampling data

3.4.6 Mud Summary by Phase

Drilling during the driving of the 30" conductor

The 36" conductor was driven, and it was therefore not required to drill the usual 36" hole. During the piling operation, however, it became necessary to pre-drill short sections two times:

When driving the conductor it first hit refusal depth at 433 m. A 26" bit was then run down through the 30" conductor and a short 26" hole section was drilled below the drive shoe from 433 m to 456 m.

The second time the conductor hit refusal depth was at 451 m. Again a 26" bit was run down to the drive shoe and a 26" hole section was drilled from 451 m to 461 m.

Only seawater and viscous sweeps were circulated while drilling the two short 26" sections.

Mud summary for the 9 7/8" pilot hole and 26" hole section

After having driven the 30" conductor to a depth of 455 m, a 9 7/8" pilot hole was drilled down to 1210 m without any drilling problems using seawater, and with high viscosity sweeps to keep the hole clean. A flow check was made at section TD (no shallow gas detected).

The pilot hole was re-drilled to 26" down to 1205 m, using the same drilling fluids as for the pilot hole; 3 m^3 high viscosity mud was used to sweep the hole for every stand drilled. When reaching section TD the hole was circulated clean and then displaced with high viscosity mud. A wiper trip was made to the seabed; a tight spot was encountered at 1080 m when running back to bottom. The 26" hole was swept with a 20 m^3 pill of 1.20 sg high viscosity mud, and prior to coming out hole the well was displaced to 1.20 sg high viscosity spud mud.

A pre-mixed spud mud made of NaCl/KCl brine and polymer was used for sweeps. For the 1.20 sg displacement mud Illmenite was used as the weighting material when displacing the 26" hole prior to running casing.

Mud summary for the 17 1/2" hole section

After having installed the 20" casing (shoe at 1199 m), a 17 ½" bit was run to drill out the float and shoe track to 1195 m with spud mud. The well was then displaced with 1.15 sg water based **Sildril** mud, which is a shale/clay inhibitive KCL type mud with a silicate concentration of minimum 12%. Ilmenite was used as weighting material. The cement in the 20" shoe was drilled out, and new hole was drilled to 1215 m where a leak-off test was made.

As the drilling of the 17 ½" hole continued, the mud weight was raised in increments. At 2331 m, where some torque increase was observed, the mud weight was increased to 1.53 sg. This mud weight was kept until section TD at 2415 m was reached.

At section TD a volume equal to 1.5 times bottoms up was circulated prior to making a wiper trip into the 20" shoe. On the way out it was necessary to engage the top drive and pump out due to sticky hole. When inside the 20" shoe, bottoms up was circulated and large volumes of cuttings came out over the shaker. When running back in hole, 6 m of fill was found at section TD, no other open hole problems were encountered. Prior to POOH the hole was flow checked and found static. With the BHA back at surface the stabilizers were found to be 60% balled up.

It was seen that the Sildril mud gave excellent cuttings integrity, with defined edges and no sign of mud intrusion. As the mud weight was increased by addition of Illmenite, the rheology showed a distinct increasing trend. Towards the end of the hole section the mud had reached to the high end of the specifications, and had to be diluted with low viscosity premixes and water.

The drilling started with 84 mesh screens on all 3 shakers, but the screens had to be changed to 60 mesh in the start of the drilling to handle the flow. As the mud heated up and was sheared through the bit the screens were changed to 100 mesh. Towards the end of the hole section the screens were changed to 60 and 80 mesh due to increasing rheology and heavy loading of cuttings on the shakers. Despite using coarse screens the content of sand sized particles in the mud was kept below 1% at all times.

Mud summary for the 12 ¼" hole section

A 12 ¼" bit with 2 junk baskets in the BHA was used to drill out the shoe of the 13 3/8" casing due to junk laying on top of the cement inside the casing. Prior to drilling out the shoe track the 13 3/8" casing was displaced with 1.70 sg VersaPro oil based mud. When the shoe track was drilled out and new formation was drilled to 2420 m, a new 12 2/4" BHA was run in hole to drill the 12 2/4" hole section.

When starting the drilling of the 12 ¼" hole section, the VersaPro OBM had a high content of water due to contamination of water during the displacement. Treatment was therefore carried out to increase the oil/water ratio and chloride concentration. During the drilling of the hole section VersaPro P/S was added for emulsion stability, Versavert Vis for viscosity and Lime for alkalinity.

overpull of 20 ton was experienced several times while making short trips in the interval from 3471 m to 3300 m.

The drilling down to 3645 m had been done with a packed 12 ¼" BHA, but due to problems in keeping the hole inclination within tolerance the hole from now on and down to 3852 m was drilled with 12 ¼" directional bottom hole assemblies with mud motor. Rotation drilling was then resumed down to section TD at 3908 m.

At 3844 m the mud weight was increased to 1.77 sg, and at 3852 m it was increased to 1.80 sg. As drilling continued to section TD at 3908 m, the oil/water ratio was adjusted to 80/20 by addition of premix that had a high oil content.

The shakers were dressed with 60, 60 and 100 mesh screens as the drilling of the section started and had difficulties in handling the flow because of the cold mud and the boosting of the riser. Due to the course screens the concentration of low gravity solids (LGT) increased in the mud. Finer screens were installed when the mud had warmed up and the boosting of the riser had stopped. Most of the section was drilled with 175 mesh screens on one shaker and 210 mesh screens on the other two shakers.

Mud summary for the 8 1/2" hole section

The mud used for the 8 1/2" hole section was the same VersaPro OBM as used for the 12 ¼" section. The mud weight when drilling out of the 9 5/8" casing shoe was 1.98 sg, but had to be reduced to 1.90 sg to stop the mud losses that occurred when starting to drill new formation below the casing shoe – cumulative mud losses to formation were 26.5 m^3.

While drilling the 8 ½" hole typical "ballooning effects" were experienced with moderate mud gains during flow checks.

At 3952 m the mud weight was raised to 1.93 sg – resulting in slight mud loss, and the mud weight was reduced to 1.92 sg.

At 4052 the mud weight was reduced to 1.90 sg.

The 8 ½" hole section was drilled down to 4140 m, which was TD for this hole section.

After POOH, a wiper trip with 8 ½" bit and 9 5/8" casing scraper was done. There was no fill on bottom of the 8 ½" hole. Preparations were made to run 7" liner.

During the drilling of the 8 ½" hole a small treatment of the mud with LCM material (273 kg of Ven Fyber) was made to reduce the seepage losses. The mud was regularly treated with lime to maintain alkalinity in the hot downhole environment. Just before reaching section TD (at 4140 m) a small treatment with Versatrol was carried out to ensure adequate fluid loss and thin filter cake during the liner operation. On the scraper run inside the 9 5/8" casing prior to starting the installation of the 7" liner, 50 m^3 of premix at 1.90 sg was added to the active system to increase the oil/water ratio and lower the rheology. The premix was made of EDC-99 baseoil and mud chemicals.

210 mesh screens were used on the shakers.

Mud summary for the 6 1/2" & 6 1/8" hole section

The mud used for the 6 1/2"& 6 1/8" hole section was the same VersaPro OBM as used for the 8 1/2" section. The mud weight when drilling out of the 7" liner shoe was 1.98 sg.

By using bi-center bits, a 6 ½"& 6 1/8" hole was drilled from the liner shoe and down to well TD at 4500 m. No particular hole problems were experienced in the drilling of the open hole below the 7" liner.

When drilling the cement in the 7" liner the mud picked up water. 100 m^3 of premix made up of baseoil and chemicals were therefore added to the active system in two steps to increase the oil/water ratio, improve the rheology and decrease the ECD values. During the drilling no further treatments were carried out, only small additions of premix to control the mud weight. The mud properties showed a very stable mud system.

210 mesh screens were used on the shakers.

MUD SUMMARY REPORT
Well 6406/1-2

Day no.	Date	Depth	MW	FV	AV	PV	YP	Gel 10 sec	Gel 10 min	API	pH	Pf	Mf	Cl- x 1000	TH	Ca++	KCl	Solids correct.	MBT	HGS	LGS	Sil
		m	sg	s/qt.	cP	cP	Pa	Pa	Pa	ml	·	ml	ml	kg/m3	mg/l	mg/l	kg/m3	%	kg/m3	kg/m3	kg/m3	%
	36" Section: SW/PAC Spud Mud.																					
6	26.06.2003	0	1.03	120																		
7	27.06.2003	455	1.03	120																		
	9 5/8" Pilot" Section: SW/PAC Spud Mud.																					
8	28.06.2003	552	1.03	120																		
9	29.06.2003	1205	1.03	110																		
	26" Section: SW/PAC Spud Mud.																					
10	30.06.2003	1205	1.03	110																		
11	01.07.2003	1205	1.03	111																		
12	02.07.2003	1205	1.03	110																		
13	03.07.2003	1205	1.03	110																		
	17.5" Section: Sildril mud.																					
14	04.07.2003	1209	1.15		17	12	4.5	2	3	3.0	11.7	33	38	38	0	0	80	6.0	0	10	160	16.0
15	05.07.2003	1573	1.32		34	18	16.0	5	8	3.2	11.7	25.5	28.5	47	0	0	80	13.0	21			11.4
16	06.07.2003	1959	1.40		41	20	21.0	7	10	3.6	11.65	33	37	45	0	0	81	18	24			15.5
17	07.07.2003	2373	1.50		52	24	27.5	12	16	5.0	11.6	28	31	45	0	0	45	21.0	42			13.0
18	08.07.2003	2415	1.53		50	24	25.5	10	13	4.5	11.65	27.5	30.5	51	0	0	82	21	42	507	152	12.75
19	09.07.2003	2415	1.53		50	24	25.5	10	13	4.5	11.7	27.5	30.5	51	0	0	82	21	42	507	152	12.75
20	10.07.2003	2415	1.53		50	24	25.5	10	13	4.5	11.7	27.5	30.5	51	0	0	82	21	42	507	152	12.75

Day no.	Date	Depth	MW	T	AV	PV	YP	Gel 10sec	Gel 10min	Gel 30min	HTHP	ES	Ex Lime	Cl-	Solids	Oil	Water	O/W	HGS	LGS
		m	sg	°C	cP	cP	Pa	Pa	Pa	ml	ml	V	kg/m3	g/l	%	%	%		kg/m3	kg/m3
12 1/4" Section: VersaPro																				
25	15.07.2003	2427	1.70		61	50	10.5	5	8		2.4	620	10.36	145	26.0	54.0	20.0	73/27	961	52
26	16.07.2003	2835	1.70	34	60	50	10.0	6	8		2.0	625	8.51	143	24.5	53.0	22.5	70/30	925	72
27	17.07.2003	3194	1.70	38	58	48	10.0	5	8	9	1.4	640	8.88	143	24.9	53.4	21.7	71/23	912	92
28	18.07.2003	3471	1.70	42	57	46	10.5	6	8	9	3.9	625	9.62	168	24.8	56.2	19.0	75/25	929	77
29	19.07.2003	3593	1.70	45	55	45	10.0	5	8	9	4.2	620	8.14	153	25.7	54.6	19.7	74/26	884	131
30	20.07.2003	3645	1.70		55	46	9.0	5	8	9	4.5	615	7.77	153	25.8	54.6	19.6	74/26	882	134
31	21.07.2003	3656	1.70		56	46	9.5	6	8	9	4.5	620	6.66	159	25.8	55.4	18.8	75/25	893	124
32	22.07.2003	3698	1.70	60	54	45	9.0	5	8	9	4.0	618	8.88	163	26.3	55.3	18.4	75/25	875	147
33	23.07.2003	3769	1.70	59	53	43	10.0	6	8	9	4.8	620	5.92	146	26.6	55.3	18.1	76/24	867	164
34	24.07.2003	3844	1.75	64	58	47	10.5	6	8	10	4.2	644	5.92	185	26.9	56.9	16.2	78/22	980	101
35	25.07.2003	3852	1.79		59	48	10.5	7	9	10	4.4	610	5.55	190	28.2	56.0	15.8	78/22	974	139
36	26.07.2003	3908	1.80	54	57	47	10.0	6	8	10	4.3	644	4.44	190	28.8	57.0	14.3	80/20	1031	124
37	27.07.2003	3908	1.80		57	47	10.0	6	8	10	4.3	644	4.44	189	28.8	57.0	14.2	80/20	1030	125
38	28.07.2003	3908	1.80		57	47	10.0	6	8	10	4.3	644	4.44	189	28.8	57.0	14.2	80/20	1030	125
39	29.07.2003	3908	1.80		58	47	11.0	6	8	10	4.3	646	4.44	189	28.8	57.0	14.2	80/20	1032	125
40	30.07.2003	3908	1.80		56	47	9.0	6	8	10	4.8	625	4.44	196	28.8	56.0	14.2	80/20	1010	162
41	31.07.2003	3908	1.80		60	48	12.0	7	8	10	4.8	612	4.44	193	29.7	56.0	14.3	80/20	1014	157
8 1/2" Section: VersaPro																				
42	01.08.2003	3927	1.90		60	49	10.5	6	8	10	4.6	620	5.55	198	31.8	54.6	13.5	80/20	1167	124
43	02.08.2003	3955	1.93	44	66	55	10.5	7	9	10	4.1	608	8.88	191	32.4	54.6	13.0	80/20	1195	125
44	03.08.2003	4032	1.92	26	58	48	10.0	6	8	10	3.9	645	7.4	181	31.8	54.9	13.3	80/20	1193	113
45	04.08.2003	4090	1.90	25	57	47	10.0	7	9	10	4	623	11.5	189	32.0	55.0	13.0	80/20	1155	130
46	05.08.2003	4140	1.90	23	57	47	10.0	7	9	10	3.8	621	11.1	171	31.6	54.7	13.7	80/20	1156	128
47	06.08.2003	4140	1.90	23	56	46	9.5	6	9	10	3.8	615	11.1	171	31.6	54.7	13.7	80/20	1156	128
48	07.08.2003	4140	1.90	37	45	37	8.0	5	7	8	4.4	600	11.5	238	30.5	59	10.5	84/16	1240	49
49	08.08.2003	4140	1.90		51	43	8.0	5	8	8	5.5	600	12.2	183	31.2	56	12	82/18	1171	132

Day no.	Date	Depth m	MW sg	T °C	AV cP	PV cP	YP Pa	Gel 10sec Pa	Gel 10min Pa	Gel 30min ml	HTHP ml	ES V	Ex Lime kg/m3	Cl- g/l	Solids %	Oil %	Water %	O/W	HGS kg/m3	LGS kg/m3
6 1/2" & 6 1/8” Section: VersaPro																				
50	09.08.2003	4140	1.90		54	46	8.0	5.5	7.5	9.0	5.5	600	12.9	171	32	54	14	79/21	1147	144
51	10.08.2003	4140	1.91	37	56	47	8.5	5.5	8.0	9.0		600	11.5	179	31	55	14	80/20	1200	86
52	11.08.2003	4140	1.90		52	44	8.0	5.0	7.5	8.0		600	12.2	175	30	56	14	80/20	1231	43
53	12.08.2003	4143	1.98	31	54	45	9.0	5.0	7.0	7.5	3.9	603	12.2	179	34	54	12	82/18	1253	137
54	13.08.2003	4177	1.98	25	45	39	5.5	5.0	6.5	7.0	4.0	608	14.8	181	33	56	11	84/16	1302	84
55	14.08.2003	4177	1.98		42	36	5.5	4.5	6.0	7.0	3.8	605	14.8	181	33	56	11	84/16	1302	84
56	15.08.2003	4281	1.98	21	42	36	5.5	4.5	6.0	7.0	4.0	608	14.8	200	33	57	10	85/15	1307	81
57	16.08.2003	4347	1.98	24	41	35	5.5	4.5	6.0	7.0	4.2	603	11.1	200	33	57	10	85/15	1307	81
58	17.08.2003	4370	1.98	23	41	35	6.0	4.0	5.5	6.0	4.2	610	10.4	200	33	57	10	85/15	1307	81
59	18.08.2003	4459	1.98	23	40.5	35	5.5	4.0	6.0	6.5	4.4	607	11.1	200	33	57	10	85/15	1307	81
60	19.08.2003	4500	1.98	24	40	35	5.0	4.0	6.0	6.5	4.2	602	12.6	190	33	57	10	85/15	1308	82
61	20.08.2003	4500	1.98		40	34	6.0	4.0	6.0	6.5	4.0	604	12.2	190	33	57	10	85/15	1308	82
62	21.08.2003	4500	1.98		40	34	6.0	4.0	6.0	6.5	4.0	604	12.2	190	33	57	10	85/15	1308	82
63	22.08.2003	4500	1.98		41	35	5.5	4.5	6.0	6.5	4.0	604	12.2	190	33	57	10	85/15	1308	82
64	23.08.2003	4500	1.98		40	34	6.0	4.0	6.0	6.5	4.2	602	11.1	190	33	57	10	85/15	1308	82
65	24.08.2003	4500	1.98		41	35	5.5	4.5	6.0	6.5	4.0	609	11.8	200	33	57	10	85/15	1307	81
66	25.08.2003	4500	1.98		41	35	6.0	4.5	6.0	6.5	4.2	609	11.8	190	33	57	10	85/15	1308	82
67	26.08.2003	4500	1.98		41	35	6.0	4.5	6.0	6.5	4.2	609	11.8	190	33	57	10	85/15	1308	82
68	27.08.2003	4500	1.80		34	29	4.5	4.0	5.0		4.0	424	11.8	142	28	60	12	83/17	1085	84
69	28.08.2003	1270	1.80		34	29	4.5	4.0	5.5		4.0	443	11.8	136	28	61	11	85/15	1092	81
70	29.08.2003	1270	1.80		34	29	4.5	4.0	5.5		4.0	443	11.8	136	28	61	11	85/16	1092	81

Day no.	Date	Depth m	MW sg	FV s/qt.	AV cP	PV cP	YP Pa	Gel 10 sec Pa	Gel 10 min Pa	API ml	pH	Pf ml	Mf ml	Cl- x 1000 kg/m3	TH mg/l	Ca++ mg/l	KCl kg/m3	Solids correction %	MBT kg/m3	HGS kg/m3	LGS kg/m3	Sil %
P&A Section: Sildril mud.																						
71	30.08.2003	858	1.53		35	18	17.0	8	10.0	4		11.5						18				
72	31.08.2003	858	1.53		36	18	18.0	9	10.5	4		11.5						18				
73	01.09.2003	858	1.53		36	18	18.0	9	10.5	4		11.5						18				
74	02.09.2003	383	1.50		35	18	17.0	9	10.5	4		11.5						18				

Final Report

WELL 6406/1-2 (SKLINNA S) NORWAY

GEOCHEMICAL STUDY

0		R. GALIMBERTI	R. GALIMBERTI	G. UNCINI	04/01//2004
REV.	DESCRIPTION	PREPARED BY	CHECKED BY	APPROVED BY	DATE

SGEO-GEOL
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ENI Norge	3
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GEBA department:	1

Date: 10 February 2004

3. INTRODUCTION

On request of ENI Norge a geochemical study has been performed on the fluid and rock samples coming from the well 6406/1-2 drilled in the Sklinna South structure.
The aim of the study was:

1- to define the hydrocarbon distribution (identification of pay zones)
2- to characterise the recoverable hydrocarbons and define their origin
3- to define the presence of source rocks, their properties and maturity
4- to define the maturity well profile.

Tab.3.1 Sample list

Type of sample	Depth (m)		Note
Condensate	4178		1 gallon sampling chamber (n° 162)
Gas	4178		2 samples (9841ma and 6836ma) cylinder 9103 sample 11.03
Cuttings for TOC and RockEval analisys	3500	4500	Around 100 samples
SWC for TOC and RockEval analisys	4178	4474	14 samples
Cuttings and SWC for optical analisys	2070	4473	25 samples
Head space	2450	4500	50 samples

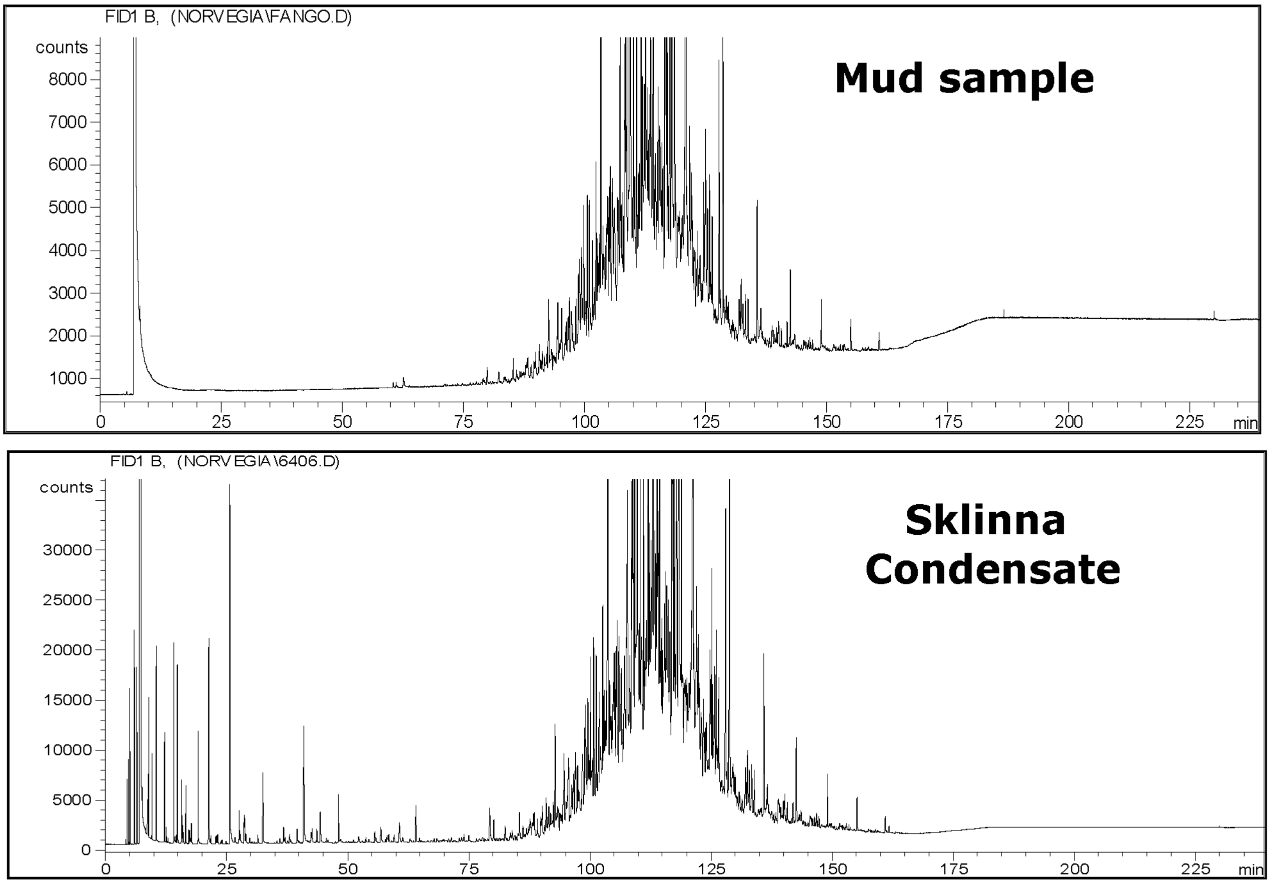
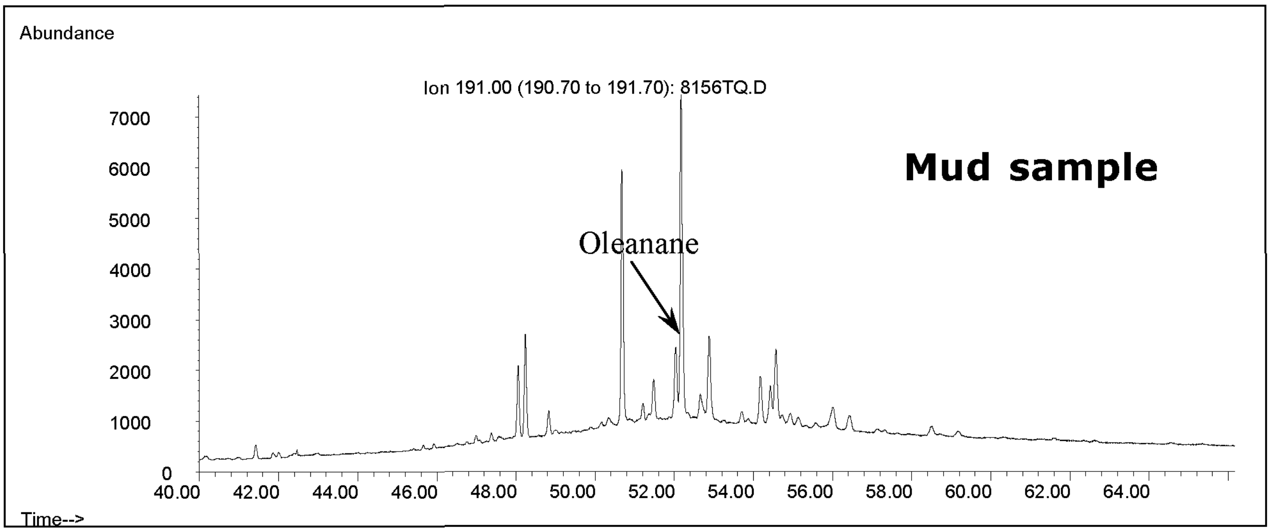


***Fig. 4.2.1: GC chromatogram** of the OBM and Sklinna condensate.*



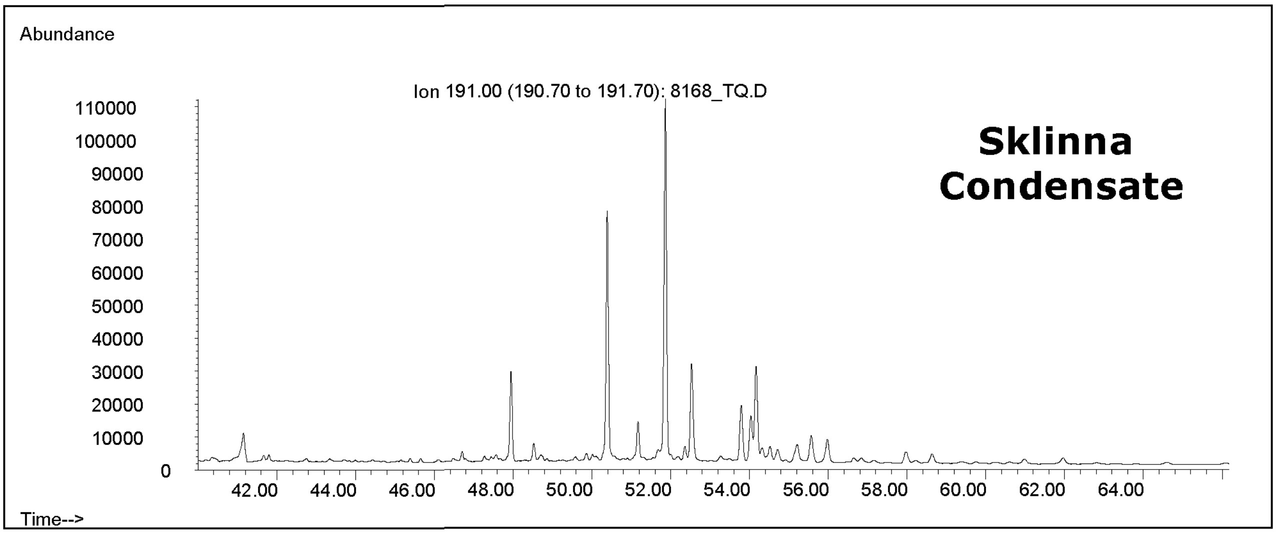


Fig. 4.2.2.: GC-MS analysis *– m/z 191 ion chromatogram of the OBM and Sklinna condensate.*

4.3. Gas characterisation

Two gas samples coming from the MDT have been analysed both from a chemical and isotopic point of view: their identification is reported in Tab.4.3.1; while the results are shown in Tab. 4.3.2.

Tab. 4.3.1: sample set for the gas analysis

Well	Depth	Sample
6406/1-2 (Sklinna)	4178 m	From sample 9841ma cylinder 9103 sample 11.03 stock tank gas
6406/1-2 (Sklinna)	4178 m	From sample 6836ma cylinder 9103

Tab. 4.3.2: chemical and isotopic gas analysis

Sample	9841ma 4178 m	6836ma 4178 m
C1 %	89.94	89.89
C2 %	3.92	3.97
C3 %	0.83	0.84
iC4 5	0.14	0.14
nC4 %	0.13	0.13
C5+ 5	0.09	0.09
C 6+%	0.12	0.11
CO2 %	3.82	3.93
N2 %	1.01	0.90
δ^{13} C1‰	-40.13	-40.56
δ^{13} C2 ‰	-29.64	-29.44
δ^{13} C3 ‰	-26.37	-25.98
δ^{13} iC4 ‰	-24.52	-26.05
δ^{13} nC4 ‰	-24.59	-24.63
δ^{13} iC5 ‰	-24.63	
δ^{13} nC5 ‰	-23.68	
δ^{13} C CO_2 ‰	-11.11	-10.65

4.4. Source Rock Evaluation (Geochemical logs)

All the cutting samples from 3501 to 4500 m have been washed by organic solvent to remove the OBM before the TOC and RockEval analyses.

It is likely that part of the OBM was not removed by the solvent washing and interfered in the analysis.

An attempt to remove the additive has been performed through a more extensive washing of two cutting samples.
The samples at 3510 and 3570 m have been washed by dichloromethane-methanol (93:7) for 24 hours, then washed again for 48 hours.

Sample	3510 m (initial)	3510 m (after extensive washing)	3570 m (initial)	3570 m (after extensive washing)
TOC %	0.88	0.61	1.35	1.05
S2 ‰	3.44	0.97	4.53	1.68

5. Annex I

Optical Analysis Bulletin

Vitrinite Reflectance Histograms

Exploration & Production Division

S. Donato 14-11-2003
Bull. n° 59

NORWAY OFFSHORE - PL256

WELL: 6406 / 1-2 (Sklinna)

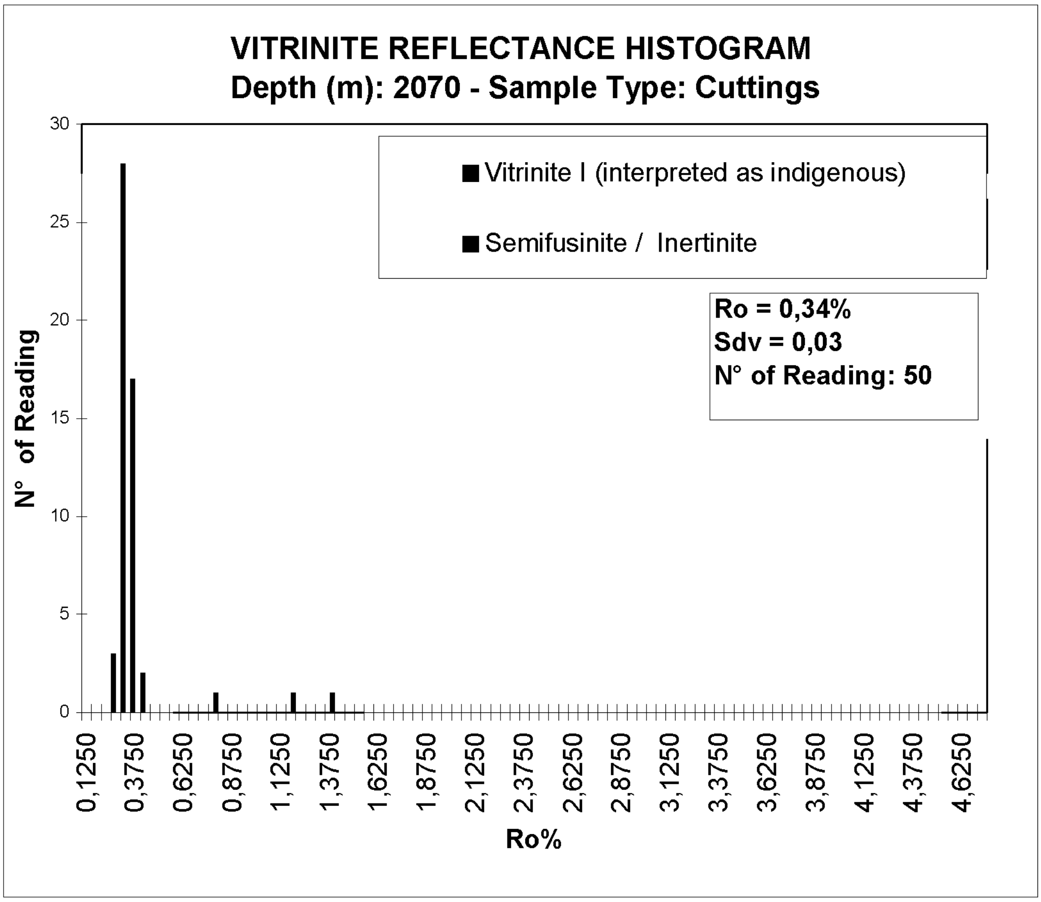
KEROGEN COMPOSITION AND MATURITY DATA

Depth m	Sample Type	AOM %	MPH %	CHF %	CWF %	TAI	Fluor.	Ro %	ST. DEV.	N° Measured Points
2070.00	Cuttings	10	20	20	50	0.0	Y	**0.34**	**0.03**	**50**
2250.00	Cuttings	5	20	60	15	1.2	Y	**0.36**	**0.03**	**10**
2480.00	Cuttings	10	30	50	10	1,2/1,5	Y	**0.41**	**0.06**	**3**
2680.00	Cuttings		20	30	50	1.5	Y-DY	**0.47**	**0.05**	**40**
2680.00	Cuttings							0.72	0.07	29
2880.00	Cuttings	T	10	30	60	1,7?	Y-DY	**0.54**	**0.04**	**30**
2880.00	Cuttings							0.72	0.03	13
3060.00	Cuttings	T	10	30	60	1,5/1,7	Y-DY	**0.60**	**0.04**	**25**
3060.00	Cuttings							0.80	0.05	9
3275.00	Cuttings	T	10	20	70	1.7	Y-DY	**0.55**	**0.04**	**30**
3275.00	Cuttings							0.80	0.05	16
3474.00	Cuttings	T	10	25	65	1,7/2,0	Y-DY-O	**0.61**	**0.03**	**23**
3474.00	Cuttings							0.79	0.04	13
3680.00	Cuttings	T	10	25	65	2,0/2,2	DY-O	**0.62**	**0.05**	**35**
3680.00	Cuttings							0.91	0.06	7
3720.00	Cuttings	5	5	20	70	2,0/2,2	DY-O	**0.72**	**0.06**	**22**
3720.00	Cuttings							0.98	0.06	23
3790.00	Cuttings	T	10	40	50	2,0/2,2	DY-O	**0.7**	**0.04**	**15**
3790.00	Cuttings							0.92	0.07	23
3880.00	Cuttings		10	20	70	2,2?	Y-DY-O	**0.73**	**0.05**	**30**
3880.00	Cuttings							0.94	0.02	14
4030.00	Cuttings		T	10	90	0	NF	**1.06**	**0.05**	**7**
4080.00	Cuttings			15	85	2,5?	O?	**1.03**	**0.06**	**51**
4080.00	Cuttings							0.84	0.05	26
4256.00	SWC			60	40	2,5/2,7	NA	NA		
4276.00	SWC			80	20	2,5/2,7	NA	NA		
4285.00	Cuttings	?	?	?	?	0.0	NF	**1.12**	**0.06**	**11**
4415.00	SWC			50	50	2,7/>3,0	NA	NA		
4473.00	Cuttings	40?		T	60?	0.0	NF	**1.39**	**0.05**	**10**
4473.00	Cuttings							1.08	0.07	12

0,34 = Vitrinite population interpreted as indigenous

NA = Not Analyzed

Y=Yellow DY=Dark Yellow O=Orange NF=Not fluorescent
AOM=Amorphous Organic Matter MPH= Marine Phytoplancton
CHF= Continental Herbaceous Fragment CWF= Continental Woody Fragments


VITRINITE REFLECTANCE HISTOGRAM
Depth (m): 2070 - Sample Type: Cuttings
Vitrinite I (interpreted as indigenous)
Semifusinite / Inertinite
Ro = 0,34%
Sdv = 0,03
N° of Reading: 50
N° of Reading
Ro%
0,1250
0,3750
0,6250
0,8750
1,1250
1,3750
1,6250
1,8750
2,1250
2,3750
2,6250
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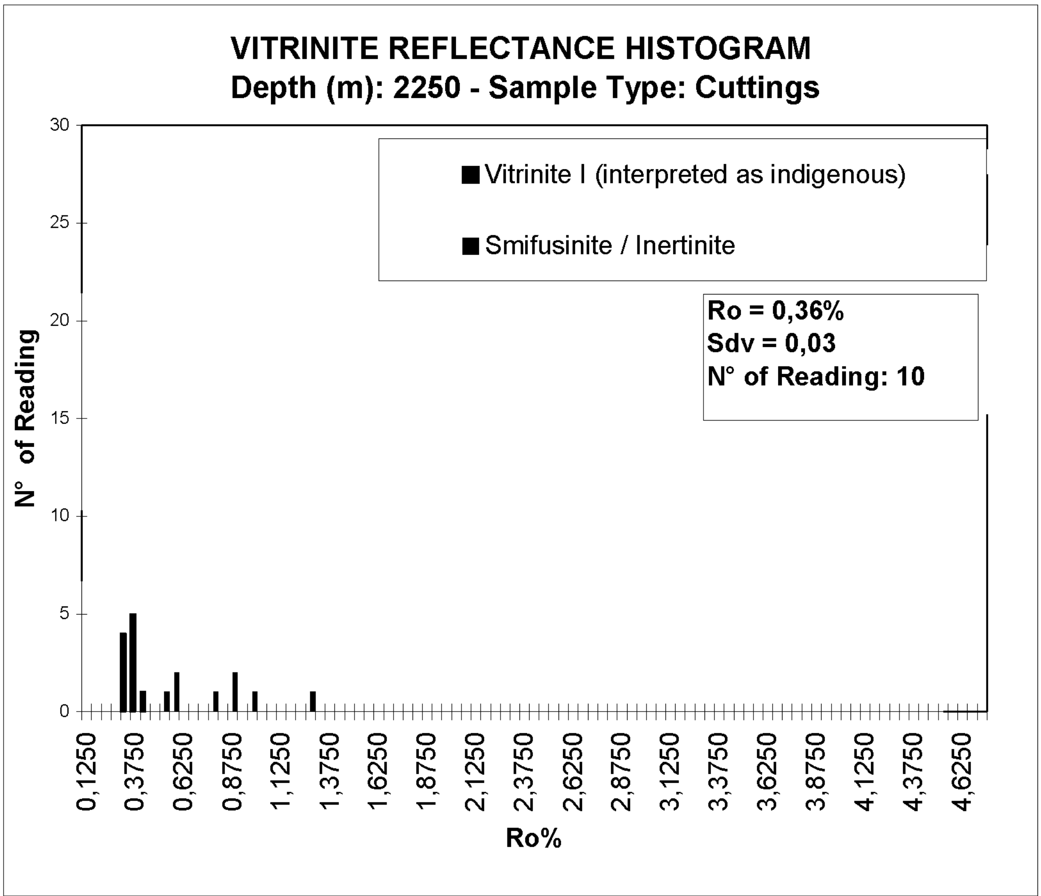
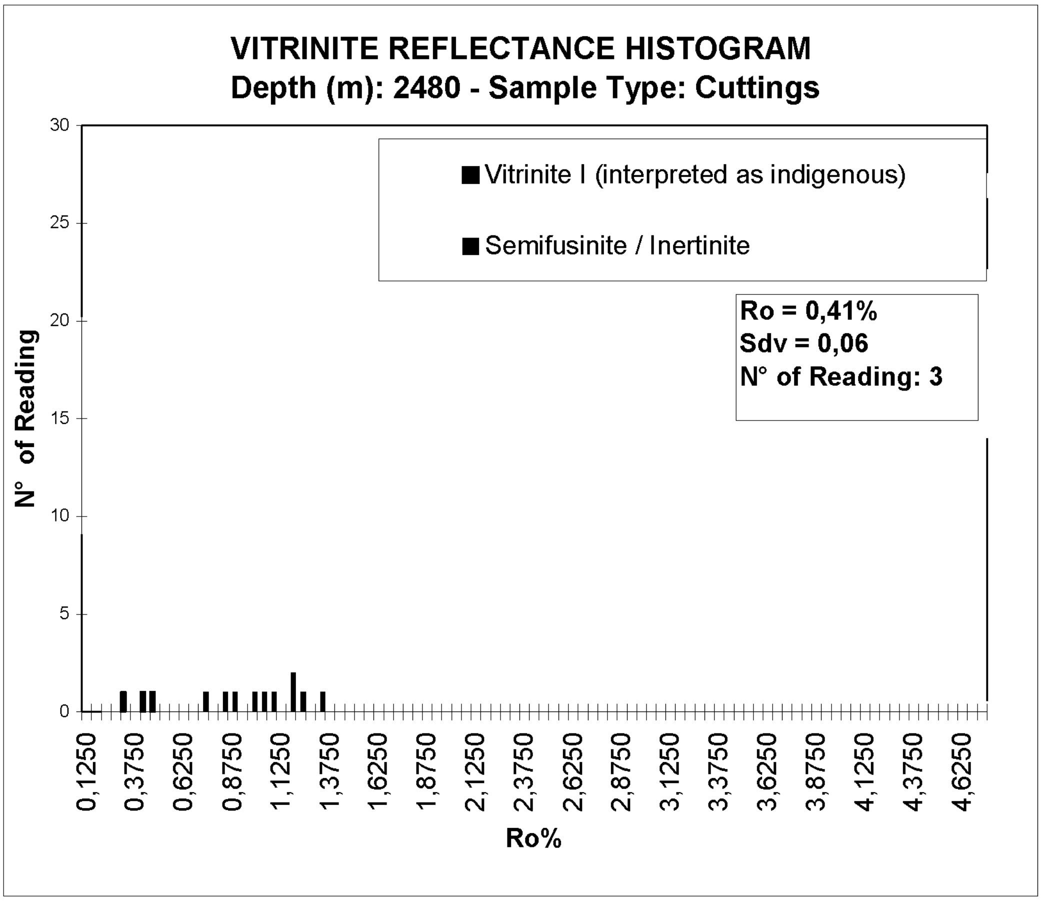
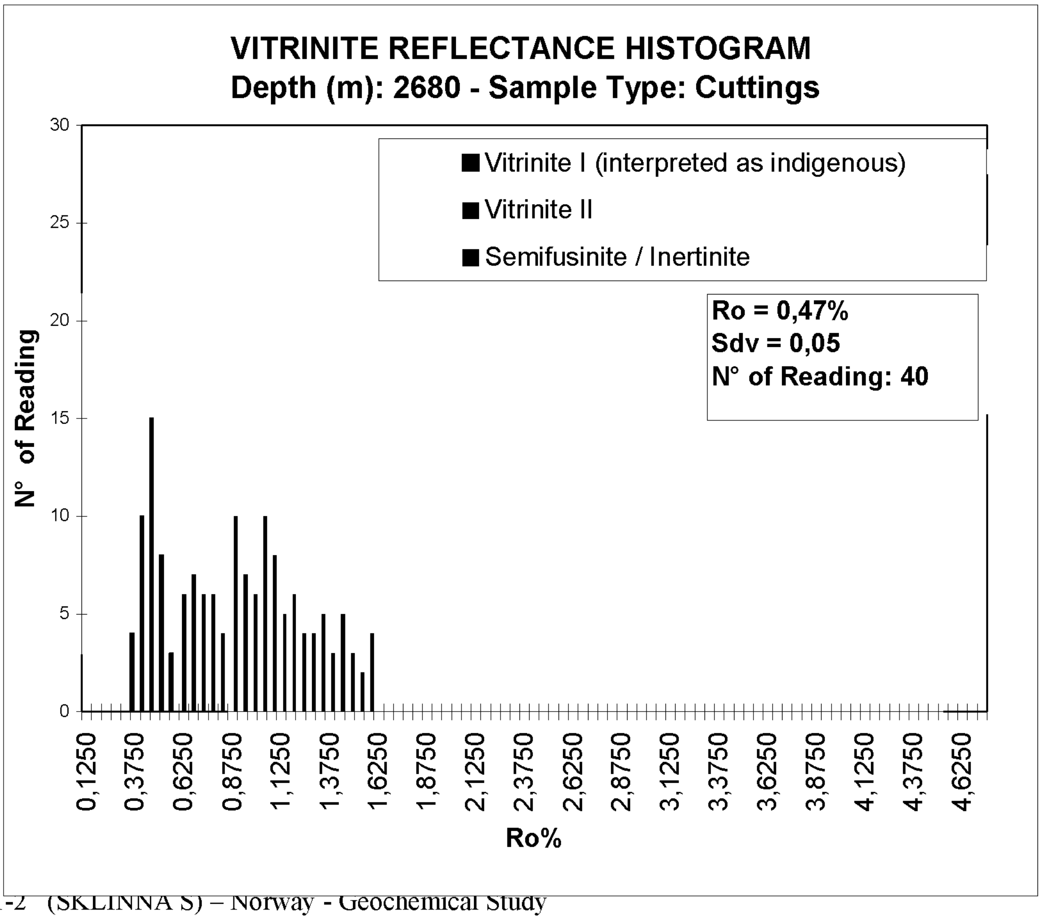
4,3750
4,6250

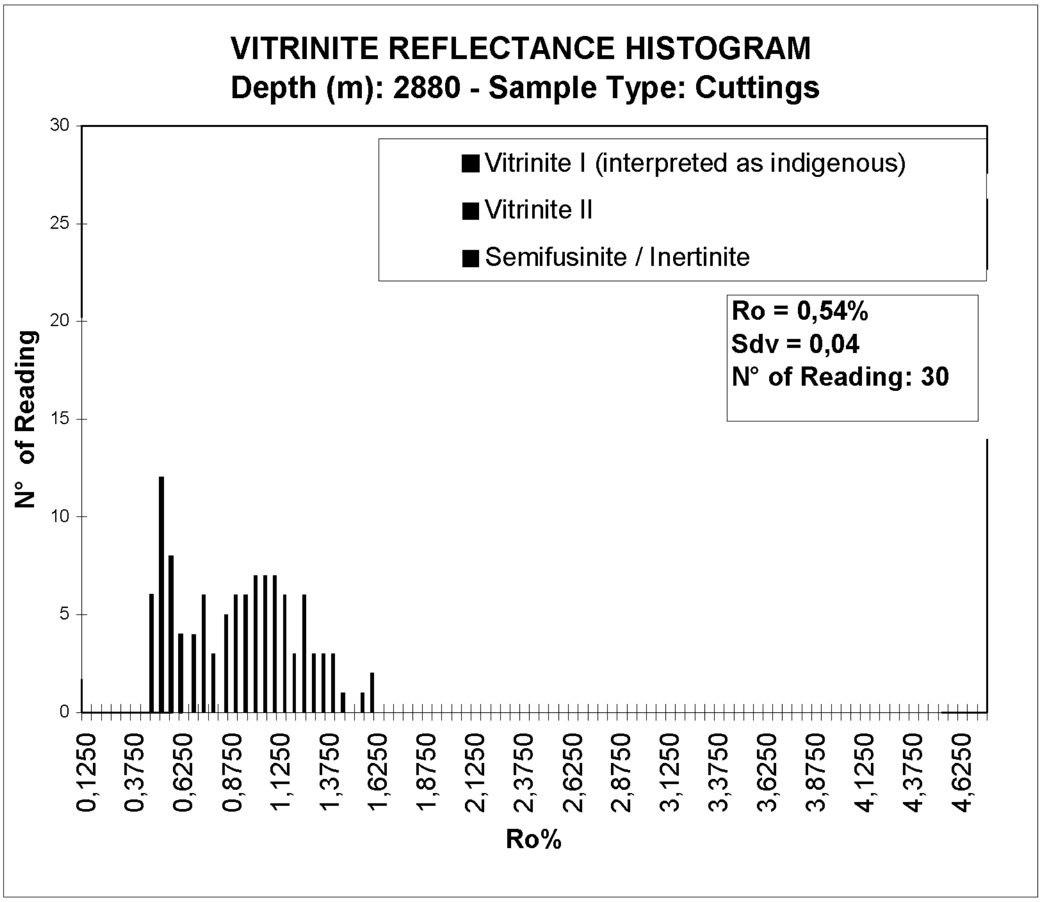

VITRINITE REFLECTANCE HISTOGRAM
Depth (m): 2250 - Sample Type: Cuttings
Vitrinite I (interpreted as indigenous)
Smifusinite / Inertinite
Ro = 0,36%
Sdv = 0,03
N° of Reading: 10
N° of Reading
Ro%
0,1250
0,3750
0,6250
0,8750
1,1250
1,3750
1,6250
1,8750
2,1250
2,3750
2,6250
2,8750
3,1250
3,3750
3,6250
3,8750
4,1250
4,3750
4,6250



VITRINITE REFLECTANCE HISTOGRAM
Depth (m): 2480 - Sample Type: Cuttings
Vitrinite I (interpreted as indigenous)
Semifusinite / Inertinite
Ro = 0,41%
Sdv = 0,06
N° of Reading: 3
N° of Reading
Ro%



VITRINITE REFLECTANCE HISTOGRAM
Depth (m): 2680 - Sample Type: Cuttings
Vitrinite I (interpreted as indigenous)
Vitrinite II
Semifusinite / Inertinite
Ro = 0,47%
Sdv = 0,05
N° of Reading: 40
N° of Reading
Ro%



VITRINITE REFLECTANCE HISTOGRAM
Depth (m): 2880 - Sample Type: Cuttings
Vitrinite I (interpreted as indigenous)
Vitrinite II
Semifusinite / Inertinite
Ro = 0,54%
Sdv = 0,04
N° of Reading: 30
N° of Reading
Ro%
0,1250
0,3750
0,6250
0,8750
1,1250
1,3750
1,6250
1,8750
2,1250
2,3750
2,6250
2,8750
3,1250
3,3750
3,6250
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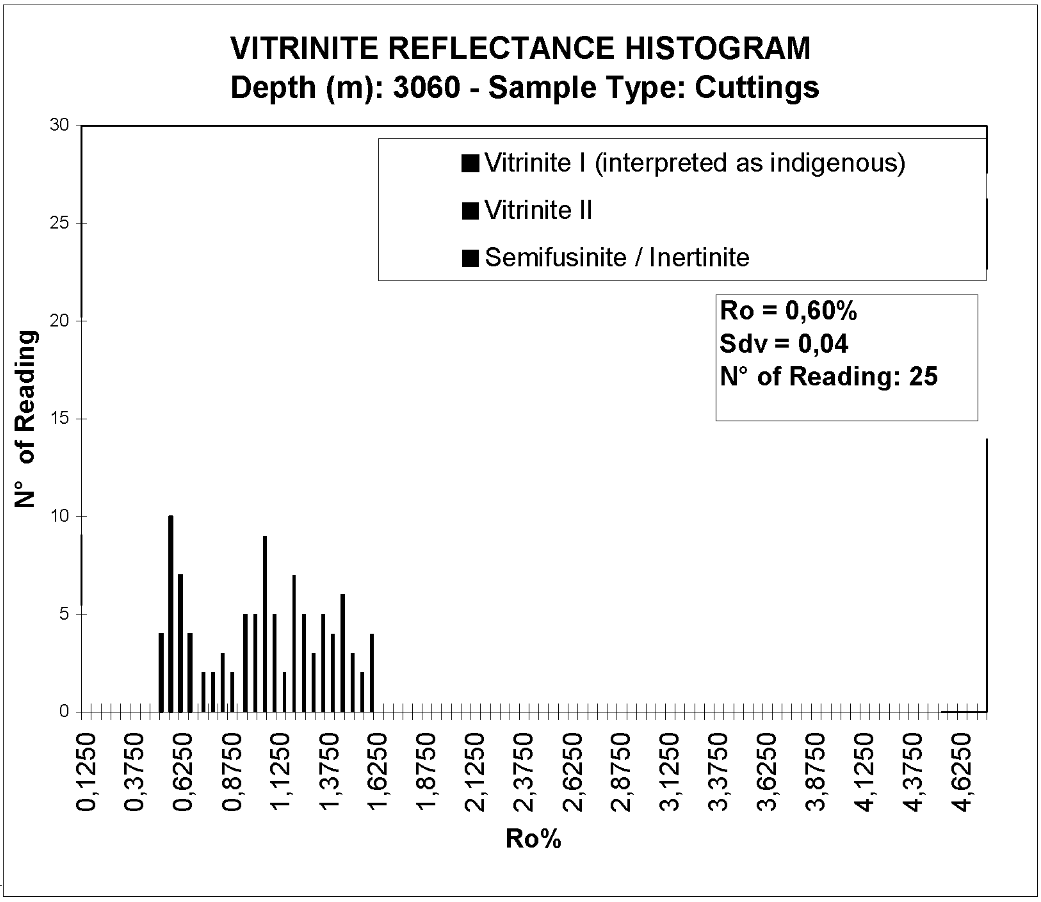
4,1250
4,3750
4,6250



VITRINITE REFLECTANCE HISTOGRAM
Depth (m): 3060 - Sample Type: Cuttings
Vitrinite I (interpreted as indigenous)
Vitrinite II
Semifusinite / Inertinite
Ro = 0,60%
Sdv = 0,04
N° of Reading: 25
N° of Reading
Ro%
0,1250
0,3750
0,6250
0,8750
1,1250
1,3750
1,6250
1,8750
2,1250
2,3750
2,6250
2,8750
3,1250
3,3750
3,6250
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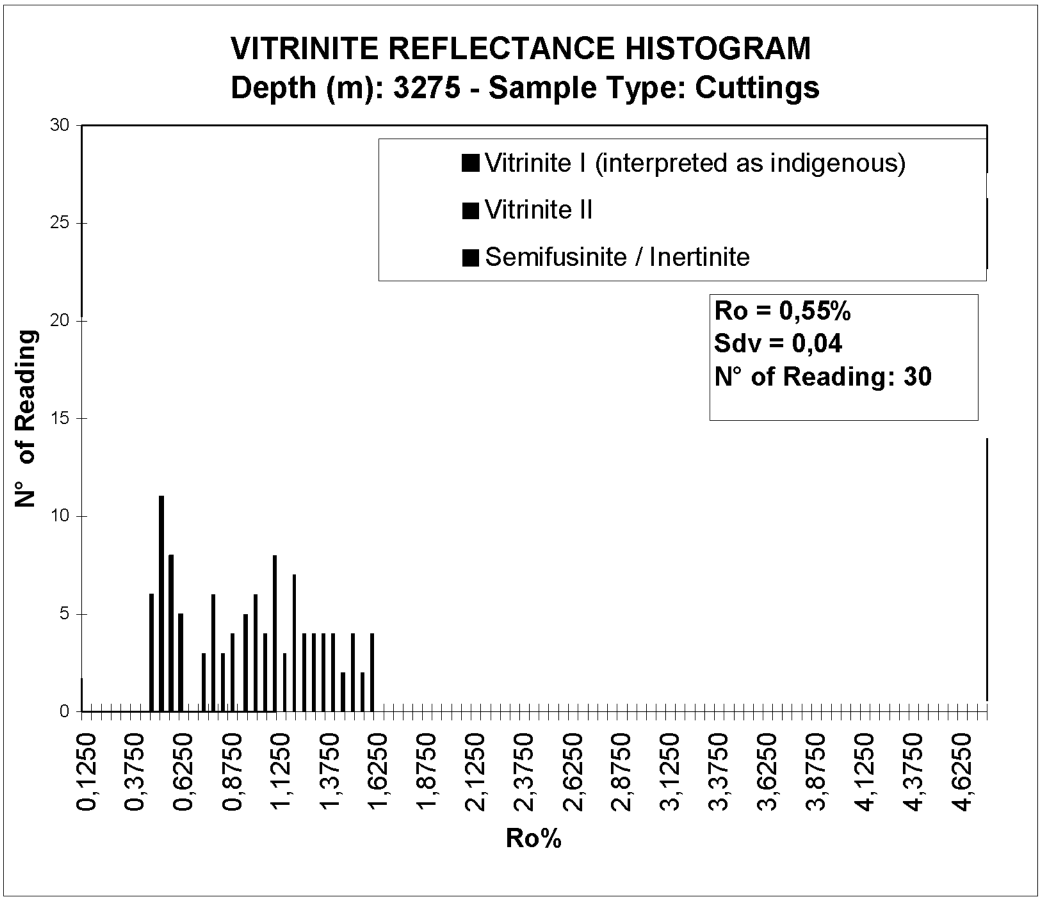
4,1250
4,3750
4,6250



VITRINITE REFLECTANCE HISTOGRAM
Depth (m): 3275 - Sample Type: Cuttings
Vitrinite I (interpreted as indigenous)
Vitrinite II
Semifusinite / Inertinite
Ro = 0,55%
Sdv = 0,04
N° of Reading: 30
N° of Reading
Ro%
0
5
10
15
20
25
30
0,1250
0,3750
0,6250
0,8750
1,1250
1,3750
1,6250
1,8750
2,1250
2,3750
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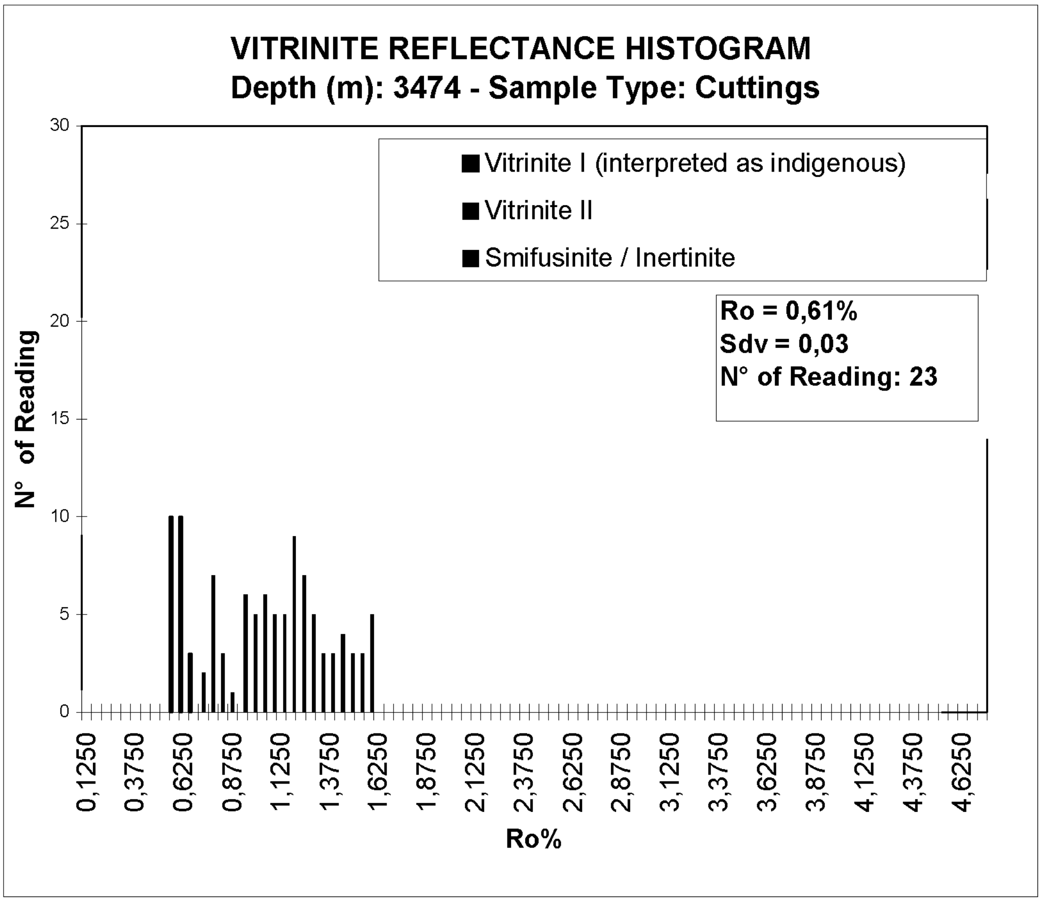
4,1250
4,3750
4,6250



VITRINITE REFLECTANCE HISTOGRAM
Depth (m): 3474 - Sample Type: Cuttings
Vitrinite I (interpreted as indigenous)
Vitrinite II
Smifusinite / Inertinite
Ro = 0,61%
Sdv = 0,03
N° of Reading: 23
N° of Reading
Ro%
0
5
10
15
20
25
30
0,1250
0,3750
0,6250
0,8750
1,1250
1,3750
1,6250
1,8750
2,1250
2,3750
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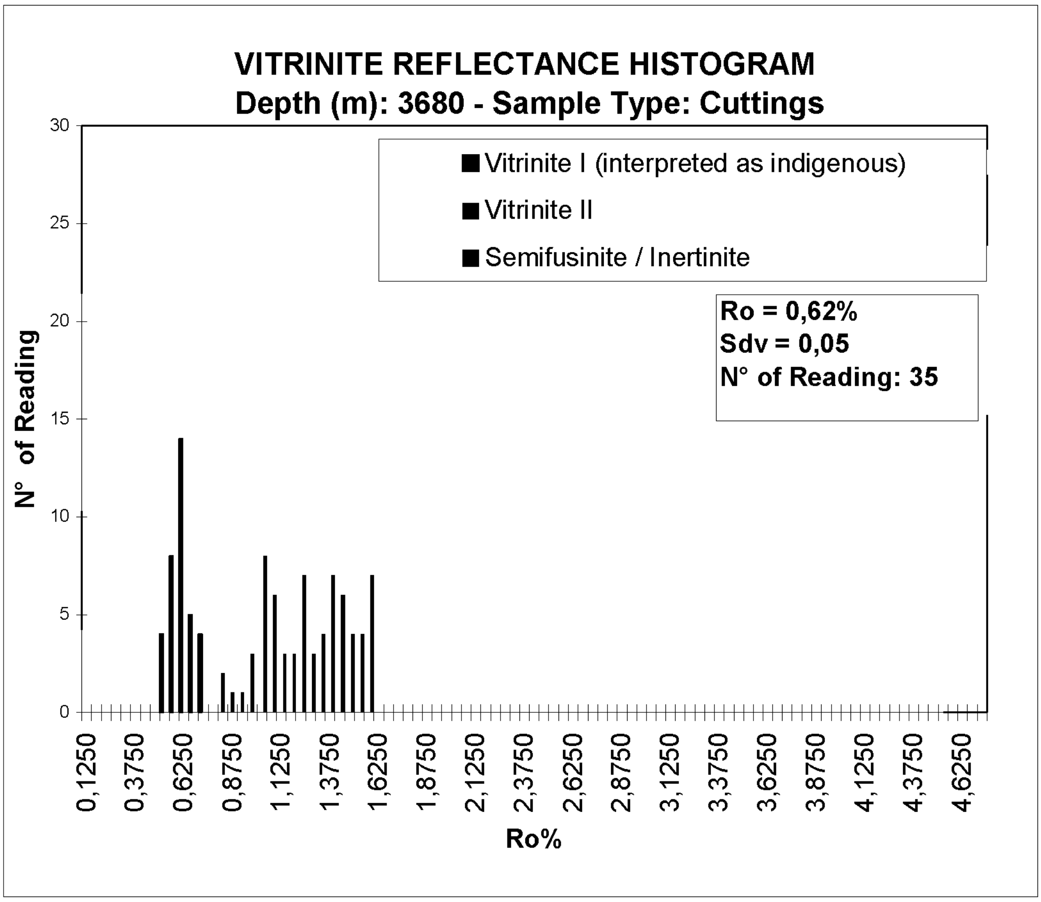
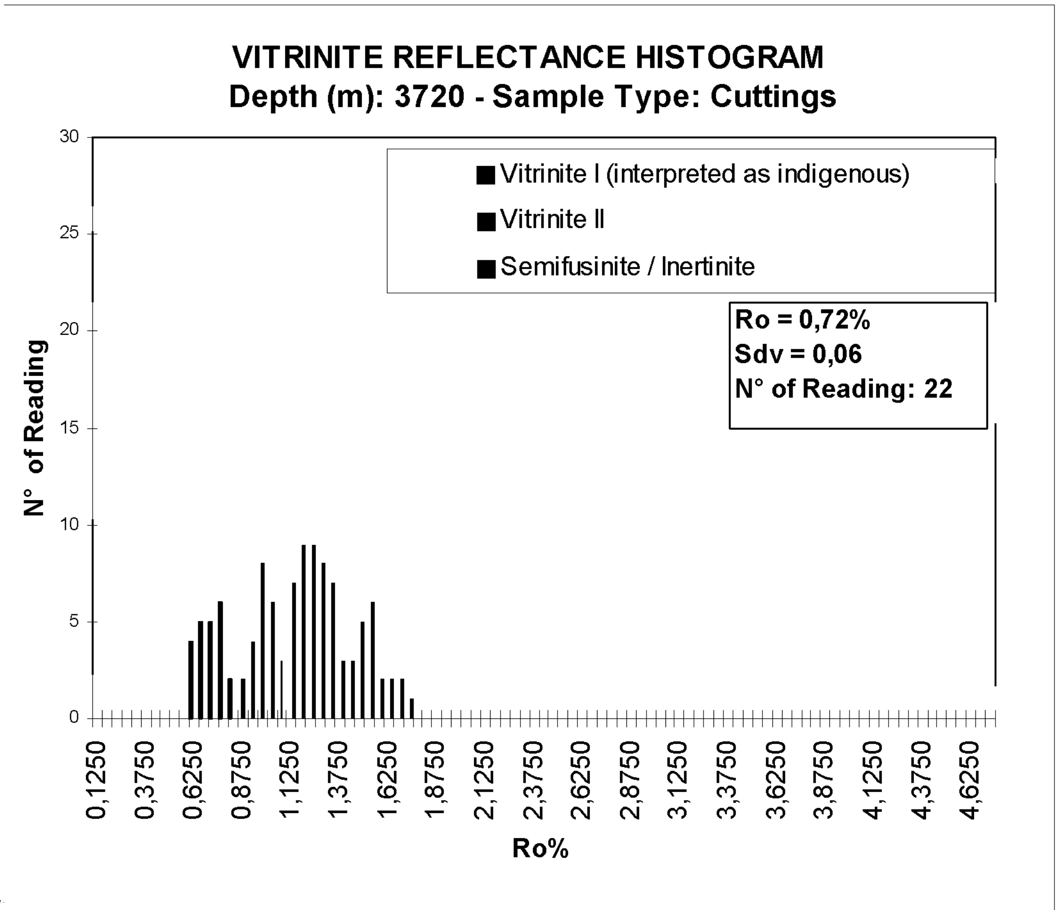
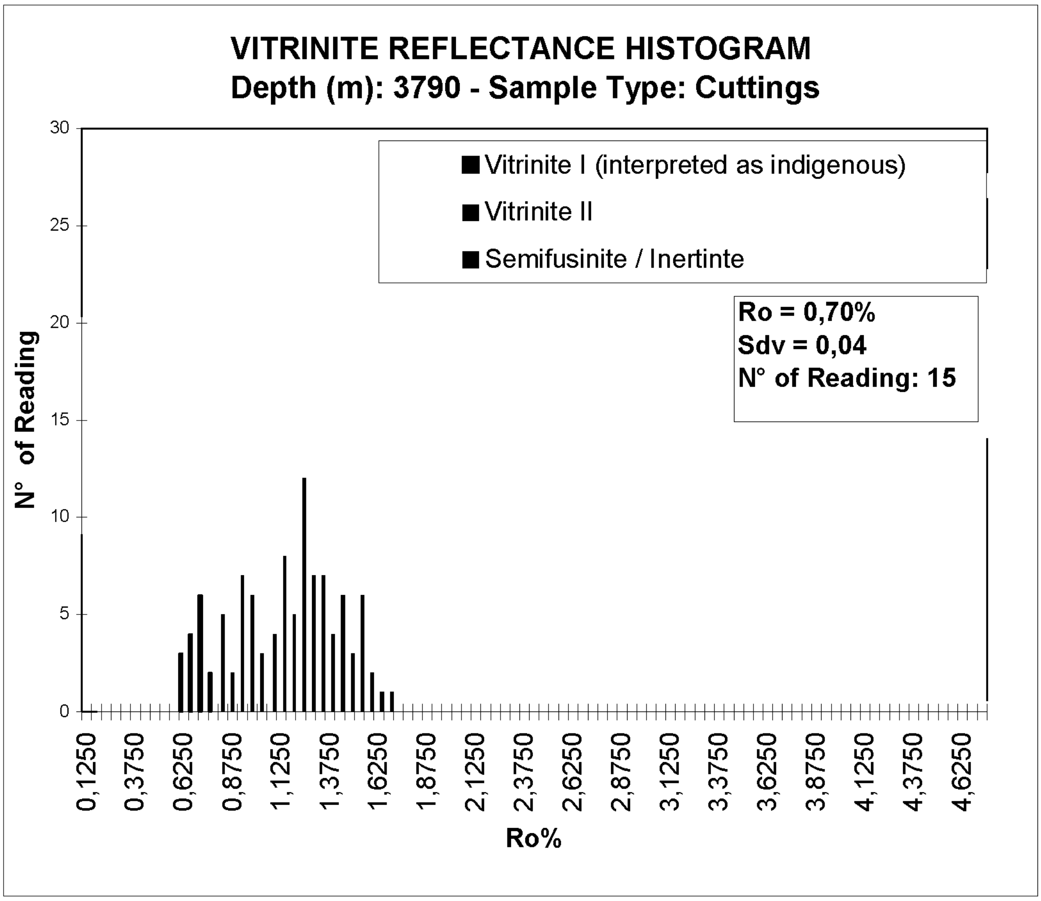
3,8750
4,1250
4,3750
4,6250



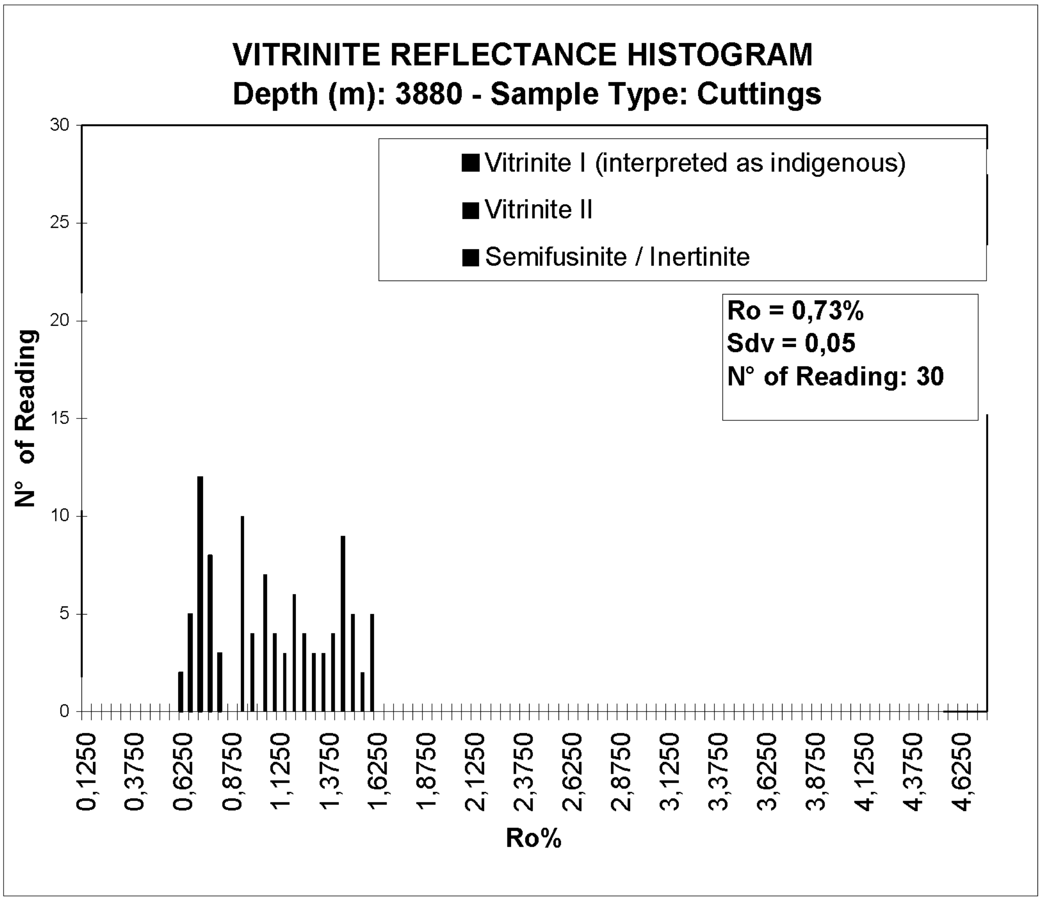
VITRINITE REFLECTANCE HISTOGRAM
Depth (m): 3680 - Sample Type: Cuttings
Vitrinite I (interpreted as indigenous)
Vitrinite II
Semifusinite / Inertinite
Ro = 0,62%
Sdv = 0,05
N° of Reading: 35
N° of Reading
Ro%
0,1250 0,3750 0,6250 0,8750 1,1250 1,3750 1,6250 1,8750 2,1250 2,3750 2,6250 2,8750 3,1250 3,3750 3,6250 3,8750 4,1250 4,3750 4,6250
0 5 10 15 20 25 30



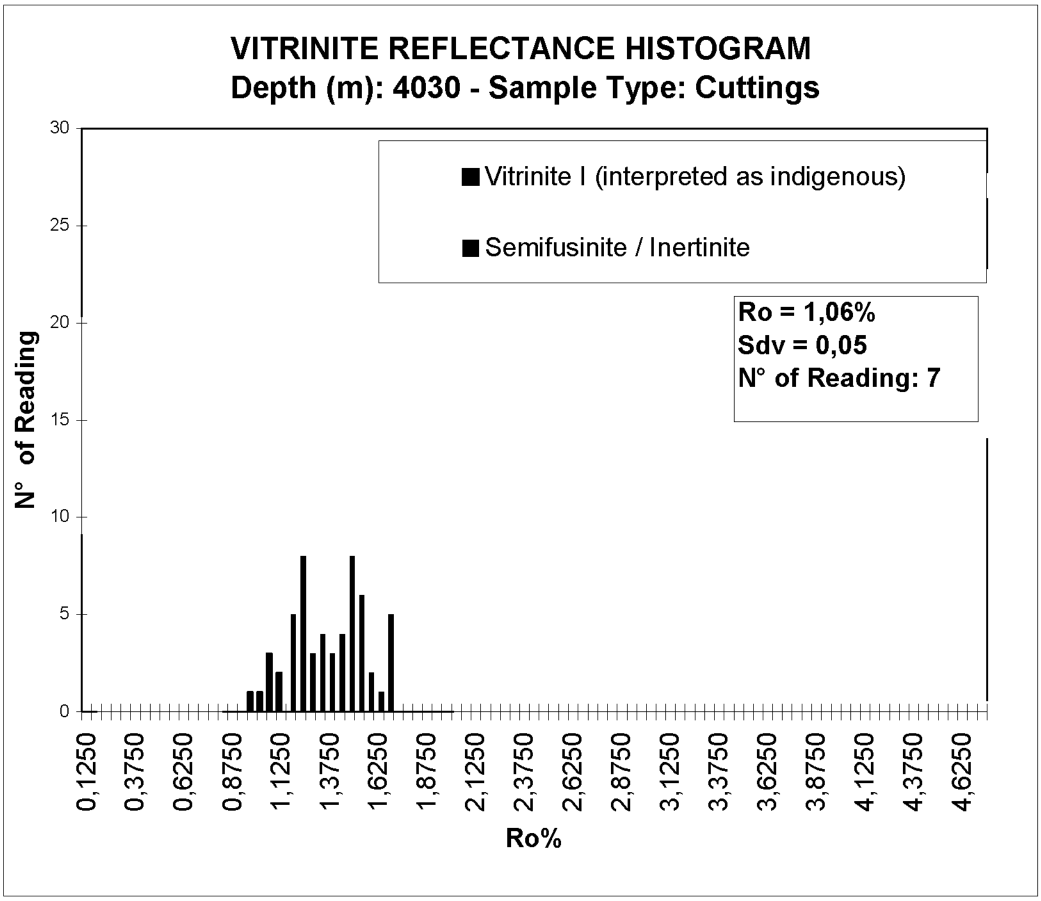
VITRINITE REFLECTANCE HISTOGRAM
Depth (m): 3720 - Sample Type: Cuttings
Vitrinite I (interpreted as indigenous)
Vitrinite II
Semifusinite / Inertinite
Ro = 0,72%
Sdv = 0,06
N° of Reading: 22
N° of Reading
Ro%
0,1250 0,3750 0,6250 0,8750 1,1250 1,3750 1,6250 1,8750 2,1250 2,3750 2,6250 2,8750 3,1250 3,3750 3,6250 3,8750 4,1250 4,3750 4,6250
0 5 10 15 20 25 30

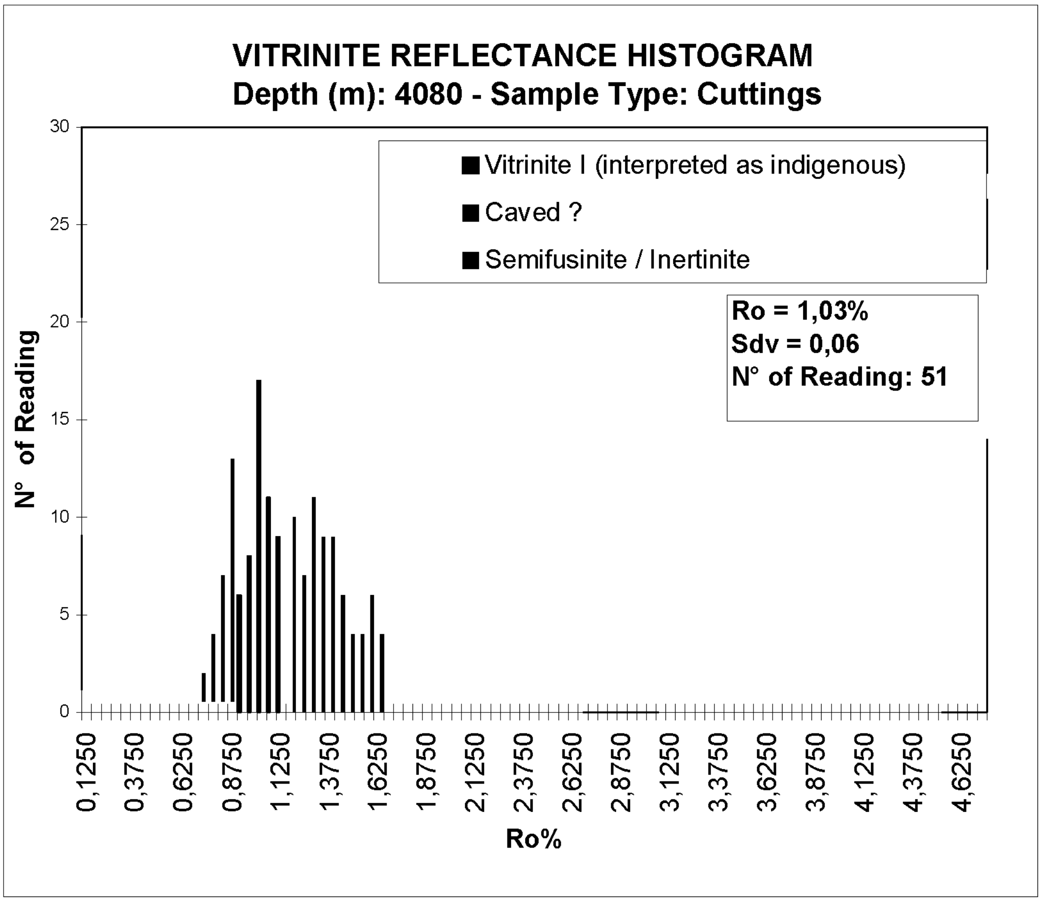


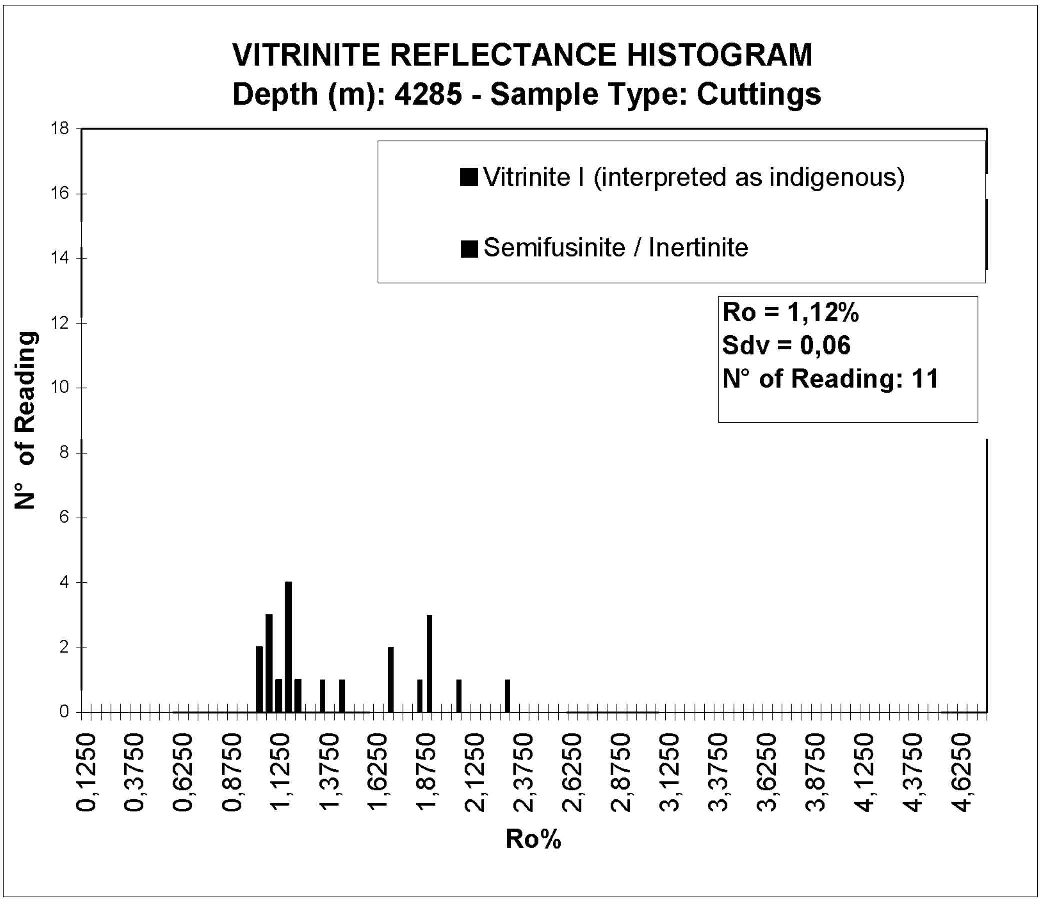
VITRINITE REFLECTANCE HISTOGRAM
Depth (m): 3790 - Sample Type: Cuttings
Vitrinite I (interpreted as indigenous)
Vitrinite II
Semifusinite / Inertinte
Ro = 0,70%
Sdv = 0,04
N° of Reading: 15
N° of Reading
Ro%



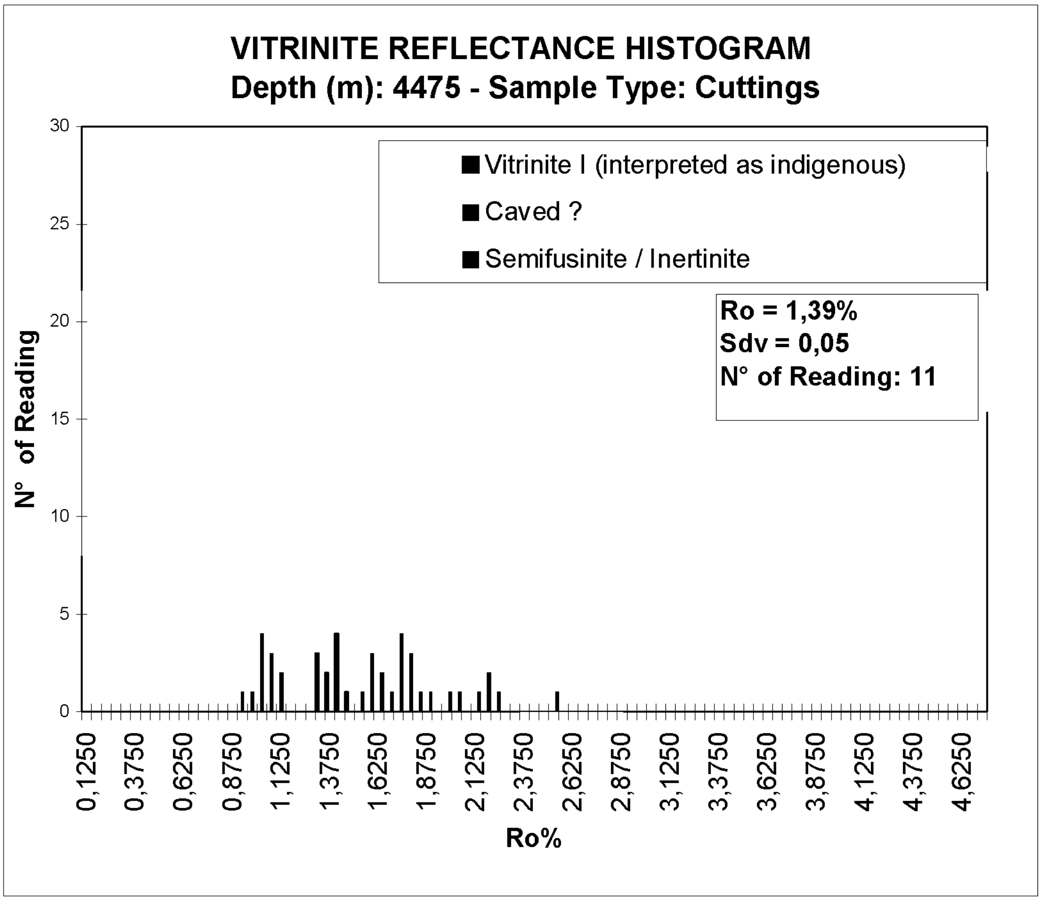
VITRINITE REFLECTANCE HISTOGRAM
Depth (m): 3880 - Sample Type: Cuttings
Vitrinite I (interpreted as indigenous)
Vitrinite II
Semifusinite / Inertinte
Ro = 0,73%
Sdv = 0,05
N° of Reading: 30
N° of Reading
Ro%


VITRINITE REFLECTANCE HISTOGRAM
Depth (m): 4030 - Sample Type: Cuttings
Vitrinite I (interpreted as indigenous)
Semifusinite / Inertinite
Ro = 1,06%
Sdv = 0,05
N° of Reading: 7
N° of Reading
Ro%


VITRINITE REFLECTANCE HISTOGRAM
Depth (m): 4080 - Sample Type: Cuttings
Vitrinite I (interpreted as indigenous)
Caved ?
Semifusinite / Inertinite
Ro = 1,03%
Sdv = 0,06
N° of Reading: 51
N° of Reading
Ro%



VITRINITE REFLECTANCE HISTOGRAM
Depth (m): 4285 - Sample Type: Cuttings
Vitrinite I (interpreted as indigenous)
Semifusinite / Inertinite
Ro = 1,12%
Sdv = 0,06
N° of Reading: 11
N° of Reading
Ro%



VITRINITE REFLECTANCE HISTOGRAM
Depth (m): 4475 - Sample Type: Cuttings
Vitrinite I (interpreted as indigenous)
Caved ?
Semifusinite / Inertinite
Ro = 1,39%
Sdv = 0,05
N° of Reading: 11
N° of Reading
Ro%

6. Annex II

TOC and RockEval Analysis Bulletin and Geochemical logs

Exploration & Production Division

S. Donato 03 - 11 - 2003

Bull. n° 74

NORWAY - PL256
Well: 6406 / 1 - 2 (Sklinna)
cuttings and sidewall cores

T. O. C. and ROCK-EVAL PYROLYSIS

Depth m	Sample type	TOC Wt%	S1 mg/g	S2 mg/g	S3 mg/g	HI	OI	Tmax °C	PI
3501.00	cuttings - ws	0.98	0.26	4.33	1.03	442	105	436	0.06
3510.00	cuttings - ws	0.88	0.13	3.44	0.76	391	86	435	0.04
3519.00	cuttings - ws	0.97	0.21	4.17	1.37	430	141	435	0.05
3530.00	cuttings - ws	1.10	0.20	4.63	1.05	421	95	437	0.04
3540.00	cuttings - ws	1.08	0.27	4.40	1.10	407	102	437	0.06
3550.00	cuttings - ws	1.35	0.38	6.45	1.35	478	100	439	0.06
3560.00	cuttings - ws	1.54	0.38	6.49	1.28	421	83	441	0.06
3570.00	cuttings - ws	1.35	0.41	4.53	1.00	336	74	436	0.08
3580.00	cuttings - ws	1.45	0.22	5.53	1.21	381	83	437	0.04
3590.00	cuttings - ws	1.46	0.43	5.22	1.13	358	77	438	0.08
3600.00	cuttings - ws	1.50	0.22	4.11	0.89	274	59	437	0.05
3610.00	cuttings - ws	2.23	0.32	3.97	1.30	178	58	437	0.07
3630.00	cuttings - ws	1.22	0.21	3.79	1.87	311	153	438	0.05
3640.00	cuttings - ws	1.54	0.20	4.76	2.47	309	160	436	0.04
3650.00	cuttings - ws	1.88	0.23	4.74	1.75	252	93	437	0.05
3660.00	cuttings - ws	1.40	0.16	4.65	1.23	332	88	439	0.03
3670.00	cuttings - ws	1.73	0.21	4.77	1.14	276	66	440	0.04
3680.00	cuttings - ws	1.44	0.43	5.41	1.23	376	85	439	0.07
3690.00	cuttings - ws	1.16	0.23	3.61	1.02	311	88	439	0.06
3700.00	cuttings - ws	1.87	0.20	4.79	1.09	256	58	439	0.04
3710.00	cuttings - ws	4.22	0.43	6.24	1.64	148	39	439	0.06
3720.00	cuttings - ws	7.60	0.26	5.71	1.33	75	18	440	0.04
3730.00	cuttings - ws	3.13	0.24	5.07	1.22	162	39	440	0.05
3740.00	cuttings - ws	1.73	0.33	7.58	1.56	438	90	442	0.04
3750.00	cuttings - ws	1.27	0.19	2.91	1.36	229	107	440	0.06
3760.00	cuttings - ws	1.13	0.15	2.89	0.77	256	68	440	0.05
3770.00	cuttings - ws	1.30	0.21	3.38	0.76	260	58	439	0.06
3780.00	cuttings - ws	1.31	0.14	3.75	0.77	286	59	441	0.04
3790.00	cuttings - ws	12.80	0.36	7.32	1.43	57	11	438	0.05
3800.00	cuttings - ws	2.42	0.66	5.63	1.24	233	51	439	0.10
3810.00	cuttings - ws	1.45	0.62	4.74	1.14	327	79	439	0.12
3820.00	cuttings - ws	1.36	1.03	4.89	1.38	360	101	438	0.17
3830.00	cuttings - ws	1.23	1.44	2.98	0.91	242	74	436	0.33
3840.00	cuttings - ws	1.32	0.53	4.81	1.01	364	77	438	0.10
3850.00	cuttings - ws	1.33	0.38	4.42	1.60	332	120	438	0.08
3860.00	cuttings - ws	2.01	0.36	4.92	0.98	245	49	437	0.07
3870.00	cuttings - ws	1.87	0.45	4.45	0.76	238	41	439	0.09
3880.00	cuttings - ws	2.18	0.74	4.43	0.75	203	34	439	0.14
3890.00	cuttings - ws	1.21	0.58	3.80	0.71	314	59	439	0.13
3900.00	cuttings - ws	1.30	0.38	3.94	0.70	303	54	437	0.09
3910.00	cuttings - ws	1.39	3.99	13.41	3.66	965	263	443	0.23

Exploration & Production Division

S. Donato 03 - 11 - 2003
Bull. n° 74

NORWAY - PL256
Well: 6406 / 1 - 2 (Sklinna)
cuttings and sidewall cores

T. O. C. and ROCK-EVAL PYROLYSIS

Depth m	Sample type	TOC Wt%	S1 mg/g	S2 mg/g	S3 mg/g	HI	OI	Tmax °C	PI
3920.00	cuttings - ws	3.70	0.68	5.58	2.00	151	54	439	0.11
3930.00	cuttings - ws	1.46	1.13	4.15	0.75	284	51	435	0.21
3940.00	cuttings - ws	1.54	0.59	4.46	0.82	290	53	436	0.12
3950.00	cuttings - ws	1.27	0.52	3.93	0.59	309	46	438	0.12
3960.00	cuttings - ws	1.39	0.68	5.14	1.10	370	79	437	0.12
3970.00	cuttings - ws	3.24	0.83	5.95	1.20	184	37	437	0.12
3980.00	cuttings - ws	1.36	0.57	5.36	0.93	394	68	435	0.10
3990.00	cuttings - ws	2.88	0.76	6.75	1.06	234	37	438	0.10
4000.00	cuttings - ws	1.33	0.83	5.85	0.83	440	62	439	0.12
4010.00	cuttings - ws	1.88	0.41	6.75	1.31	359	70	440	0.06
4020.00	cuttings - ws	1.39	0.50	6.16	1.35	443	97	436	0.08
4030.00	cuttings - ws	20.10	0.76	9.24	2.05	46	10	437	0.08
4040.00	cuttings - ws	1.35	1.46	4.99	0.75	370	56	434	0.23
4050.00	cuttings - ws	1.42	1.62	5.42	1.02	382	72	437	0.23
4060.00	cuttings - ws	2.17	0.49	7.52	1.21	347	56	435	0.06
4070.00	cuttings - ws	1.76	0.53	6.69	0.95	380	54	435	0.07
4080.00	cuttings - ws	1.60	0.66	5.36	1.09	335	68	435	0.11
4090.00	cuttings - ws	1.35	0.32	5.53	1.37	410	101	436	0.05
4100.00	cuttings - ws	1.38	0.21	5.30	1.32	384	96	439	0.04
4110.00	cuttings - ws	1.40	0.21	5.27	1.02	376	73	437	0.04
4120.00	cuttings - ws	1.24	0.27	4.24	0.78	342	63	433	0.06
4130.00	cuttings - ws	1.55	0.26	5.51	1.03	355	66	437	0.05
4140.00	cuttings - ws	1.38	0.24	4.84	1.03	351	75	436	0.05
4150.00	cuttings - ws	1.19	0.57	7.81	0.37	656	31	442	0.07
4160.00	cuttings - ws	1.83	0.47	6.59	1.11	360	61	439	0.07
4169.00	cuttings - ws	2.12	0.13	4.03	0.60	190	28	444	0.03
4178.00	**swc**	**0.40**	**24.87**	**0.10**	**0.15**	**25**	**38**	**N.D.**	**1.00**
4179.00	**swc**	**0.30**	**26.67**	**0.00**	**0.21**	**0**	**70**	**N.D.**	**1.00**
4179.00	cuttings - ws	0.53	0.15	2.49	0.62	470	117	434	0.06
4181.00	**swc**	**0.40**	**19.15**	**0.27**	**0.15**	**68**	**38**	**430**	**0.99**
4182.00	**swc**	**0.45**	**18.03**	**0.02**	**0.15**	**4**	**33**	**N.D.**	**1.00**
4184.00	**swc**	**0.37**	**15.41**	**0.00**	**0.37**	**0**	**100**	**N.D.**	**1.00**
4191.00	cuttings - ws	1.42	0.28	6.00	1.75	423	123	435	0.04
4200.00	cuttings - ws	1.64	0.19	5.65	1.44	345	88	436	0.03
4218.00	cuttings - ws	1.81	0.17	7.54	1.51	417	83	438	0.02
4230.00	cuttings - ws	1.26	0.22	5.99	1.28	475	102	438	0.04
4239.00	cuttings - ws	0.61	0.16	4.53	0.99	743	162	438	0.03
4250.00	cuttings - ws	0.62	0.31	5.15	1.09	831	176	438	0.06
4256.00	**swc**	**0.49**	**5.00**	**0.89**	**0.59**	**182**	**120**	**436**	**0.85**
4260.00	cuttings - ws	0.63	0.18	4.49	1.11	713	176	437	0.04
4270.00	cuttings - ws	0.95	0.16	6.58	1.27	693	134	439	0.02

Exploration & Production Division

S. Donato 03 - 11 - 2003

Bull. n° 74

NORWAY - PL256
Well: 6406 / 1 - 2 (Sklinna)
cuttings and sidewall cores

T. O. C. and ROCK-EVAL PYROLYSIS

Depth m	Sample type	TOC Wt%	S1 mg/g	S2 mg/g	S3 mg/g	HI	OI	Tmax °C	PI
4272.00	**swc**	**0.30**	**2.42**	**0.35**	**0.13**	**117**	**43**	**359**	**0.87**
4276.00	**swc**	**0.74**	**0.39**	**0.55**	**0.05**	**74**	**7**	**442**	**0.41**
4280.00	cuttings - ws	1.13	0.18	6.43	1.07	569	95	439	0.03
4284.00	**swc**	**0.55**	**1.60**	**0.59**	**0.10**	**107**	**18**	**388**	**0.73**
4290.00	cuttings - ws	0.75	0.13	4.12	0.93	549	124	440	0.03
4292.00	**swc**	**0.12**	**12.02**	**0.00**	**0.23**	**0**	**192**	**N.D.**	**1.00**
4294.00	**swc**	**0.29**	**25.98**	**0.02**	**0.38**	**7**	**131**	**N.D.**	**1.00**
4300.00	cuttings - ws	0.55	0.13	3.70	0.80	673	145	443	0.03
4310.00	cuttings - ws	0.81	0.15	4.52	0.78	558	96	441	0.03
4320.00	cuttings - ws	0.85	0.15	5.36	0.92	631	108	437	0.03
4330.00	cuttings - ws	0.76	0.13	4.94	0.96	650	126	436	0.03
4342.00	cuttings - ws	0.72	0.11	4.62	0.86	642	119	439	0.02
4350.00	cuttings - ws	0.67	0.10	3.53	0.91	527	136	437	0.03
4359.00	cuttings - ws	0.40	0.08	2.71	0.83	678	208	437	0.03
4368.00	cuttings - ws	0.78	0.13	4.61	1.03	591	132	437	0.03
4377.00	cuttings - ws	0.80	0.17	5.26	1.03	658	129	437	0.03
4386.00	cuttings - ws	0.82	0.45	5.53	1.01	674	123	437	0.08
4395.00	cuttings - ws	0.65	0.20	5.03	0.92	774	142	437	0.04
4404.00	cuttings - ws	0.53	0.20	3.62	0.75	683	142	436	0.05
4413.00	cuttings - ws	0.79	0.28	4.63	0.82	586	104	432	0.06
4415.00	**swc**	**0.57**	**1.75**	**0.37**	**0.12**	**65**	**21**	**381**	**0.83**
4422.00	cuttings - ws	0.55	0.18	3.77	0.74	685	135	436	0.05
4431.00	cuttings - ws	0.51	0.09	3.13	0.65	614	127	434	0.03
4440.00	cuttings - ws	0.50	0.12	3.69	0.68	738	136	437	0.03
4449.00	cuttings - ws	0.63	0.19	4.53	0.84	719	133	437	0.04
4458.00	cuttings - ws	0.46	0.17	3.12	0.72	678	157	436	0.05
4467.00	**swc**	**0.12**	**0.56**	**0.04**	**0.55**	**33**	**458**	**N.D.**	**0.93**
4467.00	cuttings - ws	1.09	0.29	6.39	1.13	586	104	440	0.04
4474.00	**swc**	**0.06**	**0.97**	**0.02**	**0.13**	**33**	**217**	**N.D.**	**0.98**
4476.00	cuttings - ws	0.63	0.33	4.44	0.71	705	113	438	0.07
4485.00	cuttings - ws	0.70	0.36	4.70	1.08	671	154	427	0.07
4494.00	cuttings - ws	0.73	0.20	5.01	1.06	686	145	427	0.04
4500.00	cuttings - ws	0.71	0.22	4.60	1.01	648	142	424	0.05

TEST

	Depth m	Sample type	TOC Wt%	S1 mg/g	S2 mg/g	S3 mg/g	HI	OI	Tmax °C	PI
VERSATROL			**80.00**	**38.00**	**530.00**	**5.00**	**663**	**6**	**437**	**0.07**
classic washing (dichloromethane)	**3510.00**	**cuttings - ws**	**0.88**	**0.13**	**3.44**	**0.76**	**391**	**86**	**435**	**0.04**
+ 12h (dichlorom. + methanol 93:7)	**3510.00**			**0.09**	**1.49**	**0.59**			**434**	**0.06**
+ 12h (dichlorom. + methanol 93:7)	**3510.00**			**0.10**	**1.09**	**0.60**			**434**	**0.08**
+ 48h (dichlorom. + methanol 93:7)	**3510.00**		**0.61**	**0.07**	**0.97**	**0.49**	**159**	**80**	**436**	**0.07**
classic washing (dichloromethane)	**3570.00**	**cuttings - ws**	**1.35**	**0.41**	**4.53**	**1.00**	**336**	**74**	**436**	**0.08**
+ 12h (dichlorom. + methanol 93:7)	**3570.00**			**0.19**	**3.13**	**0.84**			**435**	**0.06**
+ 12h (dichlorom. + methanol 93:7)	**3570.00**			**0.10**	**1.83**	**0.80**			**436**	**0.05**
+ 48h (dichlorom. + methanol 93:7)	**3570.00**		**1.05**	**0.08**	**1.68**	**0.44**	**160**	**42**	**436**	**0.05**

N.D.= Tmax not determinable (S2<0,2)
swc = sidewall cores
cutting-ws = cutting washed by organic solvent

7. Annex III

Head Space Analysis

S.Donato Milanese, Boll. n°

CHEMICAL ANALYSIS OF MINI HEAD SPACE

WELL : 6406/1-2

Depth (m)	C1 %	C2 %	C3 %	i-C4 %	n-C4 %	i-C5 %	n-C5 %	C6+ %	%CH_4 Vol. tot.	PPB	I/N C4
2450	94.01	4.48	0.91	0.34	0.14	0.06	0.03	0.03	1.520	3577	2.43
2500	97.94	1.44	0.38	0.12	0.08	0.03	0.01		1.070	2642	1.50
2550	98.05	1.01	0.29	0.51	0.08	0.03	0.02	0.01	1.040	2238	6.38
2600	96.80	1.25	0.60	0.89	0.20	0.10	0.08	0.08	0.490	1107	4.45
2650	97.01	0.91	0.33	1.61	0.07	0.02	0.02	0.03	1.070	2585	23.00
2700	95.55	2.24	0.96	0.85	0.23	0.06	0.06	0.05	0.660	1477	3.70
2750	92.82	4.16	2.04	0.24	0.47	0.16	0.11		0.460	904	0.51
2800	95.86	1.99	0.98	0.79	0.25	0.08	0.05		0.390	828	3.16
2850	96.59	1.90	0.87	0.33	0.20	0.06	0.05		0.580	1285	1.65
2900	96.63	1.91	0.90	0.25	0.20	0.06	0.05		0.810	1703	1.25
2950	92.44	4.27	2.34	0.18	0.47	0.13	0.12	0.05	0.390	760	0.38
3000	96.44	1.80	1.00	0.24	0.29	0.09	0.08	0.06	0.320	635	0.83
3050	92.27	3.66	2.48	0.70	0.58	0.17	0.14		0.300	547	1.21
3100	93.69	3.53	1.83	0.25	0.41	0.13	0.11	0.05	0.600	1140	0.61
3150	95.79	1.85	1.16	0.53	0.39	0.11	0.10	0.07	0.190	362	1.36
3200	91.03	3.35	2.52	1.96	0.73	0.18	0.23		0.170	324	2.68
3250	94.87	2.81	1.42	0.35	0.34	0.07	0.08	0.06	0.360	727	1.03
3300	91.76	4.49	2.50	0.38	0.54	0.14	0.14	0.05	0.600	1256	0.70
3386	91.41	3.72	3.16	0.46	0.78	0.15	0.17	0.15	0.170	366	0.59
3400	96.98	1.79	0.81	0.14	0.18	0.04	0.04	0.02	1.610	3138	0.78
3450	95.31	2.08	1.47	0.36	0.47	0.10	0.13	0.08	0.260	557	0.77
3502	96.80	1.64	0.73	0.46	0.24	0.06	0.07		0.270	535	1.92
3550	92.05	2.74	2.62	0.54	1.12	0.22	0.32	0.39	0.080	148	0.48
3600	94.57	2.43	1.55	0.58	0.58	0.13	0.16		0.120	241	1.00
3650	89.35	4.69	3.41	0.85	1.02	0.27	0.31	0.10	0.150	301	0.83
3700	94.68	3.03	1.43	0.11	0.45	0.14	0.16		0.130	291	0.24
3750	92.77	3.81	2.18	0.09	0.64	0.16	0.21	0.14	0.140	303	0.14
3800	96.63	2.26	0.71	0.13	0.18	0.04	0.05		0.390	694	0.72
3850	89.07	6.82	2.86	0.35	0.55	0.13	0.16	0.06	0.220	485	0.64
3900	89.61	6.23	2.93	0.11	0.61	0.17	0.17	0.17	0.110	230	0.18
3950	85.22	8.45	4.45	0.56	0.86	0.15	0.21	0.10	0.230	486	0.65
3951.5	97.65	1.87	0.33	0.08	0.05	0.01	0.01		1.760	3275	1.60
4000	90.56	5.98	2.47	0.25	0.50	0.10	0.14		0.160	320	0.50
4050	90.48	4.42	3.34	0.16	0.99	0.21	0.33	0.07	0.060	168	0.16
4100	90.55	5.43	2.80	0.14	0.67	0.17	0.24		0.120	271	0.21
4150	83.26	5.50	4.40	5.60	0.74	0.23	0.27		0.050	105	7.57
4175	96.17	3.14	0.55	0.03	0.07	0.02	0.02		0.680	1450	0.43
4200	89.69	5.32	3.38	0.68	0.63	0.14	0.16		0.100	192	1.08
4225	89.40	6.53	3.17	0.10	0.52	0.15	0.13		0.100	210	0.19
4230	90.36	6.21	2.65	0.25	0.34	0.10	0.09		0.140	293	0.74
4250	92.71	5.35	1.38	0.19	0.22	0.09	0.06		0.020	42	0.86
4300	87.69	8.77	1.74	1.26	0.54				0.030	67	2.33
4325	89.67	7.02	1.87	0.67	0.38	0.21	0.18		0.020	40	1.76
4350	93.44	4.41	1.00	0.48	0.27	0.22	0.18		0.020	39	1.78
4375	94.58	3.32	0.93	0.60	0.23	0.18	0.16		0.010	21	2.61
4405	90.91	4.54	1.25	2.41	0.45	0.23	0.21		0.010	21	5.36
4425	90.74	4.75	4.51						0.010	21	
4450	90.54	6.88	1.44	0.99	0.15				0.010	19	6.60
4476	86.17	7.01	1.68	4.72	0.42				0.010	19	11.24
4500	88.62	9.01	2.37						0.004	8	

Eni GROUP

S.Donato Milanese, Boll. n°

ISOTOPIC ANALYSIS OF MINI HEAD SPACE

WELL : 6406/1-2

Prof. (m)	$\delta^{13}C$ C1	$\delta^{13}C$ C2	$\delta^{13}C$ C3	$\delta^{13}C$ i-C4	$\delta^{13}C$ n-C4	$\delta^{13}C$ i-C5	$\delta^{13}C$ n-C5	$\delta^{13}C$ CO2
2450	-43.19	-32.71	-25.90					
2500	-47.22	-33.81						
2550	-46.72	-31.77						
2600	-45.28							
2650	-44.91	-33.83						
2750	-42.06	-32.55						
2800	-42.67	-30.98						
2850	-43.12	-33.08						-13.47
2900	-41.09							
2950	-40.79							
3000	-43.47	-33.14						-12.93
3100	-41.73							
3150	-39.91	-30.32	-26.11					
3200	-44.58							
3250	-41.10	-32.13						
3300	-40.35	-31.08						
3386	-38.87							
3400	-40.30	-31.72	-25.46					-12.40
3450	-40.45							
3502	-40.41							
3550	-42.29							
3600	-42.11							
3650	-41.82	-30.13						
3700	-39.27	-29.85						
3800	-41.22	-31.15						
3850	-35.33							
3900	-35.84							
3950	-38.35	-28.95						
3951.5	-42.15	-31.39						
4000	-40.26	-30.06						
4050	-40.62							
4100	-43.13	-31.13						
4150	-41.68							
4175	-41.35	-29.28	-26.16					
4200	-40.84							
4250	-43.25							
4300	-43.08	-34.69						
4325	-40.15							
4350	-40.17							
4375	-38.71							
4476	-58.92							