3.3 MDT results

Table 3.3.1 Formation pressure run 2A

No.	Depth. m MD RKB	Depth. m TVD RKB	Hydrost. pressure before kPa	Hydrost. pressure after kPa	Formation pressure kPa	Mobility mD/cp		Remarks
1	3432,3	3431,1	61 375	61 375				Tight
2	3434,3	3433,1	61 422	61 420				Tight
3	3438,4	3437,2	61 505	61 502	53 218?			Tight??. abandoned
4	3444,3	3443,1	61 619	61 615				Tight
5	3447,1	3445,9	61 673	61 670				Tight
6	3557,7	3556,4	63 666	63 663				Tight
7	3562,1	3560,8	63 728	63 718				Tight. abandoned
8	3563,0	3561,7	63 742	63 739				Tight
9	3566,3	3564,9	63 810	63 790				Tight. abandoned
10	4362,0	4360,6	77 705	77 746				Tight
11	4400,1	4398,6	78 446	78 422				Tight
12	4421,3	4419,9	78 819	78 804				Tight
13	3562,0	3560,7	63 608	63 623				Tight

Table 3.3.2 MDT run 3B - Top Garn and Apt sandstone

No.	Depth. m MD RKB	Depth. m TVD RKB	Hydrost. pressure before kPa	Hydrost. pressure after kPa	Formation pressure kPa	Mobility mD/cp	Remarks
1	4666,5	4664,9	92 299	92 297	89 618	20,2	Good
2	4665,5	4663,9	92 265	92 263	89 611	5,7	Good
3	4659,5	4657,9	92 115	92 115	89 581	11,2	Good
4	4653,4	4651,8	91 981	91 988	89 562	0,57	Poor
5	4651,9	4650,3	91 957	91 965	-	-	Unrecognisable
6	4520,0	4518,5	89 350	89 359	-	_	Tight, abandoned
7	4519,5	4518,0	89 405	89 359	-	-	Tight, abandoned

Table 3.3.3 MDT run 4A

No	Depth. m MD RKB	Depth. m TVD RKB	Hydrost. pressure before kPa	Hydrost. pressure after kPa	Formation pressure kPa	Mobility mD/cp		Remarks
1	4652,5	4650,9	93 426	93 417	89 671?	0,17		Tight/Sup. Ch
2	4654,0	4652,4	93 452	93 445	89 617?	0,49		Tight/Sup. Ch
3	4666,5	4664,9	93 728	93 708	89 604	35,4		Good
4	4674,0	4672,3	93 857	93 841	89 798?	0,1		Tight/Sup. Ch
5	4681,5	4679,9	94 026	93 994	90 037?	0,01		Tight/Sup. Ch
6	4688,0	4686,4	94 153	94 123	89 922?	0,1		Tight/Sup. Ch
7	4698,7	4697,1	94 371	94 343	89 855?			Tight/Sup. Ch
8	4702,5	4700,9	94 419	94 405	89 940?	0,1		Tight/Sup. Ch
9	4704,5	4702,9	94 449	94 420	89 922?	0,3		Tight/Sup. Ch
10	4708,5	4706,8	94 536	94 523	89 987?	0,7		Tight/Sup. Ch
11	4716,2	4714,6	94 690	94 679	89 160?			Tight/Sup. Ch
12	4726,3	4724,7	94 901	94 880	89 539?			Tight/Sup. Ch
13	4740,4	4738,7	95 200	95 162	90 140?	0,1		Tight/Sup. Ch
14	4749,4	4747,8	95 373	95 345	90 423?	0,8		Tight/Sup. Ch
15	4751,0	4749,3	95 386	95 378				Tight, abandon
16	4756,0	4754,3	95 506	95 461				Tight, abandon
17	4759,5	4757,8	95 557	95 555	90 451?	0,1		Tight/Sup. Ch
18	4763,5	4761,8	95 643	95 631	90 562?	0,3		Tight/Sup. Ch
19	4764,3	4762,7	95 662	95 656	90 457?	0,5		Tight/Sup. Ch
20	4833,0	4831,3	97 059	97 043				Tight, abandon
21	4840,5	4838,9	97 209	97 190	91 238?			Tight, abandon
22	4841,6	4840,0	97 224	97 215	91 158	18,6		Good
23	4846,0	4844,3	97 302	97 299	91 149?			Tight
24	4846,5	4844,8	97 338	97 315	91 179	26,8		Good
25	4854,8	4853,1	97 494	97 480	91 222	113,6		Excellent
26	4859,7	4858,0	97 585	97 573	91 243	10,2		Good
27	4862,8	4861,1	97 638	97 632	91 258	1,7		Good
28	4868,7	4867,0	97 761	97 746	91 324?			Supercharged
29	4868,2	4866,5	97 741	97 735				Tight, abandon
30	4868,5	4866,8	97 745	97 743	91 282	5,6		Good
31	4874,0	4872,3	97 861	97 850	91 321	123		Excellent
32	4880,5	4878,8	97 978	97 979	91 386	428		Excellent
33	4893,5	4891,8	98 281	98 254	91 513	58,5		Excellent
34	4955,0	4953,2	99 476	99 458	92 130	4		Good
35	4957,5	4955,7	99 492	99 493	92 153	289,1		Excellent
36	4960,0	4958,2	99 539	99 538	92 176	474,1		Excellent

Table 3.3.4 MDT run 4D

No.	Depth. m MD RKB	Depth. m TVD RKB	Hydrost. pressure before kPa	Hydrost. pressure after kPa	Formation pressure kPa	Mobility mD/cp		Remarks
37	4652,4	4650,9	93 354	93 350	89 671	0,3		Tight
38	4660,5	4658,9	93 532	93 530	89 577	6,6		Good
39	4666,5	4664,9	93 663	93 645	89 607	49,7		Good
40	4689,5	4687,9	94 102	94 103	89 829	0,2		Supercharged
41	4704,5	4702,9	94 457	94 430	89 845	0,6		Supercharged
42	4704,0	4702,3	94 416	94 407	89 828	0,6		Supercharged
43	4703,5	4701,8	94 384	94 379	89 855			Tight/aborted
44	4705,1	4703,4	94 472	94 404	89 940	0,3		Tight/aborted
45	4749,5	4747,9	95 390	95 364	90 320	1,3		Supercharged
46	4748,5	4746,8	95 336	95 311	90 092	0,2		Tight/aborted
47	4750,5	4748,9	95 348	95 324	90 175	3,1		Supercharged
48	4760,0	4758,3	94 370	95 545	89 539	0,3		Tight/aborted
49	4761,0	4759,4	95 567	95 545	90 341	0,7		Supercharged
50	4763,0	4761,3	95 602	95 580	90 423	0,2		Tight/aborted
51	4764,0	4762,3	95 612	95 595	76 955	0,4		Tight/aborted
52	4764,7	4763,0	95 623	95 606	90 302	2,9		Good/supercharged
53	4767,7	4766,1	95 688	95 671	90 451	1,1		Tight/aborted
54	4768,1	4766,5	95 690	95 666	90 460	0,2		Tight
55	4885,5	4883,9	97 922		91 428	1 265		Good/sampling failed

Table 3.3.5 MDT run 4E

No.	Depth. m MD RKB	Depth. m TVD RKB	Hydrost. pressure before kPa	Hydrost. pressure after kPa	Formation pressure kPa	Mobility mD/cp		Remarks
56	4666,5	4664,9	93 526	93 532	89 601	20,3		Good
57	4666,1	4664,5	93 515		89 603	26,4		Good
58	4666,8	4665,2	93 545		89 607	21		Good
59	4666,3	4664,7	93 512		89 605	15,3		Good
60	4666,5	4664,9	93 520		89 604	2,5		Poor
61	4666,0	4664,4	93 521		89 601	12,6		Good
62	4666,3	4664,7	93 522		89 603	17,1		Sample No. 1 (2 3/4 gal + 2 PVT)
63	4764,7	4763,0	95 390		90 295	1,04		Sample No. 2 (1 gal. + 2 PVT)
64	4888,5	4748,9	95 348		90 175	1 326		Sample No. 3 Failed (2 3/4 Gal + 1 Gal)

Table 3.3.6 MDT Run 4F

No.	Depth. m MD RKB	Depth. m TVD RKB	Hydrost. pressure before kPa	Hydrost. pressure after kPa	Formation pressure kPa	Mobility mD/cp		Remarks
65	4749,8	4748,1	95 552	95 540		0,4		Tight
66	4749,6	4748,0	95 535	95 531				Tight
67	4749,5	4747,8	95 534	95 531				Tight
68	4750,6	4748,9	95 557	95 552		0,4		Tight
69	4750,2	4748,6	95 544	95 537	90 116	2,8		Tight
70	4750,1	4748,4	95 528		90 131	2,8		Sample No. 4 (2 3/4 + 1 + 2 PVT)
71	4888,4	4886,6	98 267		91 469	1 231		Sample No. 5 (1 Gal + 1 PVT)
72	0,0	4839,8	97 338		91 164	115		Sample No. 6 (2 3/4 + 2 PVT)
73	4959,2	4957,4	99 857		92 169	2,7		Tight
74	4958,6	4956,8	99 623		92 168	123		Sample No. 7 (1 Gal)

Table 3.3.7 MDT run 4G

No.	Depth. m MD RKB	Depth. m TVD RKB	Hydrost. pressure before kPa	Hydrost. pressure after kPa	Formation pressure kPa	Mobility mD/cp	Formation	Remarks
75	4959,0	4957,2	99 581	99 572	92 160	269,8		Excellent
76	5042,5	5040,6	101 233	101 217	93 013	29,48		Very good
77	5104,0	5102,1	102 448	102 409	93 650	1,65		Good
78	5202,0	5199,9	104 382	104 247	94 735	0,07		Poor
79	5214,0	5211,9	104 661	104 573				Tight
80	5230,0	5227,9	104 913	104 798	94 922	0,98		Poor
81	5250,5	5226,0	104 914	104 798				Tight
82	5251,6	5248,4	105 342	105 284	95 120	3,09		Poor

Table 3.7.8 Samples collected

No	Depth		Pumped volume litre	Formation Fluid	Sampled	Remarks
1	4 666,3		21,5	Gas	2 ¾ Gallon 1 MS	2 ¾ Gallon sample lost due to leakage
2	4 764,7		0	Water?	2 MS + 1 Gallon	No pumping due to tight formation.
3	4 888,5		22	Water		Chambers could not be opened after pumping
4	4 750,1		0	Water?	2 3/4 gallon 1 Gallon 2 MS	No pumping due to tight formation
5	4 888,5		35	Water	1 Gallon 1 MS	
6	4 841,5		12	Gass	2 ¾ gallon 2 MS	
7	4 958,6		3-4	Water	1 Gallon	Pumped failed after pumping 3-4 litre

3.4 Well testing

Three well tests were performed in the well. In connection with DST 2 and 3 minifrac tests were also performed. The technical performance was in general good. The only problem regarding data quality was that the downhole tester valve did not close in connection with the main build-up in DST no. 1. A surface shut in was performed with a extended build-up to secure data.

The tests consisted of Cleanup flow and buildup periods. In DST no. 1 and 3 multirate flow periods followed by a buildup period were also performed.

Table 3.4.1 Production rates

DST no		Interval m MD RT	Choke inch	Gas Sm3/day	Condensate Sm3/day	H_2S ppm	CO2 %
1		4839.2-4849.2	36/64	568 000	557	14	4
2		4695.0-4736.7	12/64	78 000	105	10	4
3		4649.4-4668.3	36/64	533 000	770	12	4

Production rates is reported with maximum choke size.

Table 3.4.2 Fluid properties

	Density Gas g/cm³	Density Condensate g/cm³	Ref temperature
	0,715	0,789	15°C
	0,715	0,795	15°C

Cumulative production for all tests:
Gas 2 931 000 Sm³ Condensate 3600 Sm³

Mud Properties, daily record

Well: 6506/11-6

Operator: STATOIL

Rig: Deepsea Berger

FSR no.	Date 1998	Depth	MW	T	FV	VG-meter readings @ 50C								AV	PV	YP	Gel 10 se	Gel 0 min	API	pH	Pf	Mf	Cl- x 1000	TH	Ca++	KCl	Solids corr	MBT	HGS	LGS	Sand	Anco 208	K+
						600 rpm	300 rpm	200 rpm	100 rpm	60 rpm	30 rpm	6 rpm	3 rpm																				
·	·	m	sg	°C	s/qt.									cP	cP	Pa	Pa	Pa	ml	·	ml	ml	kg/m3	mg/l	mg/l	kg/m3	%	kg/m3	kg/m3	kg/m3	%	%	kg/m3
36" Section: Bentonite Spud Mud.																																	
1	23-02																																
2	24-02		1,05		100+															9,0												
3	25-02	423	1,05		100+															9,0												
4	26-02	880	1,05		100+															9,0												
5	27-02	1300	1,05		100+															9,0												
6	28-02	1300	1,05		100+															9,0												
7	01-03	1300	1,05		100+															9,0												
8	02-03	1300	1,05		100+															9,0												
9	03-03	463	1,05		100+															9,0												
10	04-03	463	1,05		100+															9,0												
26" Section: Bentonite Spud Mud.																																	
11	05-03	930	1,05		120															9,0												
12	06-03	1389	1,05		120															9,0												
13	07-03	1412	1,05		120															9,0												
14	08-03	1412	1,20		80															9,0												
15	09-03	1412	1,20		100															9,0												
16	10-03	1412	1,20		80															9,0												
17	11-03	1412	1,20		80															9,0												
18	12-03	1412	1,20		80															9,0												
19	13-03	1412	1,20		80															9,0												
20	14-03	1412	1,20		80															9,0												
21	15-03	1412	1,05		100															9,0												
22	16-03	1412	1,05		100															9,0												
17 1/2" Section: Glydrill																																	
23	17-03	1722	1,55	23	77	92	64	51	37	29	21	10	8	46	28	18,0	9,0	14,0	2,9	8,0	0,2	1,3	89,0	560	440	157,0	13,6	14	568,0	3,0	0,5	3,3	82
24	18-03	2124	1,65	21	85	119	81	65	44	34	25	12	9	60	38	21,5	9,0	19,0	2,7	8,6	0,0	1,0	89,0	560	400	155,0	18,7	17	727	35	0,8	5,1	81
25	19-03	2409	1,65	28	91	131	91	72	50	40	30	15	11	66	40	25,5	6,0	14,0	2,9	8,5	0,0	0,8	89,0	600	480	165,0	19,1	29	703	62	1,0	4,5	87
26	20-03	2641	1,66	30	91	124	83	66	46	36	26	13	10	62	41	21,0	5,5	13,5	2,8	8,1	0,0	0,7	90,0	700	580	162,0	19,1	43	716	52	1,0	4,3	85
27	21-03	2739	1,67	-	-	130	88	69	48	38	27	13	11	65	42	23,0	6,0	14,0	2,9	8,2	0,0	0,9	93,0	760	600	165,0	19,9	50	714	76	1,0	4,1	87
28	22-03	2739	1,67	-	-	129	87	69	49	38	28	14	11	65	42	22,5	6,0	14,0	2,9	8,2	0,0	0,8	94,0	780	600	166,0	19,8	50	714	73	1,0	4,1	87
29	23-03	2739	1,67	-	-	130	88	69	49	38	27	14	11	65	42	23,0	6,0	14,0	2,8	8,3	0,0	0,9	93,0	760	600	164,0	19,9	53	714	76	1,0	4,1	86
30	24-03	2739	1,67	-	-	130	88	69	49	38	27	14	11	65	42	23,0	6,0	14,0	2,9	8,2	0,0	0,9	94,0	760	600	165,0	19,8	53	714	73	1,0	4,1	87
31	25-03	2739	1,67	17	-	112	72	56	37	28	20	10	8	56	40	16,0	4,0	9,5	2,3	8,8	0,1	0,7	93,0	880	760	155,0	19,4	50	722	56	1,0	4,1	81
32	26-03	2739	1,67	19	-	120	74	55	34	24	16	6	5	60	46	14,0	3,0	10,5	4,0	12,2	0,1	1,3	87,0	600	600	162,0	19,8	69	733	62	1,0	4,1	83
33	27-03	2739	1,67	9	-	106	63	47	28	20	13	5	4	53	43	10,0	3,0	10,0	4,0	12,3	0,4	1,3	87,0	600	600	157,0	19,8	39	732	62	1,0	4,1	82
34	28-03	2739	1,67	9	-	106	63	47	28	20	13	5	4	53	43	10,0	3,0	10,0	4,0	10,0	0,1	0,9	87,0	700	600	157,0	19,8	39	732	62	1,0	4,1	82

Mud Properties, daily record

Well: 6506/11-6

Operator: STATOIL

Rig: Deepsea Bergen

FSR	Date	Depth	MW	T	F.Vis	VG-meter readings @ 50 C								AV	PV	YP	Gel	Gel	ES	Mp	Excess	HTHP	CL2	WFS	Solids	Oil	Water	O/W	Sand	OOC	HGS	LGS	Dev
no.	1998			Temp		600	300	200	100	60	30	6	3				10 se	0 min			Lime	120-150°C		activity				RATIO					deg
-	-	m	sg	oC	s/lt.	rpm	rpm	rpm	rpm	rpm	rpm	rpm	rpm	cP	cP	Pa	Pa	Pa	volts	-	kg/m3	ml	g/lt		vol %	vol %	vol %	vol %	vol %	g/kg	kg/m3	kg/m3	-
12 1/4" Section: VersaPRO OBM																																	
34	28-03	2742	1,65	-	-	72	41	28	17	13	10	5	4	36	31	5,0	4,0	6,0	750	2,0	7,40		131	0,93	25,5	60,5	14,0	81/19	-	-	913	88	1,00
35	29-03	3223	1,70	33	83	95	56	42	27	21	16	10	9	48	39	8,5	6,5	10,0	860	2,8	10,40	2,2	147	0,92	26,5	59,5	14,0	81/19	1,0	45,0	994	63	1,00
36	30-03	3562	1,76	44	-	116	69	53	35	27	20	12	10	58	47	11,0	8,0	14,0	950	2,5	9,30	1,8	140	0,92	29,5	57,5	13,0	82/18	1,5	63,3	1019	127	1,70
37	31-03	3670	1,75	34	85	120	72	52	33	26	19	12	10	60	48	12,0	8,0	15,0	870	2,3	8,50	2,0	157	0,91	29,5	57,5	13,0	82/18	1,5	92,3	990	143	1,40
38	01-04	3712	1,75	33	90	116	69	52	34	27	20	12	11	58	47	11,0	8,0	16,0	920	2,0	7,40	2,0	157	0,91	29,5	57,5	13,0	82/18	1,5	-	990	143	1,30
39	02-04	4164	1,75	41	-	126	75	54	35	28	20	13	11	63	51	12,0	8,5	16,5	900	2,3	8,50	2,0	176	0,90	29,5	58,5	12,0	83/17	0,9	67,3	994	140	0,70
40	03-04	4290	1,80	50	-	129	75	51	31	28	20	12	11	65	54	10,5	9,0	17,5	935	2,0	7,40	2,0	171	0,90	31,5	57	11,5	83/17	0,8	79,3	1036	167	0,70
41	04-04	4290	1,80	50	-	130	75	51	32	28	20	12	11	65	55	10,0	9,0	18,0	880	2,0	7,40	2,0	183	0,89	31,0	57,5	11,5	83/17	0,8	-	1058	139	0,70
42	05-04	4290	1,80	50	110	125	74	54	34	25	18	11	10	63	51	11,5	6,5	16,0	880	1,5	5,60	2,2	178	0,89	31,0	58	11,0	84/16	0,8	-	1062	138	0,70
43	06-04	4290	1,90	50	110	144	83	62	40	28	22	12	11	72	61	11,0	8,0	16,0	845	1,5	5,60	2,2	178	0,89	34,0	55	11,0	83/17	0,8	-	1184	141	0,70
44	07-04	4290	1,90	50	-	144	83	62	40	28	22	12	11	72	61	11,0	8,0	16,0	845	1,5	5,60	2,2	178	0,89	34,0	55	11,0	83/17	0,8	-	1184	141	0,70
45	08-04	4290	1,90	50	110	144	83	62	40	28	22	12	11	72	61	11,0	8,0	16,0	845	1,5	5,60	2,2	178	0,89	34,0	55	11,0	83/17	0,8	-	1184	141	0,70
46	09-04	4290	1,80	33	90	102	58	43	27	22	16	9	8	51	44	7,0	6,0	9,5	945	2,9	10,70	2,0	152	0,91	30,0	57	13,0	81/19	0,75	79,3	1099	89	0,70
47	10-04	4290	1,80	39	94	107	61	45	28	22	15	9	8	54	46	7,5	6,0	10,5	840	3,1	11,50	2,0	163	0,91	30,5	57	12,5	82/18	0,75	-	1077	115	0,70
48	11-04	4370	1,80	41	102	113	64	47	29	21	15	8	7	57	49	7,5	5,0	11,0	820	3,3	12,20	2,0	141	0,92	30,0	56	14,0	80/20	0,7	87,9	1093	93	1,10
49	12-04	4442	1,80	41	105	115	65	48	30	22	15	8	7	58	50	7,5	5,5	10,0	812	3,4	12,60	1,8	141	0,92	30,5	55,5	14,0	80/20	0,7	78,9	1070	121	1,80
50	13-04	4509	1,82	43	105	120	68	50	31	23	16	9	8	60	52	8,0	6,0	11,5	780	3,0	11,10	1,8	141	0,92	31,0	55,5	13,5	80/20	0,7	81,9	1102	114	1,80
51	14-04	4509	1,82	17	180	120	69	50	31	23	16	9	8	60	51	9,0	6,0	11,5	784	2,9	10,70	1,8	141	0,92	31,0	55,5	13,5	80/20	0,7	-	1102	114	1,80
52	15-04	4509	1,82	11	210	120	68	50	31	23	16	9	8	60	52	8,0	6,0	11,5	779	3,0	11,10	1,8	141	0,92	31,0	55,5	13,5	80/20	0,7	-	1102	114	1,80
53	16-04	4509	1,82	10	214	120	69	50	31	23	16	9	8	60	51	9,0	6,0	11,5	782	3,0	11,10	1,8	141	0,92	31,0	55,5	13,5	80/20	0,7	-	1102	114	1,80
54	17-04	4509	1,82	25	138	122	70	52	32	24	17	9	8	61	52	9,0	6,0	11,0	720	2,9	10,70	1,8	141	0,92	31,0	55,0	14,0	80/20	0,7	-	1099	116	1,80
55	18-04	4509	1,82	31	118	122	70	52	32	24	17	9	8	61	52	9,0	6,0	12,0	730	2,9	10,70	1,8	141	0,92	31,0	55,0	14,0	80/20	0,7	-	1099	116	1,80
56	19-04	4509	1,82	14	139	123	71	53	32	24	17	9	8	62	52	9,5	6,0	11,0	725	2,9	10,70	1,8	141	0,92	31,0	55,0	14,0	80/20	0,7	-	1099	116	1,80
57	20-04	4509	1,82	14	136	123	71	52	31	24	17	9	8	62	52	9,5	6,5	12,0	715	2,9	10,70	1,8	141	0,92	31,0	55,0	14,0	80/20	0,7	-	1099	116	1,80
58	21-04	4509	1,82	12	139	122	70	51	31	24	17	9	8	61	52	9,0	6,5	13,0	720	2,9	10,70	1,8	141	0,92	31,0	55,0	14,0	80/20	0,7	-	1099	116	1,80
59	22-04	4509	1,82	12	139	133	76	55	34	25	18	10	9	67	57	9,5	6,0	11,5	650	2,9	10,70	2,0	141	0,92	31,0	55,0	14,0	80/20	0,7	-	1099	116	1,80
60	23-04	4509	1,82	16	130	118	68	50	31	23	16	9	8	59	50	9,0	6,0	11,0	760	2,9	10,70	1,8	141	0,92	31,0	55,0	14,0	80/20	0,7	-	1099	116	1,80

Mud Properties, daily record

Well: 6506/11-6

Operator: STATOIL

Rig: Deepsea Bergen

FSR	Date	Depth	MW	T	F.Vis	VG-meter readings @ 50 C							AV	PV	YP	Gel	Gel	ES	Mp	Excess	HTHP	CL2	WFS	Solids	Oil	Water	O/W	Sand	OOC	HGS	LGS	Dev
no.	1998			Temp		600	300	200	100	60	30	6	3				10 se	0 min			Lime	120-150°C		activity				RATIO					deg
•	•	m	sg	oC	s/lt.	rpm	rpm	rpm	rpm	rpm	rpm	rpm	rpm	cP	cP	Pa	Pa	Pa	volts	•	kg/m3	ml	g/lt		vol %	vol %	vol %	vol %	vol %	g/kg	kg/m3	kg/m3	•
8 1/2" Section: VersaPRO OBM																																
61	24-04	4512	1,90	39	105	120	68	49	30	21	15	9	7	60	52	8,0	5,0	9,5	680	3,0	11,10	2,0	152	0,91	33,0	55	12,0	82/18	0,7	84,0	1227	89	1,80
62	25-04	4512	2,00	24	-	140	80	58	35	26	17	9	7,5	70	60	10,0	5,5	9,5	630	2,5	9,30	2,1	170	0,90	36,5	51,5	12,0	81/19	1,0	84,0	1323	119	1,80
63	26-04	4518	2,05	26	108	128	72	52	31	21	15	9	7	64	56	8,0	5,5	9,0	830	2,7	10,00	2,2	186	0,89	37,5	52	10,5	83/17	1,0	88,4	1402	96	1,80
64	27-04	4582	2,05	25	102	128	72	52	31	23	16	8,5	7	64	56	8,0	5,0	8,0	860	2,9	10,70	2,4	177	0,89	37,5	51	11,5	82/18	0,75	86,0	1436	75	1,80
65	28-04	4632	2,05	24	102	130	73	53	32	23	16	8,5	7	65	57	8,0	5,0	8,0	870	2,7	10,00	2,4	172	0,90	38,0	51	11,0	82/18	0,75	85,7	1391	117	1,80
66	29-04	4652	2,03	29	95	120	68	48	29	21	14	8	7	60	52	8,0	5,0	8,0	900	2,9	10,70	1,9	173	0,90	37,5	52	10,5	83/17	0,75	85,7	1365	120	1,80
67	30-04	4652	2,03	20	98	121	68	49	30	21	15	8	7	61	53	7,5	5,5	8,0	890	3,2	11,80	2,2	174	0,90	37,0	53	10,0	84/16	0,75	-	1392	91	1,80
68	01-05	4661	2,03	26	-	123	69	49	30	21	14	8	6	62	54	7,5	5,0	7,5	835	3,0	11,10	2,2	195	0,88	37,0	53	10,0	84/16	0,75	-	1389	91	1,80
69	02-05	4661	2,03	20	-	118	66	46	28	20	14	8	6	59	52	7,0	4,5	7,0	960	2,8	10,40	2,2	195	0,88	37,0	53	10,0	84/16	0,75	-	1389	91	1,80
70	03-05	4673	2,03	23	-	134	75	55	34	25	16	8	7	67	59	8,0	5,0	9,0	860	2,3	8,50	2,2	195	0,88	37,0	53	10,0	84/16	0,8	-	1389	91	1,80
71	04-05	4688	2,03	20	150	130	72	53	32	24	16	8	7	65	58	7,0	5,0	9,0	860	2,5	9,30	2,2	181	0,89	37,0	53	10,0	84/16	0,75	-	1391	91	1,80
72	05-05	4711	2,03	25	145	126	71	51	31	24	16	8	7	63	55	8,0	5,0	9,0	885	2,5	9,30	2,1	181	0,89	37,0	53	10,0	84/16	0,75	-	1391	91	1,80
73	06-05	4711	2,03	25	145	128	72	51	31	24	16	8	7	64	56	8,0	5,0	9,0	885	2,5	9,30	2,1	181	0,89	37,0	53	10,0	84/16	0,75	-	1391	91	1,80
74	07-05	4711	2,03	17	160	129	72	52	32	24	16	8	7	65	57	7,5	5,0	9,0	950	2,5	9,30	1,8	174	0,90	37,0	53	10,0	84/16	0,75	-	1392	91	1,90
75	08-05	4739	2,03	21	-	137	77	56	34	25	17	9	7	69	60	8,5	5,5	9,5	860	2,7	10,00	2,0	188	0,89	37,5	52,5	10,0	84/16	0,75	-	1367	119	1,90
76	09-05	4775	2,03	21	156	124	70	50	31	22	15	8	7	62	54	8,0	5,0	8,0	983	3,5	13,00	1,8	181	0,89	37,0	53	10,0	84/16	1,0	-	1391	91	1,90
77	10-05	4793	2,03	23	124	129	72	52	31	23	15	8	7	65	57	7,5	5,0	8,5	950	3,1	11,50	1,8	181	0,89	37,0	53	10,0	84/16	1,0	-	1391	91	1,90
78	11-05	4793	2,03	21	132	130	73	52	33	23	15	8	7	65	57	8,0	5,0	8,5	940	3,0	11,10	1,8	181	0,89	37,0	53	10,0	84/16	1,0	-	1391	91	1,90
79	12-05	4813	2,03	26	124	133	74	54	32	23	16	8	7	67	59	7,5	5,0	8,5	990	2,7	10,00	1,8	188	0,89	37,0	53	10,0	84/16	1,0	95,9	1390	91	1,90
80	13-05	4813	2,03	20	150	134	75	54	32	23	16	8	7	67	59	8,0	5,0	8,5	985	3,0	11,10	1,8	188	0,89	37,0	53	10,0	84/16	1,0	-	1390	91	1,90
81	14-05	4837	2,03	23	140	136	76	56	33	23	16	8	7	68	60	8,0	8,0	8,5	962	2,9	10,70	1,8	197	0,88	37,5	53	9,5	85/15	1,0	-	1369	117	1,90
82	15-05	4858	2,03	20	151	139	77	55	33	23	15	8	7	70	62	7,5	5,0	8,5	925	2,8	10,4	1,8	197	0,88	37,5	53	9,5	85/15	1,0	-	1369	117	1,9
83	16-05	4858	2,03	16	166	140	78	56	33	23	15	8	7	70	62	8,0	5,0	8,5	930	2,8	10,4	1,8	197	0,88	37,5	53	9,5	85/15	1,0	-	1369	117	1,9
84	17-05	4913	2,03	24	150	142	79	57	33	24	15	8	7	71	63	8,0	4,5	8,5	885	3,0	11,1	1,8	188	0,89	37,5	52,5	10,0	84/16	1,0	87,8	1367	119	1,9
85	18-05	4913	2,03	13	203	141	78	56	33	24	16	8	7	71	63	7,5	4,5	8,5	925	3,2	11,8	1,8	181	0,89	37,5	52,5	10,0	84/16	1,0	-	1367	119	1,9
86	19-05	4952	2,03	20	179	139	77	56	33	24	16	8	7	70	62	7,5	5,0	8,5	965	3,4	12,6	1,8	202	0,88	37,0	53	10,0	84/16	1,0	93,8	1389	91	2,4
87	20-05	4980	2,03	16	181	143	79	57	34	24	16	8	7	72	64	7,5	5,0	8,5	925	3,5	13,0	1,8	186	0,89	37,0	52,5	10,5	83/17	1,0	102,3	1387	93	2,4
88	21-05	4980	2,03	16	185	146	80	58	34	25	16	8	7	73	66	7,0	5,0	8,5	925	3,5	13,0	1,8	186,0	0,89	37,0	52,5	10,5	83/17	1,0	-	1387	93	2,4
89	22-05	4980	2,03	17	170	139	76	54	33	24	16	8	7	70	63	6,5	4,5	8	970	3,2	11,8	1,8	166,0	0,90	37,0	53,0	10,0	84/16	0,75	93,9	1393	91	2,4
90	23-05	5013	2,03	21	144	140	77	55	33	24	16	8	7	70	63	7,0	4,5	8,5	900	3,3	12,2	1,6	166,0	0,90	37,5	52,5	10,0	84/16	0,75	101,9	1369	118	2,4
91	24-05	5022	2,03	22	142	145	82	58	35	24	16	8	6,5	73	63	9,5	4,5	8	840	3,5	13,0	1,6	166,0	0,90	38,5	51,5	10,0	84/16	0,75	101,9	1375	141	2,4
92	25-05	5093	2,03	21	145	136	75	54	32	23	15	8	7	68	61	7,0	4,5	8,0	950	3,6	13,3	1,6	173,0	0,90	37,0	52,5	10,5	83/17	0,50	97,2	1388	93	2,4
93	26-05	5098	2,03	15	190	138	76	55	33	23	16	8	6,5	69	62	7,0	4,5	8,0	950	3,3	12,2	1,6	159,0	0,91	37,5	52,0	10,5	83/17	0,50	91,8	1367	120	2,4

Mud Properties, daily record

Well: 6506/11-6

Operator: STATOIL

Rig: Deepsea Bergen

FSR	Date	Depth	MW	T	F.Vis	VG-meter readings @ 50 C								AV	PV	YP	Gel	Gel	ES	Mp	Excess	HTHP	CL2	WFS	Solids	Oil	Water	O/W	Sand	OOC	HGS	LGS	Dev
no.	1998			Temp		600	300	200	100	60	30	6	3				10 se	0 min			Lime	120-150°C		activity				RATIO					deg
-	-	m	sg	oC	s/lt.	rpm	rpm	rpm	rpm	rpm	rpm	rpm	rpm	cP	cP	Pa	Pa	Pa	volts	-	kg/m3	ml	g/lt		vol %	vol %	vol %	vol %	vol %	g/kg	kg/m3	kg/m3	-
94	27-05	5126	2,04	21	144	143	80	58	34	24	16	8	6,5	72	63	8,5	4,5	8,0	815	3,5	13,0	1,6	152,0	0,91	37,5	51,5	11,0	82/18	0,50	-	1390	106	2,0
95	28-05	5141	2,03	24	135	123	68	48	29	20	14	7	6	62	55	6,5	4,5	7,5	900	3,9	14,4	1,6	166,0	0,90	38,0	52,0	10,0	84/16	0,50	91,9	1346	146	2,0
96	29-05	5198	2,03	24	119	134	74	53	31	23	15	8	6,5	67	60	7,0	4,5	7,5	890	3,6	13,3	1,6	166,0	0,90	37,5	52,5	10,0	84/16	0,25	97,8	1369	118	2,0
97	30-05	5253	2,03	24	115	128	72	51	30	21	14	7,5	6,5	64	56	8,0	4,5	7,5	905	3,0	11,1	1,6	167,0	0,90	37,5	53,0	9,5	85/15	0,25	101,9	1373	117	3,9
98	31-05	5275	2,03	24	119	125	70	50	30	22	15	8	6,5	63	55	7,5	4,5	7,5	920	3,4	12,6	1,6	159,0	0,91	37,5	53,0	9,5	85/15	0,25	76,2	1374	116	5,0
99	01-06	5275	2,03	-	-	125	70	51	30	22	15	8	6,5	63	55	7,5	5,0	7,5	975	3,4	12,6	1,6	159	0,91	37,5	53,0	9,5	85/15	0,25	-	1374	116	5,0
100	02-06	5275	2,03	-	-	130	73	52	32	23	15	8	6,5	65	57	8,0	5,0	8,0	945	3,3	12,2	1,6	159	0,91	37,5	53,0	9,5	85/15	0,25	-	1374	116	5,0
101	03-06	5275	2,03	-	-	125	70	50	30	22	14	8	6,5	63	55	7,5	4,5	7,5	950	3,3	12,2	1,6	159	0,91	37,5	53,0	9,5	85/15	0,25	-	1374	116	5,0
102	04-06	5275	2,03	-	-	125	70	51	30	22	15	7,5	6,5	63	55	7,5	4,5	7,5	975	3,3	12,2	1,6	159	0,91	37,5	53,0	9,5	85/15	0,25	-	1374	116	5,0
103	05-06	5275	2,03	-	-	130	73	53	32	23	15	8	6,5	65	57	8,0	4,5	7,5	935	3,2	11,8	1,6	159	0,91	37,5	53,0	9,5	85/15	0,25	-	1374	116	5,0
104	06-06	5275	2,03	23	-	139	78	56	33	23	15	8	6,5	70	61	8,5	4,5	7,5	840	3,5	13,0	1,6	159	0,91	37,0	53,0	10,0	84/16	0,25	-	1394	91	5,0
105	07-06	5275	2,03	15	-	140	78	57	34	23	15	8	7	70	62	8,0	5,0	7,5	845	3,5	13,0	1,6	159	0,91	37,0	53,0	10,0	84/16	0,25	-	1394	91	5,0
106	08-06	5275	2,03	15	-	139	77	56	34	23	15	8	7	70	62	7,5	5,0	7,5	848	3,5	13,0	1,6	159	0,91	37,0	53,0	10,0	84/16	0,25	-	1394	91	5,0
107	09-06	5275	2,03	15	-	139	77	56	34	23	15	8	7	70	62	7,5	5,0	7,5	848	3,5	13,0	1,6	159	0,91	37,0	53,0	10,0	84/16	0,25	-	1394	91	5,0
108	10-06	5275	2,03	15	-	140	78	57	34	23	15	8	7	70	62	8,0	5,0	7,5	850	3,4	12,6	1,6	159	0,91	37,0	53,0	10,0	84/16	0,25	-	1394	91	5,0
109	11-06	4990	2,03	22	160	145	79	56	32	22	14	7	6	73	66	6,5	5,0	7,5	790	3,1	11,5	1,6	159	0,91	37,0	53,0	10,0	84/16	0,25	-	1394	91	5,0
110	12-06	4990	2,03	15	170	144	78	56	32	22	14	7	6	72	66	6,0	5,0	7,5	785	3,1	11,5	1,6	159	0,91	37,0	53,0	10,0	84/16	0,25	-	1394	91	5,0
111	13-06	4961	2,03	15	160	142	78	56	32	22	14	6	5	71	64	7,0	4,5	7,0	675	2,4	8,9	1,8	158	0,91	36,5	52,5	11,0	83/17	0,25	-	1410	67	5,0
112	14-06	4961	2,03	17	160	143	79	56	33	22	14	8	6	72	64	7,5	5,0	7,5	705	2,4	8,9	1,6	158	0,91	36,5	52,5	11,0	83/17	0,25	-	1410	67	5,0
113	15-06	4961	2,03	21	160	142	79	56	33	22	14	7	6	71	63	8,0	4,5	7,5	690	2,4	8,9	1,6	158	0,91	36,5	52,5	11,0	83/17	0,25	-	1410	67	5,0
114	16-06	4961	2,03	-	160	142	79	56	33	22	14	7	6	71	63	8,0	4,5	7,5	690	2,4	8,9	1,6	158	0,91	36,5	52,5	11,0	83/17	0,25	-	1410	67	5,0

Mud Properties, daily record

Well: 6506/11 - 6

Operator: **STATOIL**

Rig: Deepsea Bergen

FSR	Date	Depth	MW	T	F.Vis	VG-meter readings @ 50 C							AV	PV	YP	Gel	Gel	ES	Mp	Excess	HTHP	CaCl2	WFS	Solids	Oil	Water	O/W	Sand	OOC	HGS	LGS	
no.	1998			Temp		600	300	200	100	60	30	6	3				10 se	0 min			Lime	250°F		activity				RATIO					
		m	sg	oC	s/qt.	rpm	rpm	rpm	rpm	rpm	rpm	rpm	rpm	cP	cP	Pa	Pa	Pa	volts		kg/m3	ml	kg/m3		vol %	vol %	vol %	vol %	vol %	g/kg	kg/m3	kg/m3	
Test Section: VersaPRO OBM and seawater																																
114	16-06	4961	2,03		160	142	78	56	32	22	14	7	6	71	64	7	4,5	7,5	690	3,1	11,5	1,6	159	0,91	37,0	53,0	10,0	84/16	0,3		1394	91	
115	17-06	4961	2,03	19	160	142	79	56	33	22	14	7	6	71	63	8	4,5	7,5	690	2,4	8,9	1,6	146	0,92	36,0	52,0	12,0	81/19	0,3		1423	43	
116	18-06	4961	2,03	19	160	153	85	61	35	25	15	8	6	77	68	9	4,5	8,0	660	2,5	9,3	1,6	157	0,91	36,0	51,0	13,0	80/20	0,3		1420	46	
117	19-06	4961	2,03	19	160	153	85	61	35	25	15	8	6	77	68	9	4,5	8,0	660	2,5	9,3	1,6	157	0,91	36,0	51,0	13,0	80/21	0,3		1420	46	
118	20-06	4961	2,03	19	160	153	85	61	35	25	15	8	6	77	68	9	4,5	8,0	660	2,5	9,3	1,6	157	0,91	36,0	51,0	13,0	80/22	0,3		1420	46	
119	21-06	4961	1,03	Seawater in well										0	0	0					0,0											
120	22-06	4961	1,03	Seawater in well										0	0	0					0,0											
121	23-06	4961	1,03	Seawater in well										0	0	0					0,0											
122	24-06	4961	1,03	Seawater in well										0	0	0					0,0											
123	25-06	4961	1,03	Seawater in well										0	0	0					0,0											
124	26-06	4961	1,03	Seawater in well										0	0	0					0,0											
125	27-06	4961	1,03	Seawater in well										0	0	0					0,0											
126	28-06	4961	1,03	Seawater in well										0	0	0					0,0											
127	29-06	4961	1,03	Seawater in well										0	0	0					0,0											
128	30-06	4961	1,03	Seawater in well										0	0	0					0,0											
129	01-07	4961	1,03	Seawater in well										0	0	0					0,0											
130	02-07	4961	1,03	Seawater in well										0	0	0					0,0											
131	03-07	4961	1,03	Seawater in well										0	0	0					0,0											
132	04-07	4961	1,03	Seawater in well										0	0	0					0,0											
133	05-07	4961	1,03	Seawater in well										0	0	0					0,0											
134	06-07	4961	1,03	Seawater in well										0	0	0					0,0											
135	07-07	4961	1,03	Seawater in well										0	0	0					0,0											
136	08-07	4961	1,03	Seawater in well										0	0	0					0,0											
137	09-07	4961	1,03	Seawater in well										0	0	0					0,0											
138	10-07	4961	2,06	17	160	153	84	56	35	24	15	7	5	77	69	8	4	7	615	3,0	11,1	1,6	102	0,95	38,0	47,0	15,0	76/24	0,25		1399	114,0	
139	11-07	4961	2,06	17	160	152	83	55	35	24	15	7	5	76	69	7	4	7	620	3,0	11,1	2,0	102	0,95	38,0	47,0	15,0	76/14	0,25		1399	114,0	
140	12-07	4961	2,06	16	160	159	86	61	35	24	15	7	5	80	73	7	4	6	555	2,7	10,0	2,5	101	0,95	38,0	47,0	16,0	75/25	0,25		1414	79,0	
141	13-07	4961	2,05	16	160	158	86	62	35	24	15	7	5	79	72	7	4	6	450	3,0	11,1	3,0	98	0,95	36,5	46,5	16,5	74/26	0,25		1435	53,0	
142	14-07	4778	2,06	16	160	158	86	63	34	24	15	7	5	79	72	7	4	6	550	3,0	11,1	3,0	98	0,95	37,0	46,5	16,5	74/26	0,25		1438	64,0	
143	15-07	4778	2,06	20	150	158	86	62	35	24	15	7	5	79	72	7	4	6	480	3,0	11,1	3,0	102	0,95	37,0	47,0	16,5	74/26	0,25		1460	37,0	
144	16-07	4778	1,03	Seawater in well										0	0	0					0,0											
145	17-07	4778	1,03	Seawater in well										0	0	0					0,0											
146	18-07	4778	1,03	Seawater in well										0	0	0					0,0											
147	19-07	4778	1,03	Seawater in well										0	0	0					0,0											
148	20-07	4778	1,03	Seawater in well										0	0	0					0,0											
149	21-07	4778	1,03	Seawater in well										0	0	0					0,0											

Mud Properties, daily record

Well: 6506/11 - 6

Operator: **STATOIL**

Rig: Deepsea Bergen

FSR	Date	Depth	MW	T	F.Vis	VG-meter readings @ 50 C								AV	PV	YP	Gel	Gel	ES	Mp	Excess	HTHP	CaCl2	WFS	Solids	Oil	Water	O/W	Sand	OOC	HGS	LGS	
no.	1998			Temp		600	300	200	100	60	30	6	3				10 se	0 min			Lime	250°F		activity				RATIO					
□	□	m	sg	oC	s/qt.	rpm	rpm	rpm	rpm	rpm	rpm	rpm	rpm	cP	cP	Pa	Pa	Pa	volts	□	kg/m3	ml	kg/m3		vol %	vol %	vol %	vol %	vol %	g/kg	kg/m3	kg/m3	□
150	22-07	4778	2,06	20		153	83	59	34	24	15	6	5	77	70	7	4	6	480	3,0	11,1	3,0	165	0,9	36,5	47,0	16,5	74/26			1449	38,0	
151	23-07	4778	2,06	20	130	153	83	59	34	24	15	6	5	77	70	7	4	6	480	2,8	10,4	3,0	125	0,93	36,0	44,5	19,5	70/30			1460	20,0	
152	24-07	4600	2,06	23	130	156	85	60	34	24	15	6	5	78	71	7	4	6	450	2,8	10,4	3,0	125	0,93	36,0	44,5	19,5	70/31			1460	20,0	
153	25-07	4670	2,06	23	130	156	85	60	34	24	15	6	5	78	71	7	4	6	450	2,8	10,4	3,0	125	0,93	36,0	44,5	19,5	70/32			1460	20,0	
154	26-07	4670	2,06	23	130	156	85	60	34	24	15	6	5	78	71	7	4	6	450	2,8	10,4	3,0	125	0,93	36,0	44,5	19,5	70/33			1460	20,0	
155	27-07	4670	2,06	23	130	156	85	60	34	24	15	6	5	78	71	7	4	6	450	2,8	10,4	3,0	125	0,93	36,0	44,5	19,5	70/34			1460	20,0	
156	28-07	4670	1,03	Seawater in well										0	0	0					0,0												
157	29-07	4670	1,03	Seawater in well										0	0	0					0,0												
158	30-07	4670	1,03	Seawater in well										0	0	0					0,0												
159	31-07	4670	1,03	Seawater in well										0	0	0					0,0												
160	01-08	4670	1,03	Seawater in well										0	0	0					0,0												
161	02-08	4670	1,03	Seawater in well										0	0	0					0,0												
162	03-08	4670	1,03	Seawater in well										0	0	0					0,0												
163	04-08	4670	1,03	Seawater in well										0	0	0					0,0												
164	05-08	4670	1,03	Seawater in well										0	0	0					0,0												
165	06-08	4670	1,03	Seawater in well										0	0	0					0,0												
166	07-08	4670	2,06	20		187	101	72	42	28	16	7	5	94	86	8	4	6	400	2,5	9,3	4,0	9	0,95	36,0	43	21,0	67/33	0,25		1456	25,0	
167	08-08	4639	2,06	28		198	108	76	42	28	17	7	5	99	90	9	4	7	340	2,7	10,0	4,0	98	0,95	36,0	42	22,0	66/34	0,25		1450	28,0	
168	09-08	4381	2,06			209	121	90	58	44	31	16	13	105	88	17	7	9	400	2,5	9,3	4,0	97	0,95	36,0	42	22,5	65/35	0,25		1447	30,0	
169	10-08	4670	2,06	25		199	108	77	42	29	17	7	5	100	91	9	4	7	345	2,6	9,6	4,0	98	0,95	36,0	42	22,0	66/34	0,25		1450	28,0	
170	11-08	4365	2,06			209	121	90	58	44	31	16	13	105	88	17	7	9	400	2,5	9,3	4,0	97	0,95	36,0	42	22,5	65/35	0,25		1447	30,0	
171	12-08	4365	1,82			112	61	43	26	18	12	6	5	56	51	5	4	5	370	2,7	10,0	4,0	97	0,95	28,5	50	22,0	69/31	0,25		1159	13,0	
172	13-08	4050	1,82			112	61	43	26	18	12	6	5	56	51	5	4	5	370	2,7	10,0	4,0	97	0,95	28,5	50	22,0	69/31	0,25		1159	13,0	
173	14-08	905	1,82			112	61	43	26	18	12	6	5	56	51	5	4	5	370	2,7	10,0	4,0	97	0,95	28,5	50	22,0	69/31	0,25		1159	13,0	
174	15-08	905	1,67	Waterbased mud in hole										0	0	0					0,0												
175	16-08		1,65			55	38	30	22	18	13	7	6	28	17	11	6	8			0,0												
176	17-08		1,65			55	38	30	22	18	13	7	6	28	17	11	6	8															

STATOIL

Title:
Geochemical evaluation of well 6506/11-6

Document no.:	Contract no./project no.:	Filing no.:
LTEK-PE1599		

Classification:	Distribution:
Confidential	**Restricted**

Distribution date:	Rev. date:	Rev. no.:	Copy no.:
April 1999			

Author(s)/Source(s):

John Scotchmer, LTEK-PE
Geolab Nor
IFE

B499-769-1

Subjects:

Kristin Field, thermal maturity, source rocks, condensate, gas, oil-based mud contamination

Remarks:

See Summary on page i

Valid from:	Updated:

Responsible publisher:	Authority to approve deviations:
LTEK-PE	**LTEK-PE**

Techn. responsible: **LTEK-PE**	Name: **John Scotchmer**	Date/Signature: 7/4/99
Responsible:	Name:	Date/Signature:
Recommended: **LTEK-PE**	Name: **Richard Patience**	Date/Signature: 7/4/99
Approved: **LTEK-PE**	Name: **Reidar Helland**	Date/Signature: 7/4/99

Table 1 Analytical Program

Sample Depth (m)	Sample Type	HS & Occ Gas	Washing	Gas isotope (A)	Lithology Description	Picking for screening	Leco TOC	RockEval	Thermal Extraction GC	Pyrolysis GC	TE and PY GC	Picking for Extraction	MINI Extraction	Iatroscan	Separatory funnel	SOXTEC Extraction	MPLC & Deasp	EOM GC	Whole Oil GC	Sat GC (Q)	Aro GC (Non Q)	Sat GCMS (Q)	Aro GCMS (Non Q)	GHM-MS (Q or Non Q)	Isotope of EOM/fractions	Isotope of kerogen	GC-IRMS	Gas Analysis (B)(C)	Gas isotope (B)(C)	Visual Kerogen	Vitrinite Reflectance (C)	GSA sulphur analysis	(D) API, Ni, V, %S
		2		15	9		3	5		6	6			8		8	8		13	9	9	11	12	19	10	10	16	14a	14b	7	4	20	17
1440,00	cS		x																											x	x		
1590,00	cS		x																												x		
1740,00	cS		x																												x		
1910,00	cS		x																											x	x		
2060,00	cS		x																												x		
2210,00	cS		x																												x		
2365,00	cS		x		x																									x			
2470,00	cS		x																												x		
2565,00	cS		x		x																									x	x		
2665,00	cS		x																												x		
2765,00	cS		x		x																										x		
2870,00	cS		x																												x		
2965,00	cS		x		x																										x		
3065,00	cS		x																												x		
3165,00	cS		x		x																									x	x		
3265,00	cS		x																												x		
3370,00	cS		x		x																										x		
3470,00	cS		x		x																									x	x		
3570,00	cS		x																												x		
3665,00	cS		x																												x		
3765,00	cS		x		x																									x	x		
3855,00	cS		x																												x		
3945,00	cS		x																												x		
4050,00	cS		x		x																									x	x		

A = canned samples
B = test gas samples
Q = Quantitative analysis
C = IFE analysis

GEOLAB NOR

Table 1 Analytical Program

Sample Depth (m)	Sample Type	HS & Occ Gas	Washing	Gas isotope (A)	Lithology Description	Picking for screening	Leco TOC	RockEval	Thermal Extraction GC	Pyrolysis GC	TE and PY GC	Picking for Extraction	MINI Extraction	Iatroscan	Separatory funnel	SOXTEC Extraction	MPLC & Deasp	EOM GC	Whole Oil GC	Sat GC (Q)	Aro GC (Non Q)	Sat GCMS (Q)	Aro GCMS (Non Q)	GHM-MS (Q or Non Q)	Isotope of EOM/fractions	Isotope of kerogen	GC-IRMS	Gas Analysis (B)(C)	Gas isotope (B)(C)	Visual Kerogen	Vitrinite Reflectance (C)	GSA sulphur analysis	(D) API, Ni, V, %S
		2		15	3		3	5		6	6			8		8	8		13	9	9	11	12	19	10	10	16	14a	14b	7	4	20	17
4165,00	cS		x		x																										x		
4270,00	cS		x																												x		
4365,00	cS		x		x																									x	x		
4515,00	cS		x		x																										x		
4635,00	cS		x				x	x								x																	
4640,00	cS		x				x	x								x														x	x		
4643,00	cS		x				x	x								x																	
4647,00	cS		x				x	x								x																	
4656,21	pR								x*																								
4657,55	pR							x																									
4658,62	pR							x																									
4660,20	pR							x	x																								
4663,20	pR							x	x					x		x	x			x		x											
4675,35	pR							x																									
4699,47	pR							x																									
4703,72	pR								x*																								
4707,70	pR							x	x																								
4720,37	pR							x	x																								
4735,40	pR							x																									
4737,29	pR							x	x					x		x																	
4737,74	pR							x	x					x		x																	
4739,63	pR							x																									
4740,57	pR							x																									
4741,60	pR							x	x																								

A = canned samples
B = test gas samples
Q = Quantitative analysis
C = IFE analysis

GEC NOR

Table 1 Analytical Program

Sample Depth (m)	Sample Type	HS & Occ Gas	Washing	Gas isotope (A)	Lithology Description	Picking for screening	Leco TOC	RockEval	Thermal Extraction GC	Pyrolysis GC	TE and PY GC	Picking for Extraction	MINI Extraction	Iatroscan	Separatory funnel	SOXTEC Extraction	MPLC & Deasp	EOM GC	Whole Oil GC	Sat GC (Q)	Aro GC (Non Q)	Sat GCMS (Q)	Aro GCMS (Non Q)	GHM-MS (Q or Non Q)	Isotope of EOM/fractions	Isotope of kerogen	GC-IRMS	Gas Analysis (B)(C)	Gas isotope (B)(C)	Visual Kerogen	Vitrinite Reflectance (C)	GSA sulphur analysis	(D) API, Ni, V, %S
		2		15	3		3	5		6	6			8		8	8		13	9	9	11	12	19	10	10	16	14a	14b	7	4	20	17
4743,20	pR							x																									
4743,77	pR							x	x					x		x																	
4744,38	pR							x	x					x		x																	
4745,20	pR							x																									
4745,30	pR							x	x																								
4746,25	pR							x																									
4747,62	pR							x																									
4749,43	pR							x																									
4750,33	pR							x	x					x		x																	
4751,50	pR							x																									
4753,60	pR							x																									
4754,30	pR							x	x																								
4755,20	pR							x																									
4756,36	pR							x																									
4756,68	pR							x																									
4757,20	pR							x																									
4758,29	pR							x	x					x		x																	
4759,65	pR							x																									
4760,25	pR							x																									
4761,52	pR							x																									
4762,90	pR							x																									
4777,70	pR							x	x					x		x																	
4778,30	pR							x																									
4792,21	pS						x	x								x																	
4792,21	extracted pS						x	x																									

A = canned samples
B = test gas samples
Q = Quantitative analysis
C = IFE analysis

Table 1 Analytical Program

Sample Depth (m)	Sample Type	HS & Occ Gas	Washing	Gas isotope (A)	Lithology Description	Picking for sieaping	Leco TOC	RockEval	Thermal Extraction GC	Pyrolysis GC	TE and PY GC	Picking for Extraction	MINI Extraction	Iatroscan	Separatory funnel	SOXTEC Extraction	MPLC & Deasp	EOM GC	Whole Oil GC	Sat GC (Q)	Aro GC (Non Q)	Sat GCMS (Q)	Aro GCMS (Non Q)	GHM-MS (Q or Non Q)	Isotope of EOM/fractions	Isotope of kerogen	GC-IRMS	Gas Analysis (B)(C)	Gas isotope (B)(C)	Visual Kerogen	Vitrinite Reflectance (C)	GSA sulphur analysis	(D) API, Ni, V, %S
		2		15	3		3	5		6	6			8		8	8		13	9	9	11	12	19	10	10	16	14a	14b	7	4	20	17
4794,00	cS		x				x	x								x																	
4797,00	cS		x				x	x								x																	
4800,00	cS		x				x	x								x																	
4803,00	cS		x				x	x								x																	
4806,00	cS		x				x	x								x																	
4809,00	cS		x				x	x								x																	
4812,00	cS		x				x	x								x																	
4814,67	pR							x	x					x		x																	
4817,62	pR							x	x					x		x																	
4821,75	pR							x	x																								
4822,70	pR								x*																								
4823,56	pR							x																									
4827,51	pR							x																									
4827,71	pR							x	x																								
4830,60	pR							x	x					x		x																	
4831,45	pR							x																									
4833,72	pR								x*																								
4833,76	pR							x																									
4834,37	pR							x																									
4835,45	pR							x	x																								
4836,56	pR							x																									
4837,22	pR							x																									
4840,64	pR							x																									
4843,17	pR							x																									

A = canned samples
B = test gas samples
Q = Quantitative analysis
C = IFE analysis

GEC NOR

Table 1 Analytical Program

Sample Depth (m)	Sample Type	HS & Occ Gas	Washing	Gas isotope (A)	Lithology Description	Picking for screening	Leco TOC	RockEval	Thermal Extraction GC	Pyrolysis GC	TE and PY GC	Picking for Extraction	MIN Extraction	Iatroscan	Separatory funnel	SOXTEC Extraction	MPLC & Deasp	EOM GC	Whole Oil GC	Sat GC (Q)	Aro GC (Non Q)	Sat GCMS (Q)	Aro GCMS (Non Q)	GHM-MS (Q or Non Q)	Isotope of EOM/fractions	Isotope of kerogen	GC-IRMS	Gas Analysis (B)(C)	Gas isotope (B)(C)	Visual Kerogen	Vitrinite Reflectance (C)	GSA sulphur analysis	(D) API, Ni, V, %S
		2		15	3		3	5		6	6			8		8	8		13	9	9	11	12	19	10	10	16	14a	14b	7	4	20	17
4845,00	cS		x		x																										x		
4846,69	pR							x																									
4847,74	pR							x	x					x		x	x			x		x											
4848,73	pR							x																									
4850,32	pR							x																									
4851,86	pR							x																									
4853,76	pR							x																									
4857,83	pR							x																									
4860,27	pR							x	x																								
4862,17	pR							x																									
4862,78	pR							x																									
4864,37	pR							x																									
4868,37	pR							x																									
4870,78	pR							x	x					x		x																	
4872,71	pR							x	x																								
4873,42	pR							x	x					x		x																	
4875,18	pR							x																									
4876,66	pR							x																									
4878,75	pR							x																									
4880,65	pR							x																									
4882,68	pR							x																									
4884,39	pR							x	x					x		x																	
4886,67	pR							x																									
4887,60	pR							x																									
4888,27	pR							x	x					x		x																	

A = canned samples
B = test gas samples
Q = Quantitative analysis
C = IFE analysis

GEOLAB NOR

Table 1 Analytical Program

Sample Depth (m)	Sample Type	HS & Occ Gas	Washing	Gas isotope (A)	Lithology Description	Picking for screening	Leco TOC	RockEval	Thermal Extraction GC	Pyrolysis GC	TE and PY GC	Picking for Extraction	MINI Extraction	Iatroscan	Separatory funnel	SOXTEC Extraction	MPLC & Deasp	EOM GC	Whole Oil GC	Sat GC (Q)	Aro GC (Non Q)	Sat GCMS (Q)	Aro GCMS (Non Q)	GHM-MS (Q or Non Q)	Isotope of EOM/fractions	Isotope of kerogen	GC-IRMS	Gas Analysis (B)(C)	Gas isotope (B)(C)	Visual Kerogen	Vitrinite Reflectance (C)	GSA sulphur analysis	(D) API, Ni, V, %S
		2		15	3		3	5		6	6			8		8	8		13	9	9	11	12	19	10	10	16	14a	14b	7	4	20	17
4888,42	pR							x	x					x		x																	
4889,48	pR							x																									
4891,14	pR							x	x					x		x																	
4917,00	cS		x													x																	
4920,00	cS		x													x															x		
4923,00	cS		x				x[1]	x[1]								x																	
4926,00	cS		x													x																	
4929,00	cS		x				x[1]	x[1]								x																	
4932,00	cS		x													x																	
4935,00	cS		x				x[1]	x[1]								x																	
4938,00	cS		x				x	x								x																	
4952,25	pR							x																									
4953,45	pR							x	x					x		x	x			x		x											
4954,28	pR							x																									
4956,77	pS						x	x								x																	
4956,77	extracted pS						x	x																									
4957,86	pR							x																									
4960,57	pR							x																									
4965,09	pR							x																									
4966,37	pR							x																									
4969,12	pR							x	x																								
4977,67	pR							x	x																								
5020,00	cS		x		x																										x		
5098,16	pR							x	x					x		x																	
5099,13	pR							x																									

A = canned samples
B = test gas samples
Q = Quantitative analysis
C = IFE analysis

GEC NOR

Table 1 Analytical Program

Sample Depth (m)	Sample Type	HS & Occ Gas	Washing	Gas isotope (A)	Lithology Description	Picking for screening	Leco TOC	RockEval	Thermal Extraction GC	Pyrolysis GC	TE and PY GC	Picking for Extraction	MINI Extraction	Iatroscan	Separatory funnel	SOXTEC Extraction	MPLC & Deasp	EOM GC	Whole Oil GC	Sat GC (Q)	Aro GC (Non Q)	Sat GCMS (Q)	Aro GCMS (Non Q)	GHM-MS (Q or Non Q)	Isotope of EOM/fractions	Isotope of kerogen	GC-IRMS	Gas Analysis (B)(C)	Gas isotope (B)(C)	Visual Kerogen	Vitrinite Reflectance (C)	GSA sulphur analysis	(D) API, Ni, V, %S
		2		15	3		3	5		6	6			8		8	8		13	9	9	11	12	19	10	10	16	14a	14b	7	4	20	17
5099,44	pR							x																									
5105,69	pR							x	x					x		x																	
5105,87	pS						x	x								x																	
5105,87	extracted pS						x	x																									
5109,60	pR							x																									
5109,87	pS						x	x								x																	
5109,87	extracted pS						x	x																									
5117,16	pR							x	x																								
5120,64	pR							x																									
5122,78	pS						x	x								x																	
5122,78	extracted pS						x	x																									
5123,83	pS						x	x								x																x	
5123,83	extracted pS						x	x																									
5220,00	cS		x		x																											x	
5270,00	cS		x		x																										x	x	
DST 1	4839-4849	condensate												x			x		x	x	x	x	x		x								
DST 2	4695-4737	condensate												x			x		x	x	x	x	x		x								
DST 3	4651-4669	condensate												x			x		x	x	x	x	x		x								
DST 1C/U	4839-4849	gas																										x	x				
DST 1 MR2	4839-4849	gas																										x	x				
DST 2	4695-4737	gas																										x	x				
DST 3 MR3	4651-4669	gas																										x	x				

A = canned samples
B = test gas samples
Q = Quantitative analysis
C = IFE analysis

Table 1 Analytical Program

	Sample Depth (m)	Sample Type	HS & Occ Gas	Washing	Gas isotope (A)	Lithology Description	Picking for screening	Leco TOC	RockEval	Thermal Extraction GC	Pyrolysis GC	TE and PY GC	Picking for Extraction	MINI Extraction	Iatroscan	Separatory funnel	SOXTEC Extraction	MPLC & Deasp	EOM GC	Whole Oil GC	Sat GC (Q)	Aro GC (Non Q)	Sat GCMS (Q)	Aro GCMS (Non Q)	GHM-MS (Q or Non Q)	Isotope of EOM/fractions	Isotope of kerogen	GC-IRMS	Gas Analysis (B)(C)	Gas isotope (B)(C)	Visual Kerogen	Vitrinite Reflectance (C)	GSA sulphur analysis	(D) API, Ni, V, %S
			2		15	3		3	5		6	6			8		8	8		13	9	9	11	12	19	10	10	16	14a	14b	7	4	20	17
	from core 4	mud													x	x		x	x		x		x											
	from core 7	mud														x			x															
	4690,00	mud														x			x															
	4845,00	mud														x			x															
Total			0	51	0	16	0	27	122	39	0	0	0	0	25	4	46	7	4	3	7	3	7	3	0	3	0	0	4	4	11	34	0	0
Sample type key c = cuttings s = SWC p = Conventional core/ plug										R = Reservoir S = Source																								
*thermal extraction-GC was performed twice (i.e. one analysis on a sample from the middle of the core and one analysis from the rim or edge) on four core samples																																		
[1] = these are composite samples (4923 m = 4917+4920+4923 m, 4929 m is 4926+4929 m and 4935 m is 4932+4935 m)																																		

A = canned samples
B = test gas samples
Q = Quantitative analysis
C = IFE analysis

GEOLAB NOR

Table 3: Lithology description for well NOCS 6506/11-6

Depth unit of measure: m

Depth Int	Depth Cvd	Type TOC%	%	Grp	Frm	Age / Lithology description	Trb	Sample
1440.00								0001
			70			Sh/Clst: m gy to ol gy, slt, s		0001-1L
			25			S/Sst : lt gy, f, crs		0001-2L
			5			Cont : cem		0001-3L
1590.00								0002
			100			Sh/Clst: m gy to ol gy, slt		0002-1L
			tr			S/Sst		0002-2L
1740.00								0004
			100			Sh/Clst: lt ol gy to ol gy, m gy, slt		0004-1L
1910.00								0005
			100			Sh/Clst: lt ol gy to brn gy, slt		0005-1L
2060.00								0006
			100			Sh/Clst: gy w to brn gy, pl brn to m brn		0006-1L
2210.00								0007
			100			Sh/Clst: pl gy to pl y gn, ol gy		0007-1L
			tr			Ca : w		0007-2L
2365.00								0008
			100			Sh/Clst: m gy to ol gy, pl y gn		0008-1L
2470.00								0009
			85			Sh/Clst: lt gy to m gy, gn gy to drk gn gy		0009-1L
			10			Sh/Clst: m drk gy		0009-2L
			5			Sh/Clst: brn gy		0009-3L
			tr			Sh/Clst: red brn		0009-4L

GEOLAB NOR

Table 3: Lithology description for well NOCS 6506/11-6

Depth unit of measure: m

Depth Int	Depth Cvd	Type TOC%	%	Grp	Frm	Age	Trb	Sample	Lithology description
2565.00								0010	
			100					0010-1L	Sh/Clst: lt gy to m gy, brn gy, red brn
			tr					0010-2L	Ca : brn gy, dol
2665.00								0011	
			100					0011-1L	Sh/Clst: lt gy to m drk gy, brn gy, red brn, pl y gn
			tr					0011-2L	Ca : brn gy, dol
2765.00								0012	
			90					0012-1L	Sh/Clst: m gy to ol gy, slt
			10					0012-2L	Cont : cem
2870.00								0013	
			55					0013-3L	Sltst : gy w to m gy, s, argill, glauc
			40					0013-2L	Ca : lt brn gy
			5					0013-1L	Sh/Clst: m gy to ol gy, calc
2965.00								0014	
			90					0014-1L	Sh/Clst: m gy to m drk gy, calc
			10					0014-2L	Ca : crs
3065.00								0015	
			90					0015-1L	Sh/Clst: gn gy to m gy, calc
			10					0015-2L	Ca : lt brn gy
3165.00								0016	
			70					0016-1L	Sh/Clst: gn gy to m gy, calc
			20					0016-3L	Sltst : gy w to m gy, s, argill, glauc
			10					0016-2L	Ca : lt brn gy

GEOLAB NOR

Table 3: Lithology description for well NOCS 6506/11-6

Depth unit of measure: m

Depth	Type		Grp	Frm	Age	Trb	Sample
Int Cvd	TOC%	%	Lithology description				
3265.00							0017
		60	Sltst	:	gy w, calc, s, glauc		0017-2L
		35	Ca	:	lt brn gy, dol		0017-3L
		5	Sh/Clst	:	m gy to lt brn gy		0017-1L
3370.00							0018
		85	Sh/Clst	:	m gy to m drk gy		0018-1L
		10	Ca	:	lt brn gy		0018-2L
		5	Sltst	:	gy w, s, glauc		0018-3L
3470.00							0019
		60	Ca	:	w to lt brn gy, s		0019-3L
		20	Sh/Clst	:	m gy to m drk gy		0019-1L
		20	Sltst	:	gy w, s, glauc		0019-2L
3570.00							0020
		70	Ca	:	w to lt brn gy, s		0020-3L
		20	Sltst	:	gy w, calc, s, glauc		0020-2L
		5	Sh/Clst	:	m gy to m drk gy		0020-1L
		5	Other	:	blk, carb		0020-4L
3665.00							0021
		75	Sh/Clst	:	m gy to drk brn gy		0021-1L
		25	Cont	:	dd		0021-2L
3765.00							0022
		50	Sh/Clst	:	m gy to drk brn gy, brn blk, slt		0022-1L
		50	S/Sst	:	gy w, calc, slt, f		0022-2L
3855.00							0023
		50	S/Sst	:	gy w, calc, slt, f		0023-2L
		40	Ca	:	w to lt brn gy, s		0023-3L
		10	Sh/Clst	:	m gy to drk brn gy, brn blk, slt		0023-1L

GEOLAB NOR

Table 3: Lithology description for well NOCS 6506/11-6

Depth unit of measure: m

Depth Int	Depth Cvd	Type TOC%	%	Grp	Frm	Age	Trb	Sample
				Lithology description				
3945.00								0024
			70	Sh/Clst:		m gy to drk brn gy, brn blk, slt		0024-1L
			15	S/Sst	:	gy w, calc, slt, f		0024-2L
			15	Ca	:	w to lt brn gy, s		0024-3L
4050.00								0025
			70	Sh/Clst:		m gy to drk brn gy, brn blk, slt		0025-1L
			30	Ca	:	lt brn gy		0025-2L
			tr	Sh/Clst:		drk brn gy to brn blk		0025-3L
4165.00								0026
			50	Sh/Clst:		m gy to drk brn gy, brn blk, slt		0026-1L
			30	Ca	:	w to lt brn gy, s		0026-2L
			20	Sltst	:	gy w, calc, s		0026-3L
4270.00								0027
			70	Sh/Clst:		m gy to drk brn gy, brn blk, slt		0027-1L
			25	Ca	:	lt brn gy		0027-2L
			5	Cont	:	dd		0027-3L
4365.00								0028
			60	Sh/Clst:		drk gy to brn blk, slt		0028-1L
			40	S/Sst	:	gy w		0028-2L
4515.00								0029
			60	Sh/Clst:		drk gy to brn blk, slt		0029-1L
			40	S/Sst	:	gy w		0029-2L
4635.00								0030
		3.51	100	Sh/Clst:		drk gy to brn blk, slt		0030-1L

GEOLAB NOR

Table 3: Lithology description for well NOCS 6506/11-6

Depth unit of measure: m

Depth Int	Depth Cvd	Type TOC%	%	Grp	Frm	Age / Lithology description	Trb	Sample
4640.00								0031
		3.44	100			Sh/Clst: drk gy to brn blk, slt		0031-1L
4643.00								0032
		3.18	100			Sh/Clst: drk gy to brn blk, slt		0032-1L
4647.00								0003
			80			S/Sst : gy w, kln		0003-1L
		3.43	20			Sh/Clst: drk gy to brn blk		0003-2L
4657.55	ccp							0053
			100			S/Sst		0053-1L
4658.62	ccp							0054
			100			S/Sst		0054-1L
4660.20	ccp							0055
			100			S/Sst		0055-1L
4663.20	ccp							0056
			100			S/Sst		0056-1L
4675.35	ccp							0057
			100			S/Sst		0057-1L
4699.47	ccp							0058
			100			S/Sst		0058-1L

GEOLAB NOR

Table 3: Lithology description for well NOCS 6506/11-6

Depth unit of measure: m

Depth Int	Depth Cvd	Type TOC%	%	Grp	Frm	Age / Lithology description	Trb	Sample
4707.70		ccp						0060
			100	S/Sst				0060-1L
4720.37		ccp						0061
			100	S/Sst				0061-1L
4735.40		ccp						0062
			100	S/Sst				0062-1L
4737.29		ccp						0063
			100	S/Sst				0063-1L
4737.74		ccp						0064
			100	S/Sst				0064-1L
4739.63		ccp						0065
			100	S/Sst				0065-1L
4740.57		ccp						0066
			100	S/Sst				0066-1L
4741.60		ccp						0067
			100	S/Sst				0067-1L
4743.20		ccp						0068
			100	S/Sst				0068-1L

GEOLAB NOR

Table 3: Lithology description for well NOCS 6506/11-6

Depth unit of measure: m

Depth	Type		Grp	Frm	Age	Trb	Sample
Int Cvd	TOC%	%	Lithology description				
4743.77	ccp						0069
		100	S/Sst				0069-1L
4744.38	ccp						0070
		100	S/Sst				0070-1L
4745.20	ccp						0071
		100	S/Sst				0071-1L
4745.30	ccp						0072
		100	S/Sst				0072-1L
4746.25	ccp						0073
		100	S/Sst				0073-1L
4747.62	ccp						0074
		100	S/Sst				0074-1L
4749.43	ccp						0075
		100	S/Sst				0075-1L
4750.33	ccp						0076
		100	S/Sst				0076-1L
4751.50	ccp						0077
		100	S/Sst				0077-1L

GEOLAB NOR

Table 3: Lithology description for well NOCS 6506/11-6

Depth unit of measure: m

Depth		Type		Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description				
4753.60		ccp						0078
			100	S/Sst				0078-1L
4754.30		ccp						0079
			100	S/Sst				0079-1L
4755.20		ccp						0080
			100	S/Sst				0080-1L
4756.36		ccp						0081
			100	S/Sst				0081-1L
4756.68		ccp						0082
			100	S/Sst				0082-1L
4757.20		ccp						0083
			100	S/Sst				0083-1L
4758.29		ccp						0084
			100	S/Sst				0084-1L
4759.65		ccp						0085
			100	S/Sst				0085-1L
4760.25		ccp						0086
			100	S/Sst				0086-1L

GEOLAB NOR

Table 3: Lithology description for well NOCS 6506/11-6

Depth unit of measure: m

Depth Int	Depth Cvd	Type TOC%	%	Grp Frm Age Lithology description	Trb	Sample
4761.52		ccp				0087
			100	S/Sst		0087-1L
4762.90		ccp				0088
			100	S/Sst		0088-1L
4777.70		ccp				0089
			100	S/Sst		0089-1L
4778.30		ccp				0090
			100	S/Sst		0090-1L
4792.21		ccp				0091
		1.37	100	Sh/Clst		0091-1L
4794.00						0033
		1.80	90	Sh/Clst: drk gy to brn blk		0033-1L
			10	Cont : dd		0033-2L
4797.00						0034
			60	S/Sst : gy w, f		0034-1L
		1.47	25	Sh/Clst: drk gy to brn blk		0034-2L
			15	Cont : dd		0034-3L
4800.00						0035
			80	S/Sst : gy w, f		0035-1L
		2.41	10	Sh/Clst: drk gy to brn blk		0035-2L
			10	Cont : dd		0035-3L
			tr	Coal : blk		0035-4L

GEOLAB NOR

Table 3: Lithology description for well NOCS 6506/11-6

Depth unit of measure: m

Depth	Type		Grp	Frm	Age	Trb	Sample
Int Cvd	TOC%	%	Lithology description				
4803.00							0093
	1.18	90	Sh/Clst				0093-1L
		10	S/Sst				0093-2L
4806.00							0036
		90	S/Sst	: gy w, f			0036-1L
	2.62	5	Sh/Clst	: drk gy to brn blk			0036-2L
		5	Cont	: dd			0036-3L
		tr	Coal	: blk			0036-4L
4809.00							0037
	3.00	90	Sh/Clst	: brn blk			0037-1L
		5	S/Sst	: gy w, f			0037-2L
		5	Cont	: dd			0037-3L
4812.00							0038
	2.61	65	Sh/Clst	: brn blk			0038-1L
		30	S/Sst	: gy w, kln			0038-2L
		5	Cont	: dd			0038-3L
4814.67 ccp							0094
		100	S/Sst				0094-1L
4817.62 ccp							0095
		100	S/Sst				0095-1L
4821.75 ccp							0096
		100	S/Sst				0096-1L
4823.56 ccp							0098
		100	S/Sst				0098-1L

GEOLAB NOR

Table 3: Lithology description for well NOCS 6506/11-6

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int Cvd	TOC%	%	Lithology description			
4827.51 ccp						0099
		100	S/Sst			0099-1L
4827.71 ccp						0100
		100	S/Sst			0100-1L
4830.60 ccp						0101
		100	S/Sst			0101-1L
4831.45 ccp						0102
		100	S/Sst			0102-1L
4833.76 ccp						0104
		100	S/Sst			0104-1L
4834.37 ccp						0105
		100	S/Sst			0105-1L
4835.45 ccp						0106
		100	S/Sst			0106-1L
4836.56 ccp						0107
		100	S/Sst			0107-1L
4837.22 ccp						0108
		100	S/Sst			0108-1L

GEOLAB NOR

Table 3: Lithology description for well NOCS 6506/11-6

Depth unit of measure: m

Depth	Type		Grp	Frm	Age	Trb	Sample
Int Cvd	TOC%	%	Lithology description				
4840.64	ccp						0109
		100	S/Sst				0109-1L
4843.17	ccp						0110
		100	S/Sst				0110-1L
4845.00							0039
		70	S/Sst : gy w, kln				0039-1L
		30	Sh/Clst: blk, carb				0039-2L
4846.69	ccp						0111
		100	S/Sst				0111-1L
4847.74	ccp						0112
		100	S/Sst				0112-1L
4848.73	ccp						0113
		100	S/Sst				0113-1L
4850.32	ccp						0114
		100	S/Sst				0114-1L
4851.86	ccp						0115
		100	S/Sst				0115-1L
4853.76	ccp						0116
		100	S/Sst				0116-1L

GEOLAB NOR

Table 3: Lithology description for well NOCS 6506/11-6

Depth unit of measure: m

Depth	Type		Grp	Frm	Age	Trb	Sample
Int Cvd	TOC%	%	Lithology description				
4857.83	ccp						0117
		100	S/Sst				0117-1L
4860.27	ccp						0118
		100	S/Sst				0118-1L
4862.17	ccp						0119
		100	S/Sst				0119-1L
4862.78	ccp						0120
		100	S/Sst				0120-1L
4864.37	ccp						0121
		100	S/Sst				0121-1L
4868.37	ccp						0122
		100	S/Sst				0122-1L
4870.78	ccp						0123
		100	S/Sst				0123-1L
4872.71	ccp						0124
		100	S/Sst				0124-1L
4873.42	ccp						0125
		100	S/Sst				0125-1L

GEOLAB NOR

Table 3: Lithology description for well NOCS 6506/11-6

Depth unit of measure: m

Depth Int	Depth Cvd	Type TOC%	Type %	Grp	Frm	Age / Lithology description	Trb	Sample
4875.18		ccp						0126
			100	S/Sst				0126-1L
4876.66		ccp						0127
			100	S/Sst				0127-1L
4878.75		ccp						0128
			100	S/Sst				0128-1L
4880.65		ccp						0129
			100	S/Sst				0129-1L
4882.68		ccp						0130
			100	S/Sst				0130-1L
4884.39		ccp						0131
			100	S/Sst				0131-1L
4886.67		ccp						0132
			100	S/Sst				0132-1L
4887.60		ccp						0133
			100	S/Sst				0133-1L
4888.27		ccp						0134
			100	S/Sst				0134-1L

GEOLAB NOR

Table 3: Lithology description for well NOCS 6506/11-6

Depth unit of measure: m

Depth Int	Depth Cvd	Type TOC%	%	Grp	Frm	Age / Lithology description	Trb	Sample
4888.42		ccp						0135
			100	S/Sst				0135-1L
4889.48		ccp						0136
			100	S/Sst				0136-1L
4891.14		ccp						0137
			100	S/Sst				0137-1L
4917.00								0041
			90	S/Sst		: gy w to lt gy, calc, kln		0041-1L
			10	Sh/Clst		: m gy to drk brn gy		0041-2L
4920.00								0042
			90	S/Sst		: gy w to lt gy, calc, kln		0042-1L
			10	Sh/Clst		: m gy to drk brn gy		0042-2L
4923.00								0043
			90	S/Sst		: gy w to lt gy, calc, kln		0043-1L
			10	Sh/Clst		: m gy to drk brn gy		0043-2L
4926.00								0044
			90	S/Sst		: gy w to lt gy, calc, kln		0044-1L
			10	Sh/Clst		: m gy to drk brn gy		0044-2L
4929.00								0045
			90	S/Sst		: gy w to lt gy, calc, kln		0045-1L
			10	Sh/Clst		: m gy to drk brn gy		0045-2L

GEOLAB NOR

Table 3: Lithology description for well NOCS 6506/11-6

Depth unit of measure: m

Depth Int	Type Cvd	TOC%	%	Grp	Frm	Age	Trb	Sample	Lithology description
4932.00								0046	
			90					0046-1L	S/Sst : gy w to lt gy, calc, kln
			10					0046-2L	Sh/Clst: m gy to drk brn gy
4935.00								0047	
			90					0047-3L	S/Sst : lt gy to gy w, calc, kln
			10					0047-4L	Sh/Clst: m gy to drk brn gy
4938.00								0048	
			90					0048-1L	S/Sst : gy w to lt gy, calc, kln
		1.51	10					0048-2L	Sh/Clst: m gy to drk brn gy
4952.25	ccp							0141	
			100					0141-1L	S/Sst
4953.45	ccp							0142	
			100					0142-1L	S/Sst
4954.28	ccp							0143	
			100					0143-1L	S/Sst
4956.77	ccp							0144	
		1.08	100					0144-1L	Sh/Clst
4957.86	ccp							0146	
			100					0146-1L	S/Sst
4960.57	ccp							0147	
			100					0147-1L	S/Sst

GEOLAB NOR

Table 3: Lithology description for well NOCS 6506/11-6

Depth unit of measure: m

Depth	Type		Grp	Frm	Age	Trb	Sample
Int Cvd	TOC%	%	Lithology description				
4965.09	ccp						0148
		100	S/Sst				0148-1L
4966.37	ccp						0149
		100	S/Sst				0149-1L
4969.12	ccp						0150
		100	S/Sst				0150-1L
4977.67	ccp						0151
		100	S/Sst				0151-1L
5020.00							0049
		85	S/Sst	: gy w to lt gy, kln			0049-1L
		10	Sh/Clst	: gy blk			0049-2L
		5	Cont	: dd			0049-3L
5098.16	ccp						0152
		100	S/Sst				0152-1L
5099.13	ccp						0153
		100	S/Sst				0153-1L
5099.44	ccp						0154
		100	S/Sst				0154-1L
5105.69	ccp						0155
		100	S/Sst				0155-1L

GEOLAB NOR

Table 3: Lithology description for well NOCS 6506/11-6

Depth unit of measure: m

Depth	Type		Grp	Frm	Age	Trb	Sample
Int Cvd	TOC%	%	Lithology description				
5105.87	ccp						0156
	1.12	100	Sh/Clst				0156-1L
5109.60	ccp						0158
		100	S/Sst				0158-1L
5109.87	ccp						0159
	1.35	100	Sh/Clst				0159-1L
5117.16	ccp						0161
		100	S/Sst				0161-1L
5120.64	ccp						0162
		100	S/Sst				0162-1L
5122.78	ccp						0163
	2.87	100	Sh/Clst				0163-1L
5123.83	ccp						0165
		85	S/Sst				0165-1L
	68.80	15	Coal				0165-2L
5220.00							0050
		80	S/Sst	: gy w to lt gy, kln			0050-1L
		10	Sh/Clst	: gy blk			0050-2L
		10	Cont	: dd			0050-3L
		tr	Coal	: blk			0050-4L
5270.00							0051
		70	S/Sst	: gy w to lt gy, kln			0051-1L
		20	Sh/Clst	: gy blk			0051-2L
		10	Coal	: blk			0051-4L

Table 4 : Thermal Maturity Data for well NOCS 6506/11-6

Depth unit of measure: m

Depth	Typ	Lithology	Vitrinite Reflectance (%)	Number of Readings	Standard Deviation (%)	Spore Fluorescence Colour	SCI	Tmax (°C)	Sample
1440.00	cut	bulk	0.24	20	0.04	-	3.5-4.0	-	0001-0B
1590.00	cut	bulk	0.25	21	0.03	-	-	-	0002-0B
1740.00	cut	bulk	0.25	20	0.04	-	-	-	0004-0B
1910.00	cut	bulk	0.23	20	0.04	-	5.5(??)	-	0005-0B
2060.00	cut	bulk	0.25	19	0.04	-	-	-	0006-0B
2210.00	cut	bulk	0.26	6	0.02	-	-	-	0007-0B
2470.00	cut	bulk	0.39	6	0.04	-	-	-	0009-0B
2565.00	cut	bulk	0.34	20	0.06	-	5.5-6.0	-	0010-0B
2665.00	cut	bulk	0.36	24	0.06	-	-	-	0011-0B
2765.00	cut	bulk	0.39	3	0.04	-	-	-	0012-0B
2870.00	cut	bulk	0.44	8	0.08	-	-	-	0013-0B
2965.00	cut	bulk	0.40	20	0.06	-	-	-	0014-0B
3065.00	cut	bulk	0.44	20	0.05	-	-	-	0015-0B
3165.00	cut	bulk	0.48	18	0.06	-	6.5	-	0016-0B
3265.00	cut	bulk	0.50	12	0.03	-	-	-	0017-0B

Table 4 : Thermal Maturity Data for well NOCS 6506/11-6

Depth unit of measure: m

Depth	Typ	Lithology	Vitrinite Reflectance (%)	Number of Readings	Standard Deviation (%)	Spore Fluorescence Colour	SCI	Tmax (°C)	Sample
3370.00	cut	bulk	0.47	6	0.03	-	-	-	0018-0B
3470.00	cut	bulk	NDP	-	0.00	-	NDP	-	0019-0B
3570.00	cut	bulk	0.59	9	0.10	-	-	-	0020-0B
3665.00	cut	bulk	0.68	4	0.06	-	-	-	0021-0B
3765.00	cut	bulk	0.54	8	0.02	-	6.0-6.5(?)	-	0022-0B
3855.00	cut	bulk	0.64	18	0.08	-	-	-	0023-0B
3945.00	cut	bulk	0.82	4	0.02	-	-	-	0024-0B
4050.00	cut	bulk	0.72	5	0.06	-	6.5-7.5	-	0025-0B
4165.00	cut	bulk	0.77	6	0.04	-	-	-	0026-0B
4270.00	cut	bulk	0.83	21	0.06	-	-	-	0027-0B
4365.00	cut	bulk	0.95	22	0.09	-	7.0-8.0	-	0028-0B
4515.00	cut	bulk	1.02	20	0.10	-	-	-	0029-0B
4640.00	cut	bulk	0.93	9	0.09	-	7.5-8.0(?)	442	0031-0B
4845.00	cut	bulk	NDP	-	0.00	-	-	-	0039-0B
4920.00	cut	bulk	1.18	12	0.11	-	-	-	0042-0B

Table 4 : Thermal Maturity Data for well NOCS 6506/11-6

Depth unit of measure: m

Depth	Typ	Lithology	Vitrinite Reflectance (%)	Number of Readings	Standard Deviation (%)	Spore Fluorescence Colour	SCI	Tmax (°C)	Sample
5020.00	cut	bulk	1.13	8	0.09	-	-	-	0049-0B
5123.83	ccp	bulk	1.2	25	0.13	-	-	482	0165-0B
5220.00	cut	bulk	1.47	5	0.08	-	-	-	0050-0B
5270.00	cut	bulk	1.28	8	0.11	-	8.0-8.5(??)	-	0051-0B

Table 5A: Rock-Eval table for well NOCS 6506/11-6

Depth unit of measure: m

Depth	Typ	Form	Lithology	S1	S2	S3	S2/S3	TOC	HI	OI	PP	PI	Tmax	Sample
4635.00	cut		Sh/Clst: drk gy to brn blk	15.07	6.79	-	-	3.51	193	-	21.9	0.69	428	0030-1L
4640.00	cut		Sh/Clst: drk gy to brn blk	13.46	7.90	-	-	3.44	230	-	21.4	0.63	442	0031-1L
4643.00	cut		Sh/Clst: drk gy to brn blk	8.16	6.84	-	-	3.18	215	-	15.0	0.54	441	0032-1L
4647.00	cut		Sh/Clst: drk gy to brn blk	13.18	8.24	-	-	3.43	240	-	21.4	0.62	441	0003-2L
4657.55	ccp		S/Sst	12.69	0.44	-	-	-	-	-	13.1	0.97	414	0053-1L
4658.62	ccp		S/Sst	17.18	0.37	-	-	-	-	-	17.6	0.98	421	0054-1L
4660.20	ccp		S/Sst	17.97	0.31	-	-	-	-	-	18.3	0.98	412	0055-1L
4663.20	ccp		S/Sst	15.99	0.23	-	-	-	-	-	16.2	0.99	415	0056-1L
4675.35	ccp		S/Sst	8.60	0.85	-	-	-	-	-	9.5	0.91	409	0057-1L
4699.47	ccp		S/Sst	8.74	0.08	-	-	-	-	-	8.8	0.99	411	0058-1L
4707.70	ccp		S/Sst	10.34	0.24	-	-	-	-	-	10.6	0.98	423	0060-1L
4720.37	ccp		S/Sst	7.73	0.20	-	-	-	-	-	7.9	0.97	410	0061-1L
4735.40	ccp		S/Sst	8.02	0.21	-	-	-	-	-	8.2	0.97	419	0062-1L
4737.29	ccp		S/Sst	9.63	0.31	-	-	-	-	-	9.9	0.97	393	0063-1L
4737.74	ccp		S/Sst	3.76	0.19	-	-	-	-	-	4.0	0.95	404	0064-1L
4739.63	ccp		S/Sst	3.28	0.22	-	-	-	-	-	3.5	0.94	396	0065-1L

Table 5A: Rock-Eval table for well NOCS 6506/11-6

Depth unit of measure: m

Depth	Typ	Form	Lithology	S1	S2	S3	S2/S3	TOC	HI	OI	PP	PI	Tmax	Sample
4740.57	ccp		S/Sst	2.96	0.15	-	-	-	-	-	3.1	0.95	407	0066-1L
4741.60	ccp		S/Sst	4.80	0.10	-	-	-	-	-	4.9	0.98	416	0067-1L
4743.20	ccp		S/Sst	3.99	0.03	-	-	-	-	-	4.0	0.99	409	0068-1L
4743.77	ccp		S/Sst	4.04	-	-	-	-	-	-	4.0	1.00	-	0069-1L
4744.38	ccp		S/Sst	2.72	0.15	-	-	-	-	-	2.9	0.95	408	0070-1L
4745.20	ccp		S/Sst	1.99	0.09	-	-	-	-	-	2.1	0.96	409	0071-1L
4745.30	ccp		S/Sst	3.04	0.15	-	-	-	-	-	3.2	0.95	406	0072-1L
4746.25	ccp		S/Sst	1.22	0.08	-	-	-	-	-	1.3	0.94	406	0073-1L
4747.62	ccp		S/Sst	0.94	0.11	-	-	-	-	-	1.0	0.90	407	0074-1L
4749.43	ccp		S/Sst	1.59	0.12	-	-	-	-	-	1.7	0.93	405	0075-1L
4750.33	ccp		S/Sst	1.94	0.12	-	-	-	-	-	2.1	0.94	404	0076-1L
4751.50	ccp		S/Sst	0.81	0.12	-	-	-	-	-	0.9	0.87	395	0077-1L
4753.60	ccp		S/Sst	2.41	0.16	-	-	-	-	-	2.6	0.94	406	0078-1L
4754.30	ccp		S/Sst	2.60	0.09	-	-	-	-	-	2.7	0.97	408	0079-1L
4755.20	ccp		S/Sst	2.21	0.11	-	-	-	-	-	2.3	0.95	405	0080-1L
4756.36	ccp		S/Sst	1.03	0.10	-	-	-	-	-	1.1	0.91	400	0081-1L

Table 5A: Rock-Eval table for well NOCS 6506/11-6

Depth unit of measure: m

Depth	Typ	Form	Lithology	S1	S2	S3	S2/S3	TOC	HI	OI	PP	PI	Tmax	Sample
4756.68	ccp		S/Sst	0.16	0.05	-	-	-	-	-	0.2	0.76	398	0082-1L
4757.20	ccp		S/Sst	1.56	0.10	-	-	-	-	-	1.7	0.94	406	0083-1L
4758.29	ccp		S/Sst	1.96	0.03	-	-	-	-	-	2.0	0.98	402	0084-1L
4759.65	ccp		S/Sst	0.53	0.02	-	-	-	-	-	0.5	0.96	366	0085-1L
4760.25	ccp		S/Sst	0.11	-	-	-	-	-	-	0.1	1.00	-	0086-1L
4761.52	ccp		S/Sst	0.10	-	-	-	-	-	-	0.1	1.00	-	0087-1L
4762.90	ccp		S/Sst	1.60	0.03	-	-	-	-	-	1.6	0.98	393	0088-1L
4777.70	ccp		S/Sst	10.01	0.21	-	-	-	-	-	10.2	0.98	422	0089-1L
4778.30	ccp		S/Sst	3.67	0.03	-	-	-	-	-	3.7	0.99	396	0090-1L
4792.21	ccp		Sh/Clst	0.31	0.56	-	-	1.37	41	-	0.9	0.36	473	0091-1L
4792.21	ext		bulk	0.06	0.53	-	-	1.14	46	-	0.6	0.10	470	0092-0B
4794.00	cut		Sh/Clst: drk gy to brn blk	3.75	8.66	-	-	1.80	481	-	12.4	0.30	432	0033-1L
4797.00	cut		Sh/Clst: drk gy to brn blk	3.16	3.57	-	-	1.47	243	-	6.7	0.47	430	0034-2L
4800.00	cut		Sh/Clst: drk gy to brn blk	7.76	7.69	-	-	2.41	319	-	15.5	0.50	439	0035-2L
4803.00	cut		Sh/Clst	0.33	2.05	-	-	1.18	174	-	2.4	0.14	436	0093-1L
4806.00	cut		Sh/Clst: drk gy to brn blk	3.81	7.99	-	-	2.62	305	-	11.8	0.32	441	0036-2L

Table 5A: Rock-Eval table for well NOCS 6506/11-6

Depth unit of measure: m

Depth	Typ	Form	Lithology	S1	S2	S3	S2/S3	TOC	HI	OI	PP	PI	Tmax	Sample
4809.00	cut		Sh/Clst: brn blk	0.89	9.45	-	-	3.00	315	-	10.3	0.09	448	0037-1L
4812.00	cut		Sh/Clst: brn blk	0.80	7.17	-	-	2.61	275	-	8.0	0.10	444	0038-1L
4814.67	ccp		S/Sst	8.07	0.09	-	-	-	-	-	8.2	0.99	414	0094-1L
4817.62	ccp		S/Sst	5.02	0.27	-	-	-	-	-	5.3	0.95	402	0095-1L
4821.75	ccp		S/Sst	4.07	0.20	-	-	-	-	-	4.3	0.95	408	0096-1L
4823.56	ccp		S/Sst	4.77	0.13	-	-	-	-	-	4.9	0.97	414	0098-1L
4827.51	ccp		S/Sst	5.93	0.26	-	-	-	-	-	6.2	0.96	407	0099-1L
4827.71	ccp		S/Sst	7.82	0.17	-	-	-	-	-	8.0	0.98	419	0100-1L
4830.60	ccp		S/Sst	10.43	-	-	-	-	-	-	10.4	1.00	-	0101-1L
4831.45	ccp		S/Sst	9.83	0.12	-	-	-	-	-	9.9	0.99	410	0102-1L
4833.76	ccp		S/Sst	8.10	0.34	-	-	-	-	-	8.4	0.96	413	0104-1L
4834.37	ccp		S/Sst	10.37	0.12	-	-	-	-	-	10.5	0.99	418	0105-1L
4835.45	ccp		S/Sst	14.89	0.14	-	-	-	-	-	15.0	0.99	426	0106-1L
4836.56	ccp		S/Sst	8.83	0.04	-	-	-	-	-	8.9	1.00	416	0107-1L
4837.22	ccp		S/Sst	13.85	0.06	-	-	-	-	-	13.9	1.00	420	0108-1L
4840.64	ccp		S/Sst	12.00	-	-	-	-	-	-	12.0	1.00	-	0109-1L

Table 5A: Rock-Eval table for well NOCS 6506/11-6

Depth unit of measure: m

Depth	Typ	Form	Lithology	S1	S2	S3	S2/S3	TOC	HI	OI	PP	PI	Tmax	Sample
4843.17	ccp		S/Sst	20.55	0.19	-	-	-	-	-	20.7	0.99	422	0110-1L
4846.69	ccp		S/Sst	14.66	0.07	-	-	-	-	-	14.7	1.00	412	0111-1L
4847.74	ccp		S/Sst	26.21	0.21	-	-	-	-	-	26.4	0.99	421	0112-1L
4848.73	ccp		S/Sst	15.55	0.10	-	-	-	-	-	15.7	0.99	416	0113-1L
4850.32	ccp		S/Sst	16.69	0.06	-	-	-	-	-	16.7	1.00	418	0114-1L
4851.86	ccp		S/Sst	3.41	-	-	-	-	-	-	3.4	1.00	-	0115-1L
4853.76	ccp		S/Sst	13.90	0.02	-	-	-	-	-	13.9	1.00	419	0116-1L
4857.83	ccp		S/Sst	10.74	0.14	-	-	-	-	-	10.9	0.99	421	0117-1L
4860.27	ccp		S/Sst	12.79	0.10	-	-	-	-	-	12.9	0.99	416	0118-1L
4862.17	ccp		S/Sst	5.78	0.06	-	-	-	-	-	5.8	0.99	405	0119-1L
4862.78	ccp		S/Sst	13.00	0.07	-	-	-	-	-	13.1	0.99	415	0120-1L
4864.37	ccp		S/Sst	6.70	0.07	-	-	-	-	-	6.8	0.99	402	0121-1L
4868.37	ccp		S/Sst	14.50	0.09	-	-	-	-	-	14.6	0.99	412	0122-1L
4870.78	ccp		S/Sst	15.11	0.04	-	-	-	-	-	15.1	1.00	419	0123-1L
4872.71	ccp		S/Sst	2.27	-	-	-	-	-	-	2.3	1.00	-	0124-1L
4873.42	ccp		S/Sst	14.80	0.02	-	-	-	-	-	14.8	1.00	419	0125-1L

Table 5A: Rock-Eval table for well NOCS 6506/11-6

Depth unit of measure: m

Depth	Typ	Form	Lithology	S1	S2	S3	S2/S3	TOC	HI	OI	PP	PI	Tmax	Sample
4875.18	ccp		S/Sst	14.95	0.14	-	-	-	-	-	15.1	0.99	416	0126-1L
4876.66	ccp		S/Sst	16.72	0.08	-	-	-	-	-	16.8	1.00	409	0127-1L
4878.75	ccp		S/Sst	10.82	0.02	-	-	-	-	-	10.8	1.00	378	0128-1L
4880.65	ccp		S/Sst	15.33	0.04	-	-	-	-	-	15.4	1.00	409	0129-1L
4882.68	ccp		S/Sst	14.94	0.02	-	-	-	-	-	15.0	1.00	411	0130-1L
4884.39	ccp		S/Sst	16.78	0.08	-	-	-	-	-	16.9	1.00	412	0131-1L
4886.67	ccp		S/Sst	16.09	0.02	-	-	-	-	-	16.1	1.00	411	0132-1L
4887.60	ccp		S/Sst	14.93	0.22	-	-	-	-	-	15.2	0.99	410	0133-1L
4888.27	ccp		S/Sst	11.49	0.19	-	-	-	-	-	11.7	0.98	409	0134-1L
4888.42	ccp		S/Sst	5.56	0.02	-	-	-	-	-	5.6	1.00	306	0135-1L
4889.48	ccp		S/Sst	1.48	0.01	-	-	-	-	-	1.5	0.99	363	0136-1L
4891.14	ccp		S/Sst	2.13	-	-	-	-	-	-	2.1	1.00	-	0137-1L
4923.00	com		bulk	2.04	3.77	-	-	1.29	292	-	5.8	0.35	436	0138-0B
4929.00	com		bulk	0.25	3.33	-	-	1.24	269	-	3.6	0.07	430	0139-0B
4935.00	com		bulk	0.38	3.58	-	-	1.40	256	-	4.0	0.10	441	0140-0B
4938.00	cut		Sh/Clst: m gy to drk brn gy	0.42	3.54	-	-	1.51	234	-	4.0	0.11	441	0048-2L

Table 5A: Rock-Eval table for well NOCS 6506/11-6

Depth unit of measure: m

Depth	Typ	Form	Lithology	S1	S2	S3	S2/S3	TOC	HI	OI	PP	PI	Tmax	Sample
4952.25	ccp		S/Sst	12.11	-	-	-	-	-	-	12.1	1.00	-	0141-1L
4953.45	ccp		S/Sst	15.13	-	-	-	-	-	-	15.1	1.00	-	0142-1L
4954.28	ccp		S/Sst	11.55	-	-	-	-	-	-	11.6	1.00	-	0143-1L
4956.77	ccp		Sh/Clst	4.64	0.57	-	-	1.08	53	-	5.2	0.89	453	0144-1L
4956.77	ext		bulk	0.08	0.38	-	-	0.90	42	-	0.5	0.17	468	0145-0B
4957.86	ccp		S/Sst	1.51	-	-	-	-	-	-	1.5	1.00	-	0146-1L
4960.57	ccp		S/Sst	4.63	-	-	-	-	-	-	4.6	1.00	-	0147-1L
4965.09	ccp		S/Sst	7.17	0.02	-	-	-	-	-	7.2	1.00	417	0148-1L
4966.37	ccp		S/Sst	7.31	0.03	-	-	-	-	-	7.3	1.00	417	0149-1L
4969.12	ccp		S/Sst	8.36	0.01	-	-	-	-	-	8.4	1.00	420	0150-1L
4977.67	ccp		S/Sst	3.42	-	-	-	-	-	-	3.4	1.00	-	0151-1L
5098.16	ccp		S/Sst	10.48	-	-	-	-	-	-	10.5	1.00	-	0152-1L
5099.13	ccp		S/Sst	8.15	-	-	-	-	-	-	8.1	1.00	-	0153-1L
5099.44	ccp		S/Sst	6.30	-	-	-	-	-	-	6.3	1.00	-	0154-1L
5105.69	ccp		S/Sst	1.50	-	-	-	-	-	-	1.5	1.00	-	0155-1L
5105.87	ccp		Sh/Clst	0.98	0.72	-	-	1.12	64	-	1.7	0.58	475	0156-1L

Table 5A: Rock-Eval table for well NOCS 6506/11-6

Depth unit of measure: m

Depth	Typ	Form	Lithology	S1	S2	S3	S2/S3	TOC	HI	OI	PP	PI	Tmax	Sample
5105.87	ext		bulk	0.10	0.55	-	-	1.08	51	-	0.7	0.15	480	0157-0B
5109.60	ccp		S/Sst	3.53	0.09	-	-	-	-	-	3.6	0.98	422	0158-1L
5109.87	ccp		Sh/Clst	1.50	0.71	-	-	1.35	53	-	2.2	0.68	459	0159-1L
5109.87	ext		bulk	0.07	0.57	-	-	1.17	49	-	0.6	0.11	470	0160-0B
5117.16	ccp		S/Sst	5.60	0.13	-	-	-	-	-	5.7	0.98	430	0161-1L
5120.64	ccp		S/Sst	3.75	-	-	-	-	-	-	3.7	1.00	-	0162-1L
5122.78	ccp		Sh/Clst	1.05	1.41	-	-	2.87	49	-	2.5	0.43	461	0163-1L
5122.78	ext		bulk	0.18	1.16	-	-	2.88	40	-	1.3	0.13	464	0164-0B
5123.83	ccp		Coal	17.96	62.96	-	-	68.80	92	-	80.9	0.22	482	0165-2L
5123.83	ext		bulk	3.63	41.13	-	-	66.90	61	-	44.8	0.08	486	0166-0B

Table 5B: Rock-Eval table for well BLACK VEN MARL

Depth unit of measure: m

Depth	Typ	Form	Lithology	S1	S2	S3	S2/S3	TOC	HI	OI	PP	PI	Tmax	Sample
1.00	std		bulk	0.47	20.27	-	-	-	-	-	20.7	0.02	419	0197-0B
2.00	std		bulk	0.45	20.15	-	-	-	-	-	20.6	0.02	416	0198-0B
3.00	std		bulk	0.46	19.32	-	-	-	-	-	19.8	0.02	418	0199-0B
4.00	std		bulk	0.45	19.33	-	-	-	-	-	19.8	0.02	420	0200-0B
5.00	std		bulk	0.51	19.52	-	-	-	-	-	20.0	0.03	419	0201-0B
6.00	std		bulk	0.42	19.28	-	-	-	-	-	19.7	0.02	420	0202-0B

Table 7: Visual Kerogen Composition Data for well NOCS 6506/11-6

Depth unit of measure: m

Depth	Typ	Lithology	Amorphous AM%	FA	HA	Algal/Phytoplankton AP%	Cy	Ta	Bo	Di	De	Herbaceous HE%	SP	Cu	De	Woody WO%	FL	NF	De	Coaly CO%	FS	De	SCI	Sample
1440.00	cut	Sh/Clst	NDP	*		NDP	*					NDP	*		*	NDP	*	*		NDP	*	*	3.5-4.0	0001-1L
1910.00	cut	Sh/Clst	NDP	*		NDP	*				*	NDP	*	*	*	NDP	*	**		NDP	*	**	5.5(??)	0005-1L
2365.00	cut	Sh/Clst	NDP			NDP	?					NDP	*			NDP	*	**		NDP	*	**	6.0-6.5(??)	0008-1L
2565.00	cut	Sh/Clst	TR	*		TR	*					10	*	*	*	5	*	**		85	*	**	5.5-6.0	0010-1L
3165.00	cut	Sh/Clst	TR	*		TR	*				?	10	*		*	10	*	**		80	*	**	6.5	0016-1L
3470.00	cut	Sh/Clst	NDP	*		NDP	?					NDP	?			NDP		*		NDP		*	NDP	0019-1L
3765.00	cut	Sh/Clst	30	*		TR	*					20	**	*	*	20	*	**		30	*	**	6.0-6.5(?)	0022-1L
4050.00	cut	Sh/Clst	40	*		TR	?					10	*	*	*	10	*	**		40	*	**	6.5-7.5	0025-1L
4365.00	cut	Sh/Clst	15	*		TR	?					15	*	*	*	25	*	**		45	*	**	7.0-8.0	0028-1L
4640.00	cut	Sh/Clst	5	*		TR	*					15	*	*	*	30	**	*		50	**	*	7.5-8.0(?)	0031-1L
5270.00	cut	Sh/Clst	NDP	*		NDP						NDP	*			NDP		*		NDP		*	8.0-8.5(??)	0051-2L

Table 8a: MPLC Bulk Composition: Weight of EOM and Fraction for well NOCS 6506/11-6

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
4.00	mud	bulk	-	89.4	45.8	2.8	11.0	29.8	48.6	40.8	-	0167-0B
4663.20	ccp	S/Sst	3.0	65.3	57.9	2.0	1.5	3.9	59.9	5.4	0.57	0056-1L
4847.74	ccp	S/Sst	3.0	138.7	120.1	2.4	4.8	11.3	122.6	16.1	0.78	0112-1L
4953.45	ccp	S/Sst	3.0	68.0	37.8	13.9	0.4	15.9	51.7	16.3	0.27	0142-1L

Table 8b: MPLC Bulk Composition: Concentration of EOM and Fraction (wt ppm rock) for well NOCS 6506/11-6

Depth unit of measure: m

Depth	Typ	Lithology	EOM	Sat	Aro	Asph	NSO	HC	Non-HC	Sample
4.00	mud	bulk	-	-	-	-	-	-	-	0167-0B
4663.20	ccp	S/Sst	21839	19363	657	501	1315	20021	1817	0056-1L
4847.74	ccp	S/Sst	46233	40049	804	1600	3779	40853	5379	0112-1L
4953.45	ccp	S/Sst	22742	12634	4654	133	5319	17289	5453	0142-1L

Table 8c: MPLC Bulk Composition: Concentration of EOM and Fraction (mg/g TOC(e)) for well NOCS 6506/11-6

Depth unit of measure: m

Depth	Typ	Lithology	EOM	Sat	Aro	Asph	NSO	HC	Non-HC	Sample
4.00	mud	bulk	-	-	-	-	-	-	-	0167-0B
4663.20	ccp	S/Sst	3831.49	3397.16	115.44	88.01	230.87	3512.60	318.89	0056-1L
4847.74	ccp	S/Sst	5927.35	5134.53	103.10	205.13	484.58	5237.64	689.71	0112-1L
4953.45	ccp	S/Sst	8423.14	4679.36	1723.97	49.55	1970.26	6403.33	2019.80	0142-1L

Table 8d: MPLC Bulk Composition: Material extracted from the rock (%) for well NOCS 6506/11-6

Depth unit of measure: m

Depth	Typ	Lithology	Sat	Aro	Asph	NSO	Total	HC	Non-HC	Recov. MPLC	Recov. Asph	Sample
4.00	mud	bulk	51.22	3.10	12.30	33.37	100.00	54.32	45.68	-	1.00	0167-0B
4663.20	ccp	S/Sst	88.66	3.01	2.30	6.03	100.00	91.68	8.32	-	1.00	0056-1L
4847.74	ccp	S/Sst	86.62	1.74	3.46	8.18	100.00	88.36	11.64	-	1.00	0112-1L
4953.45	ccp	S/Sst	55.55	20.47	0.59	23.39	100.00	76.02	23.98	-	1.00	0142-1L

Table 8e: MPLC Bulk Composition: Ratios for well NOCS 6506/11-6

Depth unit of measure: m

Depth	Typ	Lithology	Sat / Aro	HC / Non-HC	Asp / NSO	Sample
4.00	mud	bulk	16.50	1.19	0.37	0167-0B
4663.20	ccp	S/Sst	29.43	11.02	0.38	0056-1L
4847.74	ccp	S/Sst	49.80	7.59	0.42	0112-1L
4953.45	ccp	S/Sst	2.71	3.17	0.03	0142-1L

Table 8f: Iatroscan TLC Bulk Composition: Absolute yields in mg/g rock for well NOCS 6506/11-6

Depth unit of measure: m

Depth	Typ	Lithology	Sat HC	Aro HC	NSO	Asp	HC	Non-HC	EOM	Sample
4.00	mud	bulk	76.39	0.27	1.74	11.00	76.66	12.74	89.40	0167-0B
4663.20	ccp	S/Sst	20.07	0.30	0.96	0.50	20.37	1.46	21.84	0056-1L
4737.29	ccp	S/Sst	13.28	0.14	0.52	0.34	13.42	0.87	14.29	0063-1L
4737.74	ccp	S/Sst	4.43	0.05	0.75	0.22	4.48	0.97	5.45	0064-1L
4743.77	ccp	S/Sst	4.25	0.03	0.25	0.20	4.29	0.45	4.73	0069-1L
4744.38	ccp	S/Sst	4.08	0.08	0.11	0.26	4.15	0.37	4.52	0070-1L
4750.33	ccp	S/Sst	3.92	0.15	0.11	0.16	4.07	0.27	4.34	0076-1L
4758.29	ccp	S/Sst	2.52	0.03	0.23	0.40	2.55	0.63	3.19	0084-1L
4777.70	ccp	S/Sst	10.03	0.45	0.45	1.52	10.48	1.98	12.46	0089-1L
4814.67	ccp	S/Sst	9.31	0.08	0.53	0.34	9.39	0.87	10.26	0094-1L
4817.62	ccp	S/Sst	4.68	0.13	0.09	0.08	4.81	0.17	4.98	0095-1L
4830.60	ccp	S/Sst	11.31	0.14	0.43	0.49	11.44	0.93	12.37	0101-1L
4847.74	ccp	S/Sst	42.47	0.51	1.65	1.60	42.99	3.25	46.23	0112-1L
4870.78	ccp	S/Sst	19.66	0.15	1.50	0.43	19.81	1.93	21.74	0123-1L
4873.42	ccp	S/Sst	21.30	0.05	0.84	0.50	21.35	1.33	22.68	0125-1L
4884.39	ccp	S/Sst	18.85	0.33	1.35	0.10	19.18	1.45	20.64	0131-1L

Table 8f: Iatroscan TLC Bulk Composition: Absolute yields in mg/g rock for well NOCS 6506/11-6

Depth unit of measure: m

Depth	Typ	Lithology	Sat HC	Aro HC	NSO	Asp	HC	Non-HC	EOM	Sample
4888.27	ccp	S/Sst	14.79	0.11	0.46	0.38	14.90	0.84	15.75	0134-1L
4888.42	ccp	S/Sst	6.15	0.21	0.28	0.18	6.36	0.46	6.83	0135-1L
4891.14	ccp	S/Sst	4.15	0.09	0.34	0.10	4.23	0.44	4.67	0137-1L
4953.45	ccp	S/Sst	17.90	0.09	4.62	0.13	17.99	4.75	22.74	0142-1L
5098.16	ccp	S/Sst	9.73	0.67	6.66	0.20	10.40	6.86	17.26	0152-1L
5105.69	ccp	S/Sst	0.64	0.09	0.35	0.24	0.73	0.59	1.32	0155-1L

Table 8g: Iatroscan TLC Bulk Composition: Rel. percentages of sep. fractions for well NOCS 6506/11-6

Depth unit of measure: m

Depth	Typ	Lithology	Sat HC	Aro HC	NSO	Asp	Total	HC	Non-HC	Recov. Iatr.	Recov. Asp	Sample
4.00	mud	bulk	85.45	0.30	1.94	12.30	100.00	85.75	14.25	0.32	1.00	0167-0B
4663.20	ccp	S/Sst	91.90	1.39	4.41	2.30	100.00	93.29	6.71	0.24	1.00	0056-1L
4737.29	ccp	S/Sst	92.95	0.99	3.67	2.39	100.00	93.94	6.06	0.19	1.00	0063-1L
4737.74	ccp	S/Sst	81.21	0.98	13.76	4.04	100.00	82.19	17.81	0.16	1.00	0064-1L
4743.77	ccp	S/Sst	89.81	0.73	5.32	4.15	100.00	90.54	9.46	0.50	1.00	0069-1L
4744.38	ccp	S/Sst	90.19	1.69	2.37	5.75	100.00	91.88	8.12	0.67	1.00	0070-1L
4750.33	ccp	S/Sst	90.38	3.42	2.53	3.67	100.00	93.80	6.20	0.56	1.00	0076-1L
4758.29	ccp	S/Sst	79.12	1.02	7.36	12.50	100.00	80.14	19.86	0.91	1.00	0084-1L
4777.70	ccp	S/Sst	80.52	3.59	3.65	12.24	100.00	84.11	15.89	0.29	1.00	0089-1L
4814.67	ccp	S/Sst	90.78	0.78	5.13	3.31	100.00	91.56	8.44	0.52	1.00	0094-1L
4817.62	ccp	S/Sst	93.97	2.69	1.73	1.61	100.00	96.66	3.34	0.52	1.00	0095-1L
4830.60	ccp	S/Sst	91.39	1.12	3.50	3.99	100.00	92.50	7.50	0.34	1.00	0101-1L
4847.74	ccp	S/Sst	91.87	1.11	3.56	3.46	100.00	92.98	7.02	0.28	1.00	0112-1L
4870.78	ccp	S/Sst	90.42	0.69	6.89	2.00	100.00	91.11	8.89	0.09	1.00	0123-1L
4873.42	ccp	S/Sst	93.90	0.23	3.69	2.19	100.00	94.12	5.88	0.16	0.95	0125-1L
4884.39	ccp	S/Sst	91.35	1.61	6.56	0.48	100.00	92.95	7.05	0.64	1.00	0131-1L

Table 8g: Iatroscan TLC Bulk Composition: Rel. percentages of sep. fractions for well NOCS 6506/11-6

Depth unit of measure: m

Depth	Typ	Lithology	Sat HC	Aro HC	NSO	Asp	Total	HC	Non-HC	Recov. Iatr.	Recov. Asp	Sample
4888.27	ccp	S/Sst	93.94	0.70	2.95	2.41	100.00	94.64	5.36	0.19	1.00	0134-1L
4888.42	ccp	S/Sst	90.13	3.10	4.14	2.63	100.00	93.23	6.77	0.46	1.00	0135-1L
4891.14	ccp	S/Sst	88.82	1.86	7.18	2.15	100.00	90.67	9.33	1.14	1.00	0137-1L
4953.45	ccp	S/Sst	78.71	0.38	20.32	0.59	100.00	79.09	20.91	0.09	1.00	0142-1L
5098.16	ccp	S/Sst	56.39	3.86	38.59	1.16	100.00	60.25	39.75	0.03	1.00	0152-1L
5105.69	ccp	S/Sst	48.48	6.56	26.78	18.18	100.00	55.04	44.96	2.05	1.00	0155-1L

Table 8h Extraction Weights

Depth	Weight Rock g	EOM content mg
4663.2	2.99	65.3
4737.29	4.97	71.0
4737.74	4.99	27.2
4743.77	5.09	24.1
4744.38	5.00	22.6
4750.33	5.02	21.8
4758.29	5.02	16.0
4777.7	5.05	62.9
4792.21	1.64	0.4
4814.67	5.01	51.4
4817.62	5.00	24.9
4830.6	5.06	62.6
4847.74	3.00	138.7
4870.78	2.99	65.0
4873.42	3.02	68.5
4884.39	5.03	103.8
4888.27	5.01	78.9
4888.42	5.01	34.2
4891.14	4.99	23.3
4953.45	2.99	68.0
4956.77	0.68	1.9
5098.16	5.00	86.3
5105.69	4.99	6.6
5105.87	1.27	1.3
5109.87	0.77	1.2
5122.78	0.71	1.1
5123.83 coal	0.054	1.0

Table 9a: Quantitative Analysis of Saturated Fraction for well NOCS 6506/11-6

sample	nC15 mg/g sat	nC16 mg/g sat	iC18 mg/g sat	nC17 mg/g sat	Pr mg/g sat	nC18 mg/g sat	Ph mg/g sat	nC19 mg/g sat	nC20 mg/g sat	nC21 mg/g sat	nC22 mg/g sat	nC23 mg/g sat	nC24 mg/g sat	nC25 mg/g sat	nC26 mg/g sat	nC27 mg/g sat	nC28 mg/g sat	nC29 mg/g sat	nC30 mg/g sat	nC31 mg/g sat	nC32 mg/g sat	nC33 mg/g sat	nC34 mg/g sat
Kjerne 4	165.79	138.37	87.02	113.55	44.31	79.20	30.12	38.54	18.62	11.39	7.07	3.80	1.99	13.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4663.20m	21.34	17.09	9.90	15.52	6.25	10.36	4.29	5.70	3.63	2.71	1.93	1.56	1.28	1.11	0.83	0.66	0.54	0.41	0.38	0.27	0.21	0.27	0.23
4847.74m	20.35	14.54	9.53	13.18	4.56	8.34	3.24	3.71	1.98	1.17	0.62	0.36	0.19	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4953.45m	14.62	14.61	9.51	13.93	5.39	9.99	3.84	4.78	2.46	1.35	0.79	0.47	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table 9B: Saturated Hydrocarbon Ratios (peak area) for well NOCS 6506/11-6

Depth unit of measure: m

Depth	Typ	Lithology	Pristane / nC17	Pristane / Phytane	Pristane/nC17 / Phytane/nC18	Phytane / nC18	CPI1	nC17 / nC17+nC27	Sample
4.00	mud	bulk	0.39	1.47	1.03	0.38	-	1.00	0167-0B
4663.20	ccp	S/Sst	0.40	1.45	0.97	0.41	1.02	0.96	0056-1L
4847.74	ccp	S/Sst	0.35	1.41	0.89	0.39	-	1.00	0112-1L
4953.45	ccp	S/Sst	0.39	1.40	1.01	0.38	-	1.00	0142-1L

Table 11a: Variation in Triterpane Distribution (peak height) SIR for Well NOCS 6506/11-6

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
4.00	bulk	10.92	0.92	0.17	0.66	0.40	0.01	0.02	0.02	0.02	0.18	0.82	0.37	0.17	57.45	0167-0
4663.20	S/Sst	2.14	0.68	0.16	0.70	0.41	0.07	0.10	0.15	0.09	0.40	0.81	0.40	0.21	56.19	0056-1
4847.74	S/Sst	13.65	0.93	0.14	0.62	0.38	-	-	-	-	0.08	0.82	0.35	0.17	53.89	0112-1
4953.45	S/Sst	3.27	0.77	0.12	0.59	0.37	0.03	0.04	0.08	0.04	0.06	0.85	0.36	0.14	58.54	0142-1

List of Triterpane Distribution Ratios

Ratio 1: 27Tm / 27Ts

Ratio 2: 27Tm / 27Tm+27Ts

Ratio 3: 27Tm / 27Tm+30aß+30ßa

Ratio 4: 29aß / 30aß

Ratio 5: 29aß / 29aß+30aß

Ratio 6: 30d / 30aß

Ratio 7: 28aß / 30aß

Ratio 8: 28aß / 29aß

Ratio 9: 28aß / 28aß+30aß

Ratio 10: 24/3 / 30aß

Ratio 11: 30aß / 30aß+30ßa

Ratio 12: 29aß+29ßa / 29aß+29ßa+30aß+30ßa

Ratio 13: 29ßa+30ßa / 29aß+30aß

Ratio 14: 32aßS / 32aßS+32aßR (%)

Table 11b: Variation in Sterane Distribution (peak height) SIR for Well NOCS 6506/11-6

Depth unit of measure: m

Depth	Lithology	Ratio1	Ratio2	Ratio3	Ratio4	Ratio5	Ratio6	Ratio7	Ratio8	Ratio9	Ratio10	Sample
4.00	bulk	0.44	31.58	46.12	1.26	0.58	0.52	0.42	0.30	0.46	0.63	0167-0
4663.20	S/Sst	0.58	40.24	68.76	1.84	0.73	0.64	0.51	0.52	0.67	1.84	0056-1
4847.74	S/Sst	0.21	31.99	46.10	1.06	0.57	0.42	0.33	0.30	0.47	0.63	0112-1
4953.45	S/Sst	0.11	39.17	54.89	0.86	0.61	0.31	0.22	0.38	0.64	1.00	0142-1

List of Sterane Distribution Ratios

Ratio 1: 27dßS / 27dßS+27aaR

Ratio 2: 29aaS / 29aaS+29aaR (%)

Ratio 3: 2*(29ßßR+29ßßS) / (29aaS+29aaR + 2*(29ßßR+29ßßS)) (%)

Ratio 4: 27dßS+27dßR+27daR+27daS / 29dßS+29dßR+29daR+29daS

Ratio 5: 29ßßR+29ßßS / 29ßßR+29ßßS+29aaS

Ratio 6: 21a+22a / 21a+22a+29aaS+29ßßR+29ßßS+29aaR

Ratio 7: 21a+22a / 21a+22a+28daS+28aaS+29daR+29aaS+29ßßR+29ßßS+29aaR

Ratio 8: 29ßßR+29ßßS / 29aaS+29ßßR+29ßßS+29aaR

Ratio 9: 29aaS / 29aaR

Ratio 10: 29ßßR+29ßßS / 29aaR

Table 11c: Raw triterpane data (peak height) m/z 191 SIR for Well NOCS 6506/11-6

Depth unit of measure: m

Depth	Lithology	23/3	24/3	25/3	24/4	26/3	27Ts	27Tm	28aß	25nor30aß	Sample
		29aß	29Ts	30d	29ßa	30O	30aß	30ßa	30G	31aßS	
		31aßR	32aßS	32aßR	33aßS	33aßR	34aßS	34aßR	35aßS	35aßR	
4.00	bulk	2899.4	987.8	295.7	629.5	331.4	127.1	1387.4	88.1	33.3	0167-0
		3593.1	107.1	34.4	317.6	0.0	5470.8	1189.9	1237.7	708.1	
		495.6	251.9	186.6	155.5	104.3	86.4	64.3	57.2	47.5	
4663.20	S/Sst	5097.9	2029.5	652.7	896.5	376.1	557.6	1191.4	513.0	214.2	0056-1
		3505.5	398.3	341.1	602.0	64.3	5026.7	1188.5	1118.7	1184.9	
		741.7	457.5	356.6	348.0	236.1	391.6	202.4	207.8	155.4	
4847.74	S/Sst	1102.6	301.3	81.5	203.8	57.9	53.2	726.0	0.0	0.0	0112-1
		2231.5	49.5	0.0	196.7	0.0	3608.4	811.7	889.3	458.3	
		347.1	140.1	119.9	119.9	86.0	62.7	34.5	27.8	33.1	
4953.45	S/Sst	63.2	24.5	0.0	22.3	9.9	19.4	63.5	17.1	11.5	0142-1
		227.2	22.0	12.2	20.6	9.5	382.5	67.5	72.8	60.7	
		51.5	35.2	24.9	11.9	16.3	17.1	18.6	14.6	12.3	

Table 11d: Raw sterane data (peak height) m/z 217 SIR for Well NOCS 6506/11-6

Depth unit of measure: m

Depth	Lithology	21a	22a	27dßS	27dßR	27daR	27daS	28dßS	28dßR	28daR*	Sample
		29dßS*	28daS*	27aaR	29dßR	29daR	28aaS	29daS*	28ßßS		
		28aaR	29aaS	29ßßR	29ßßS	29aaR					
4.00	bulk	599.7	267.7	307.9	168.9	48.1	41.3	106.2	39.5	236.1	0167-0
		174.7	84.6	389.9	85.3	51.4	178.0	138.2	121.0		
		508.5	173.6	144.3	91.0	376.0					
4663.20	S/Sst	2465.8	853.5	1903.3	1222.9	393.9	346.0	868.0	372.4	831.0	0056-1
		1058.7	501.9	1405.9	443.2	211.7	419.5	392.9	513.1		
		599.7	360.1	628.5	356.0	534.8					
4847.74	S/Sst	191.4	72.3	95.9	71.8	18.7	9.8	35.7	13.1	184.9	0112-1
		63.6	30.6	355.1	33.4	24.0	86.5	63.6	51.6		
		247.4	80.0	68.5	38.4	170.1					
4953.45	S/Sst	13.9	8.8	14.7	13.2	6.4	5.2	6.1	6.1	22.6	0142-1
		14.6	8.4	125.3	12.8	7.0	8.9	11.6	9.1		
		23.7	12.2	10.2	8.7	18.9					

* 28daR coel with 27aaS, 29dßS coel with 27ßßR, 28daS coel with 27ßßS, 29daS coel with 28ßßR

Table 11e: Raw sterane data (peak height) m/z 218 SIR for Well NOCS 6506/11-6

Depth unit of measure: m

Depth	Lithology	27ßßR	27ßßS	28ßßR	28ßßS	29ßßR	29ßßS	30ßßR	30ßßS	Sample
4.00	bulk	177.5	120.1	215.9	206.6	208.6	141.9	0.0	0.0	0167-0
4663.20	S/Sst	847.7	548.8	514.7	632.8	834.4	574.5	76.7	75.8	0056-1
4847.74	S/Sst	71.2	44.8	87.9	87.3	94.6	69.7	7.0	8.8	0112-1
4953.45	S/Sst	6.8	11.0	12.6	14.8	18.4	6.0	5.0	5.6	0142-1

Table 11f: Raw triterpane data (peak height) m/z 177 SIR for Well NOCS 6506/11-6

Depth unit of measure: m

Depth	Lithology	25nor28aß	25nor30aß	Sample
4.00	bulk	0.0	0.0	0167-0
4663.20	S/Sst	0.0	0.0	0056-1
4847.74	S/Sst	0.0	0.0	0112-1
4953.45	S/Sst	0.0	0.0	0142-1

Table 11g: Amount of triterpanes (ppb) m/z 191 SIR for Well NOCS 6506/11-6

Depth unit of measure: m

Depth	Lithology	23/3	24/3	25/3	24/4	26/3	27Ts	27Tm	28aß	25nor30aß	Sample
		29aß	29Ts	30d	29ßa	30O	30aß	30ßa	30G	31aßS	
		31aßR	32aßS	32aßR	33aßS	33aßR	34aßS	34aßR	35aßS	35aßR	
4.00	bulk	145972.0	49729.7	14885.6	31690.8	16686.9	6398.2	69848.6	4434.3	1676.8	0167-0
		180899.3	5393.9	1731.7	15992.3	0.0	275433.3	59906.7	62312.6	35651.5	
		24951.1	12683.0	9393.7	7830.4	5253.2	4351.8	3238.7	2880.3	2390.4	
4663.20	S/Sst	31122.9	12390.0	3984.8	5473.0	2296.1	3404.4	7273.5	3131.8	1307.5	0056-1
		21401.0	2431.9	2082.3	3675.0	392.7	30688.4	7256.1	6829.7	7234.0	
		4527.8	2792.8	2177.3	2124.5	1441.7	2390.8	1235.7	1268.3	948.7	
4847.74	S/Sst	15646.9	4275.5	1157.2	2891.6	822.2	754.6	10302.6	0.0	0.0	0112-1
		31666.1	702.5	0.0	2791.4	0.0	51205.3	11519.0	12619.4	6503.0	
		4924.9	1988.7	1701.5	1700.8	1221.1	889.1	489.1	394.8	469.2	
4953.45	S/Sst	757.2	293.7	0.0	267.6	118.4	233.1	761.8	204.7	138.4	0142-1
		2723.9	263.3	145.9	247.3	113.4	4586.0	809.3	873.5	727.8	
		617.5	422.4	299.1	142.4	194.9	205.0	222.9	174.7	147.3	

Table 11h: Amount of steranes (ppb) m/z 217 SIR for Well NOCS 6506/11-6

Depth unit of measure: m

Depth	Lithology	21a	22a	27dßS	27dßR	27daR	27daS	28dßS	28dßR	28daR*	Sample
		29dßS*	28daS*	27aaR	29dßR	29daR	28aaS	29daS*	28ßßS		
		28aaR	29aaS	29ßßR	29ßßS	29aaR					
4.00	bulk	30191.2	13477.1	15503.4	8504.2	2421.2	2081.6	5346.0	1987.2	11887.6	0167-0
		8794.4	4260.3	19627.9	4295.5	2587.3	8963.7	6959.2	6089.7		
		25600.5	8738.9	7262.8	4579.2	18929.6					
4663.20	S/Sst	15053.9	5210.9	11619.6	7465.8	2404.8	2112.4	5299.2	2273.8	5073.5	0056-1
		6463.7	3064.2	8583.0	2705.5	1292.6	2560.8	2398.5	3132.7		
		3661.4	2198.3	3837.3	2173.7	3264.9					
4847.74	S/Sst	2715.9	1026.3	1360.6	1018.8	265.5	138.4	507.2	185.7	2623.4	0112-1
		902.5	434.7	5038.9	473.3	340.4	1227.3	902.9	732.3		
		3510.7	1135.7	972.3	545.5	2414.0					
4953.45	S/Sst	166.2	105.2	176.6	158.2	76.2	62.1	73.5	72.7	270.8	0142-1
		175.2	100.6	1502.2	153.9	83.9	106.5	139.5	108.8		
		283.9	145.8	122.0	104.4	226.4					

* 28daR coel with 27aaS, 29dßS coel with 27ßßR, 28daS coel with 27ßßS, 29daS coel with 28ßßR

Table 11i: Amount of standard and weight of sample for Well NOCS 6506/11-6

Depth unit of measure: m

Depth	Lithology	Standard	Amount	Weight	Sample
4.00	bulk	4213.3	1.400	6.6	0167-0
4663.20	S/Sst	11132.0	1.400	20.6	0056-1
4847.74	S/Sst	2971.6	2.100	49.8	0112-1
4953.45	S/Sst	64864.5	0.700	0.9	0142-1

	KJELLER	HALDEN
Address	N-2007 Kjeller, Norway	N-1751 Halden, Norway
Telephone	+47 63 80 60 00	+47 69 21 22 00
Telex	76 361 isotp n	76 335 energ n
Telefax	+47 63 81 11 68	+47 69 21 22 01

Availability
In confidence

Report type F	**Report number** IFE/KR/F-98/204	**Date** 1998-11-27
	Report title Vitrinite Reflectance Well 6506/11-6 Offshore Norway (IFE project no. 2.5.218.98)	**Date of last revision**
	Client Geolab Nor AS	**Revision number**
	Client reference Marianne Sandstad	**Number of pages**
		Number of issues 15

Summary

Distribution

Geolab Nor AS (9)
T. Bjørnstad
H. Johansen
K. Aasgaard
File (3)

Keywords:

	Name	Date	Signature
Prepared by	Kristine Aasgaard	1998-11-27	Kristine Aasgaard
Reviewed by	Harald Johansen	1998-11-27	Harald Johansen
Approved by	Tor Bjørnstad	1998-11-27	Tor Bjørnstad

1 Introduction

This report gives the result of routine vitrinite reflectance analyses of 34 samples from well 6506/11-6 offshore Norway.

2 Material

The material was provided from the client as 34 cuttings samples. Information on lithology in well 6506/11-6 was provided from the client and is plotted in table 1.

3 Analytical techniques

3.1 Preparation

The cuttings samples were treated with hydrochloric and hydrofluoric acid prior to further preparation. The aim was to avoid soft and expanding mineral phases in order to ensure good polishing quality. The sample material resulting from the acid treatment was 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.

3.2 Analysis

The analytical equipment being used was a Zeiss MPM 03 photometer microscope equipped with an Epiplan-Neofluar 40/0.90 oil objective. The sensitive measuring spot was kept constant for all measurements at about 2.5 micron in diameter. The measurements were made through a green band pass filter (546 nm) and in oil immersion (refractive index 1.515 at 18°C). The readings were 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 as 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 as acceptable.

For each sample at least 20 points were 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.

3.3 Presentation of results

The raw data from the measurements are presented in appendix for each sample both as tabulated data and histograms. A true vitrinite population is selected among the readings based on observations made during the measurements, and arithmetic mean values and standard deviation are calculated for this population and other populations. A quality rating is given to the true population. The results are listed in table 1. Figure 1 shows a vitrinite reflectance versus depth plot.

4 Results

The well was partly poor in vitrinite and difficult to analyse, but it was possible to establish a fairly reliable vitrinite reflectance versus depth trend for well 6506/11-6.

Table 1. Vitrinite reflectance data table well 6506/11-6

Analysis type:	Vitrinite reflectance
Well:	6506/11-6
Number of samples:	34
Time period for analysis:	now-98
Analysis performed by:	Kristine Aasgaard, Institutt for energiteknikk
Analysis ordered by:	Geolab Nor

IFE sample code	Depth (m)	Sample type	Lithology	Vitr. refl. (%Rm)	Stand. dev.	Number of readings	Sample description	Sample quality	Sample prep.
981401	1440	DC	sst/clyst	0.24	0.04	20	ooo--o	M	HF
981402	1590	DC	clyst	0.25	0.03	21	ooo--o	M	HF
981403	1740	DC	clyst	0.25	0.04	20	ooo--o	M	HF
981404	1910	DC	clyst	0.23	0.04	20	ooo--+	M	HF
981405	2060	DC	clyst	0.25	0.04	19	ooo--+	M	HF
981406	2210	DC	clyst/sst	0.26	0.02	6	-oo-o+	P	HF
981407	2470	DC	clyst/sst	0.39	0.04	6	-oo--+	P	HF
981408	2565	DC	clyst	0.34	0.06	20	ooo-o+	M	HF
981409	2665	DC	clyst	0.36	0.06	24	ooo--+	M	HF
981410	2765	DC	clyst	0.39	0.04	3	-oo--o	P	HF
981411	2870	DC	sst/clyst	0.44	0.08	8	-oo-oo	M	HF
981412	2965	DC	clyst	0.40	0.06	20	ooo--+	M	HF
981413	3065	DC	clyst	0.44	0.05	20	ooo--+	M	HF
981414	3165	DC	clyst/sst	0.48	0.06	18	ooo--o	M	HF
981415	3265	DC	sst/clyst	0.50	0.03	12	-oo-oo	M	HF
981416	3370	DC	sst/clyst	0.47	0.03	6	-oo--o	P	HF
981417	3470	DC	sst	barren	-	-	-	-	HF
981418	3570	DC	sst	0.59	0.1	9	-oo-oo	P	HF
981419	3665	DC	sst/clyst	0.68	0.06	4	-±o-oo	P	HF

Table 1. Vitrinite reflectance data table well 6506/11-6, continued

IFE sample code	Depth (m)	Sample type	Lithology	Vitr. refl. (%Rm)	Stand. dev.	Number of readings	Sample description	Sample quality	Sample prep.
981420	3765	DC	sst/clyst	0.54	0.02	8	-oo-oo	P	HF
981421	3855	DC	sst/clyst	0.64	0.08	18	ooo-o+	M	HF
981422	3945	DC	sst/clyst	0.82	0.02	4	-±o--o	P	HF
981423	4050	DC	clyst/sst	0.72	0.06	5	-oo-oo	P	HF
981424	4165	DC	clyst/sst	0.77	0.04	6	-oo--o	P	HF
981425	4270	DC	clyst/sst	0.83	0.06	21	oooo-o	M	HF
981426	4365	DC	clyst	0.95	0.09	22	ooo--+	M/st	HF
981427	4515	DC	clyst	1.02	0.1	20	ooo--+	M/st	HF
981428	4640	DC	clyst	0.93	0.09	9	-oo--+	P/st	HF
981429	4845	DC	clyst	barren	-	-	-	-	HF
981430	4920	DC	clyst/sst	1.18	0.11	12	-oo--o	M/st	HF
981431	5020	DC	sst/clyst	1.13	0.09	8	-oo--+	P/st	HF
981432	5123.83	DC	coal/clyst	1.2	0.13	25	oooo-o	G/st	HF
981433	5220	DC	sst/clyst	1.47	0.08	5	-±o--o	P/st	HF
981434	5270	DC	sst/clyst	1.28	0.11	8	-ooo-o	P/st	HF

Legend to vitrinite reflectance data table

SST	sandstone
SLST	siltstone
CLYST	claystone
SH	shale
LST	limestone
COAL	coal
HF	sample treated with hydroflouric acid prior to epoxy resin embedding
DCM	sample treated with dichloromethane prior to epoxy resin embedding
bulk	untreated sample prior to epoxy resin embedding
G	Good quality sample
M	Moderate quality sample
P	Poor quality sample
st	Sample is stained

oooooo	Sample description:	1	Abundance of vitrinite
123456		2	Identification of vitrinite
		3	Type of vitrinite
		4	Vitrinite fragment size
		5	Vitrinite surface quality
		6	Abundance of pyrite

-	may give too low vitrinite reflectance sample value
o	reliable vitrinite reflectance sample value
+	may give too high vitrinite reflectance sample value

Table 8a: MPLC Bulk Composition: Weight of Oil and Fraction for NOCS 6506/11-6

Well	Description	Whole oil (mg)	Light (mg)	Topped (mg)	Sat (mg)	Aro (mg)	Asph (mg)	NSO (mg)	HC (mg)	Non-HC (mg)	Sample
6506/11-6	DST 1	99.9	39.5	60.4	50.0	7.6	0.9	1.9	57.6	2.8	R37/0001
6506/11-6	DST 2	99.4	31.1	68.3	56.1	9.7	0.9	1.6	65.8	2.5	R37/0002
6506/11-6	DST 3	98.5	3.8	94.7	76.5	11.5	1.0	5.7	88.0	6.7	R37/0003

Table 8b: MPLC Bulk Composition: Comparison of topped oil (%) for NOCS 6506/11-6

Well	Description	Sat	Aro	Asph	NSO	Total	HC	Non-HC	Recov. MPLC	Recov. Asph	Sample
6506/11-6	DST 1	82.77	12.59	1.49	3.15	100.00	95.36	4.64	1.52	0.97	R37/0001
6506/11-6	DST 2	82.18	14.19	1.32	2.31	100.00	96.37	3.63	2.08	0.85	R37/0002
6506/11-6	DST 3	80.75	12.13	1.06	6.07	100.00	92.88	7.12	2.02	0.56	R37/0003

Table 8c: MPLC Bulk Composition: Ratios in topped oil for NOCS 6506/11-6

Well	Description	Sat / Aro	HC / Non-HC	Asp / NSO	Sample
6506/11-6	DST 1	6.57	20.56	0.47	R37/0001
6506/11-6	DST 2	5.79	26.56	0.57	R37/0002
6506/11-6	DST 3	6.66	13.04	0.17	R37/0003

Table 8F: Iatroscan TLC Bulk Composition: Rel. percentages of sep. fractions for NOCS 6506/11-6

Well	Description	Sat HC	Aro HC	NSO	Asp	Total	HC	Non-HC	Recov. Iatr.	Recov. Asp	Sample
6506/11-6	DST 1	84.18	13.18	1.16	1.49	100.00	97.35	2.65	0.37	0.97	R37/0001
6506/11-6	DST 2	82.92	14.81	0.95	1.32	100.00	97.74	2.26	0.59	0.85	R37/0002
6506/11-6	DST 3	82.79	15.45	0.70	1.06	100.00	98.24	1.76	0.75	0.56	R37/0003

Table 9A: Quantitative Analysis of Saturated Fraction for well 6506/11-6 Oils

sample	nC15 mg/g sat	nC16 mg/g sat	iC18 mg/g sat	nC17 mg/g sat	Pr mg/g sat	nC18 mg/g sat	Ph mg/g sat	nC19 mg/g sat	nC20 mg/g sat	nC21 mg/g sat	nC22 mg/g sat	nC23 mg/g sat	nC24 mg/g sat	nC25 mg/g sat	nC26 mg/g sat	nC27 mg/g sat	nC28 mg/g sat	nC29 mg/g sat	nC30 mg/g sat	nC31 mg/g sat	nC32 mg/g sat	nC33 mg/g sat	nC34 mg/g sat
DST 1	32.57	30.11	10.46	27.37	16.31	23.85	12.01	23.86	19.18	15.03	13.78	11.15	9.65	8.65	6.07	5.09	4.00	3.12	2.14	1.46	1.25	1.18	1.20
DST 2	27.93	25.42	9.87	23.00	14.91	20.10	11.41	19.91	17.10	12.69	11.92	9.50	8.90	8.06	5.59	4.46	3.39	2.71	2.06	1.47	1.17	1.15	1.24
DST 3	29.21	26.66	10.09	23.97	14.79	20.45	10.04	20.56	17.29	13.79	12.41	10.04	9.17	8.69	6.13	4.62	3.77	2.88	1.94	1.27	1.15	1.11	1.23

Table 9B: Saturated Hydrocarbon Ratios (peak area) for NOCS 6506/11-6

Well	Description	Pristane / nC17	Pristane / Phytane	Pristane/nC17 / Phytane/nC18	Phytane / nC18	CPI1	nC17 / nC17+nC27	Sample
6506/11-6	DST 1	0.60	1.36	1.18	0.50	1.10	0.84	R37/0001
6506/11-6	DST 2	0.65	1.31	1.14	0.57	1.10	0.84	R37/0002
6506/11-6	DST 3	0.62	1.47	1.26	0.49	1.09	0.84	R37/0003

Table 9Ca: Aromatic Hydrocarbon Ratios (peak area) for NOCS 6506/11-6

Well	Description	MNR	DMNR	BPhR	2/1MP	MPI1	MPI2	Rc	DBT/P	4/1MDBT	(3+2) /1MDBT	Sample
6506/11-6	DST 1	2.66	11.02*	0.71	3.34	1.30	1.42	1.18	0.33	-	-	R37/0001
6506/11-6	DST 2	2.57	13.48*	0.61	2.76	1.22	1.34	1.13	0.40	-	-	R37/0002
6506/11-6	DST 3	2.37	13.19*	0.61	3.72	1.10	1.23	1.06	0.42	-	-	R37/0003

*1,5DMN is not a separate peak - peak shoulder - difficult to measure accurately

Table 9Cb: Aromatic Hydrocarbon Ratios (peak area) for NOCS 6506/11-6

Well	Description	F1	F2	Sample
6506/11-6	DST 1	0.70	0.38	R37/0001
6506/11-6	DST 2	0.66	0.36	R37/0002
6506/11-6	DST 3	0.70	0.39	R37/0003

Table 10a: Tabulation of carbon isotope data on oils for NOCS 6506/11-6

Well	Descript.	Whole oil	Topped oil	Saturated	Aromatic	NSO	Asphaltenes	Sample
6506/11-6	DST 1	-	-29.60	-30.20	-27.70	-	-28.20	R37/0001
6506/11-6	DST 2	-	-29.90	-30.30	-28.10	-	-28.60	R37/0002
6506/11-6	DST 3	-	-29.80	-30.10	-28.50	-28.20	-28.60	R37/0003

Table 10b: Tabulation of cv values from carbon isotope data for NOCS 6506/11-6

Well	Descript.	Saturated	Aromatic	cv value	Interpretation	Sample
6506/11-6	DST 1	-30.20	-27.70	3.26	Terrigenous	R37/0001
6506/11-6	DST 2	-30.30	-28.10	2.63	Terrigenous	R37/0002
6506/11-6	DST 3	-30.10	-28.50	1.23	Terrigenous	R37/0003

Table 11a: Variation in Triterpane Distribution (peak height) SIR for WELL 6506/11-6

Well	Descript.	Ratio1	Ratio2	Ratio3	Ratio4	Ratio5	Ratio6	Ratio7	Ratio8	Ratio9	Rat.10	Rat.11	Rat.12	Rat.13	Rat.14	Sample
6506/11-6	DST 1	-	-	-	1.31	0.57	4.11	0.50	0.38	0.33	13.31	1.00	0.67	0.32	100.00	R37/0001
6506/11-6	DST 2	-	-	-	-	1.00	-	-	-	-	-	-	0.41	1.43	100.00	R37/0002
6506/11-6	DST 3	-	-	-	-	1.00	-	-	0.82	1.00	-	-	1.00	-	100.00	R37/0003

List of Triterpane Distribution Ratios

Ratio 1: 27Tm / 27Ts

Ratio 2: 27Tm / 27Tm+27Ts

Ratio 3: 27Tm / 27Tm+30aß+30ßa

Ratio 4: 29aß / 30aß

Ratio 5: 29aß / 29aß+30aß

Ratio 6: 30d / 30aß

Ratio 7: 28aß / 30aß

Ratio 8: 28aß / 29aß

Ratio 9: 28aß / 28aß+30aß

Ratio 10: 24/3 / 30aß

Ratio 11: 30aß / 30aß+30ßa

Ratio 12: 29aß+29ßa / 29aß+29ßa+30aß+30ßa

Ratio 13: 29ßa+30ßa / 29aß+30aß

Ratio 14: 32aßS / 32aßS+32aßR (%)

Table 11b: Variation in Sterane Distribution (peak height) SIR for WELL 6506/11-6

Well	Descript.	Ratio1	Ratio2	Ratio3	Ratio4	Ratio5	Ratio6	Ratio7	Ratio8	Ratio9	Ratio10	Sample
6506/11-6	DST 1	0.81	55.19	76.59	1.68	0.75	0.78	0.58	0.62	1.23	3.65	R37/0001
6506/11-6	DST 2	0.83	52.41	77.48	1.76	0.77	0.77	0.60	0.63	1.10	3.61	R37/0002
6506/11-6	DST 3	0.82	54.47	76.97	1.76	0.75	0.77	0.58	0.63	1.20	3.67	R37/0003

List of Sterane Distribution Ratios

Ratio 1: 27dßS / 27dßS+27aaR

Ratio 2: 29aaS / 29aaS+29aaR (%)

Ratio 3: 2*(29ßßR+29ßßS) / (29aaS+29aaR + 2*(29ßßR+29ßßS)) (%)

Ratio 4: 27dßS+27dßR+27daR+27daS / 29dßS+29dßR+29daR+29daS

Ratio 5: 29ßßR+29ßßS / 29ßßR+29ßßS+29aaS

Ratio 6: 21a+22a / 21a+22a+29aaS+29ßßR+29ßßS+29aaR

Ratio 7: 21a+22a / 21a+22a+28daS+28aaS+29daR+29aaS+29ßßR+29ßßS+29aaR

Ratio 8: 29ßßR+29ßßS / 29aaS+29ßßR+29ßßS+29aaR

Ratio 9: 29aaS / 29aaR

Ratio 10: 29ßßR+29ßßS / 29aaR

Table 11c: Raw triterpane data (peak height) m/z 191 SIR for WELL 6506/11-6

Well	Descript.	23/3	24/3	25/3	24/4	26/3	27Ts	27Tm	28aß	25nor30aß	Sample
		29aß	29Ts	30d	29ßa	30O	30aß	30ßa	30G	31aßS	
		31aßR	32aßS	32aßR	33aßS	33aßR	34aßS	34aßR	35aßS	35aßR	
6506/11-6	DST 1	15228.8	12383.6	5372.0	0.0	3376.8	2577.2	0.0	465.3	3861.2	R37/0001
		1215.4	1163.2	3820.6	691.5	2067.9	930.7	0.0	0.0	671.6	
		652.3	437.8	0.0	1089.3	282.6	0.0	0.0	0.0	0.0	
6506/11-6	DST 2	17508.7	15312.3	6371.1	1211.2	4166.2	5051.6	0.0	0.0	3944.2	R37/0002
		943.5	2222.8	5645.1	0.0	1657.4	0.0	1347.2	0.0	808.1	
		0.0	550.6	0.0	971.2	0.0	0.0	0.0	0.0	0.0	
6506/11-6	DST 3	21495.3	18849.2	8627.7	2166.8	4843.8	6861.5	0.0	911.4	4883.6	R37/0003
		1112.3	2679.0	6873.9	0.0	2216.5	0.0	0.0	0.0	924.7	
		0.0	746.6	0.0	1338.3	0.0	0.0	0.0	0.0	0.0	

Table 11d: Raw sterane data (peak height) m/z 217 SIR for WELL 6506/11-6

Well	Descript.	21a	22a	27dßS	27dßR	27daR	27daS	28dßS	28dßR	28daR*	Sample
		29dßS*	28daS*	27aaR	29dßR	29daR	28aaS	29daS*	28ßßS		
		28aaR	29aaS	29ßßR	29ßßS	29aaR					
6506/11-6	DST 1	32450.5	7888.7	29725.1	20487.3	7130.5	7599.3	14540.3	9780.9	5265.4	R37/0001
		17966.4	8921.4	7023.7	10201.1	4310.8	2495.1	6187.0	7645.1		
		1424.0	2330.0	3863.8	3044.5	1891.9					
6506/11-6	DST 2	36349.1	9167.4	36471.7	23755.5	7402.5	7153.2	16260.3	10552.8	4825.1	R37/0002
		20004.3	8801.4	7733.8	11041.6	5147.4	2117.1	6341.9	8916.3		
		1085.4	2597.7	4695.5	3831.8	2359.0					
6506/11-6	DST 3	44278.7	11634.7	45666.0	30671.1	10903.1	11414.7	22606.8	14525.4	7972.1	R37/0003
		26473.3	12733.3	10310.5	15267.2	5957.2	3376.0	8359.3	11189.1		
		1193.0	3344.4	5684.9	4573.8	2796.0					

* 28daR coel with 27aaS, 29dßS coel with 27ßßR, 28daS coel with 27ßßS, 29daS coel with 28ßßR

Table 11e: Raw sterane data (peak height) m/z 218 SIR for WELL 6506/11-6

Well	Descript.	27ßßR	27ßßS	28ßßR	28ßßS	29ßßR	29ßßS	30ßßR	30ßßS	Sample
6506/11-6	DST 1	12866.6	8202.4	6747.0	7653.3	5227.5	4620.0	1652.3	1444.2	R37/0001
6506/11-6	DST 2	15588.6	10176.4	8206.0	9608.5	6307.7	5670.4	2292.9	2140.8	R37/0002
6506/11-6	DST 3	17885.1	11269.8	9730.0	11342.7	7654.1	6874.5	2767.0	2536.2	R37/0003

Table 11f: Raw triterpane data (peak height) m/z 177 SIR for WELL 6506/11-6

Well	Descript.	25nor28aß	25nor30aß	Sample
6506/11-6	DST 1	3018.5	2972.3	R37/0001
6506/11-6	DST 2	2949.0	2807.1	R37/0002
6506/11-6	DST 3	3666.9	3432.4	R37/0003

Table 11g: Amount of triterpanes (ppb) m/z 191 SIR for WELL 6506/11-6

Well	Descript.	23/3	24/3	25/3	24/4	26/3	27Ts	27Tm	28aß	25nor30aß	Sample
		29aß	29Ts	30d	29ßa	30O	30aß	30ßa	30G	31aßS	
		31aßR	32aßS	32aßR	33aßS	33aßR	34aßS	34aßR	35aßS	35aßR	
6506/11-6	DST 1	16968.8	13798.5	5985.8	0.0	3762.6	2871.6	0.0	518.5	4302.4	R37/0001
		1354.3	1296.1	4257.2	770.5	2304.1	1037.0	0.0	0.0	748.3	
		726.9	487.8	0.0	1213.8	314.9	0.0	0.0	0.0	0.0	
6506/11-6	DST 2	19199.3	16790.8	6986.2	1328.2	4568.4	5539.3	0.0	0.0	4325.1	R37/0002
		1034.6	2437.4	6190.2	0.0	1817.5	0.0	1477.2	0.0	886.1	
		0.0	603.8	0.0	1064.9	0.0	0.0	0.0	0.0	0.0	
6506/11-6	DST 3	32344.7	28363.0	12982.4	3260.4	7288.6	10324.7	0.0	1371.4	7348.5	R37/0003
		1673.7	4031.2	10343.3	0.0	3335.2	0.0	0.0	0.0	1391.4	
		0.0	1123.4	0.0	2013.8	0.0	0.0	0.0	0.0	0.0	

Table 11h: Amount of steranes (ppb) m/z 217 SIR for WELL 6506/11-6

Well	Descript.	21a	22a	27dßS	27dßR	27daR	27daS	28dßS	28dßR	28daR*	Sample
		29dßS*	28daS*	27aaR	29dßR	29daR	28aaS	29daS*	28ßßS		
		28aaR	29aaS	29ßßR	29ßßS	29aaR					
6506/11-6	DST 1	36158.1	8790.1	33121.4	22828.1	7945.2	8467.5	16201.7	10898.5	5867.0	R37/0001
		20019.2	9940.7	7826.2	11366.6	4803.4	2780.2	6893.9	8518.5		
		1586.7	2596.2	4305.2	3392.3	2108.1					
6506/11-6	DST 2	39858.8	10052.6	39993.3	26049.2	8117.3	7843.9	17830.3	11571.7	5291.0	R37/0002
		21935.8	9651.2	8480.5	12107.7	5644.4	2321.5	6954.3	9777.2		
		1190.2	2848.6	5148.9	4201.7	2586.8					
6506/11-6	DST 3	66627.6	17507.0	68715.1	46151.8	16406.2	17176.1	34017.2	21856.8	11995.9	R37/0003
		39835.3	19160.2	15514.5	22973.0	8964.0	5080.0	12578.5	16836.5		
		1795.2	5032.4	8554.2	6882.3	4207.2					

* 28daR coel with 27aaS, 29dßS coel with 27ßßR, 28daS coel with 27ßßS, 29daS coel with 28ßßR

GEC BNOR

Table 11i: Amount of standard and weight of sample for WELL 6506/11-6

Well	Descript.	Standard	Amount	Weight	Sample
6506/11-6	DST 1	58988.0	1.400	21.3	R37/0001
6506/11-6	DST 2	51274.1	1.400	24.9	R37/0002
6506/11-6	DST 3	50565.1	1.400	18.4	R37/0003

Table 12a: Variation in Triaromatic Sterane Distribution (peak height) for WELL 6506/11-6

Well	Descript.	Ratio1	Ratio2	Ratio3	Ratio4	Ratio5	Sample
6506/11-6	DST 1	1.00	1.00	1.00	1.00	1.00	R37/0001
6506/11-6	DST 2	1.00	1.00	1.00	1.00	1.00	R37/0002
6506/11-6	DST 3	1.00	1.00	0.91	0.94	0.94	R37/0003

Ratio1: a1 / a1 + g1
Ratio2: b1 / b1 + g1
Ratio3: a1 + b1 / a1 + b1 + c1 + d1 + e1 + f1 + g1
Ratio4: a1 / a1 + e1 + f1 + g1
Ratio5: a1 / a1 + d1

Table 12b: Variation in Monoaromatic Sterane Distribution (peak height) for WELL 6506/11-6

Well	Descript.	Ratio1	Ratio2	Ratio3	Ratio4	Sample
6506/11-6	DST 1	0.89	0.85	0.89	0.90	R37/0001
6506/11-6	DST 2	0.88	0.81	0.88	0.87	R37/0002
6506/11-6	DST 3	0.89	0.83	0.89	0.89	R37/0003

Ratio1: A1 / A1 + E1
Ratio2: B1 / B1 + E1
Ratio3: A1 / A1 + E1 + G1
Ratio4: A1+B1 / A1+B1+C1+D1+E1+F1+G1+H1+I1

Table 12c: Aromatisation of Steranes (peak height) for WELL 6506/11-6

Well	Descript.	Ratio1	Ratio2	Sample
6506/11-6	DST 1	1.00	-	R37/0001
6506/11-6	DST 2	1.00	-	R37/0002
6506/11-6	DST 3	0.72	-	R37/0003

$$\text{Ratio1: } \frac{C1+D1+E1+F1+G1+H1+I1}{C1+D1+E1+F1+G1+H1+I1 + c1+d1+e1+f1+g1}$$

Ratio2: g1 / g1 + I1

Table 12d: Raw triaromatic sterane data (peak height) m/z 231 for WELL 6506/11-6

Well	Descript.	a1	b1	c1	d1	e1	f1	g1	Sample
6506/11-6	DST 1	4362.7	2226.6	0.0	0.0	0.0	0.0	0.0	R37/0001
6506/11-6	DST 2	11675.9	6490.2	0.0	0.0	0.0	0.0	0.0	R37/0002
6506/11-6	DST 3	5543.9	3073.3	151.7	381.5	189.9	175.3	0.0	R37/0003

Table 12e: Raw monoaromatic sterane data (peak height) m/z 253 for WELL 6506/11-6

Well	Descript.	A1	B1	C1	D1	E1	F1	G1	H1	I1	Sample
6506/11-6	DST 1	3496.4	2426.0	77.0	114.0	412.7	0.0	0.0	48.5	0.0	R37/0001
6506/11-6	DST 2	11390.9	6752.0	408.6	729.0	1599.7	0.0	0.0	0.0	0.0	R37/0002
6506/11-6	DST 3	11766.9	6898.7	364.1	514.2	1386.8	0.0	0.0	0.0	0.0	R37/0003

Table 13A: Light Hydrocarbons from Whole Oil GC for WELL 6506/11-6

Well	Description	iC4	nC4	iC5	nC5	2,2DMC4	2,3DMC4	2MC5	3MC5	nC6	MCyC5	Benz	Sample
6506/11-6	DST 1	-	-	-	-	0.17	0.34	-	-	4.97	2.31	2.34	R37/0001
6506/11-6	DST 2	-	-	-	-	0.20	0.23	-	-	4.39	2.04	1.98	R37/0002
6506/11-6	DST 3	-	-	-	-	0.13	0.30	-	-	4.94	2.25	2.20	R37/0003

Table 13B: Light Hydrocarbons from Whole Oil GC for WELL 6506/11-6

Well	Description	CyC6	2MC6	3MC6	1,3ci-DMCyC5	1,3tr-DMCyC5	1,2tr-DMCyC5	nC7	MCyC6	Tol	nC8	p/m-Xylene	Sample
6506/11-6	DST 1	3.66	1.94	1.59	0.42	0.40	0.74	4.61	5.96	5.88	4.43	4.30	R37/0001
6506/11-6	DST 2	3.51	2.06	1.76	0.43	0.41	0.79	5.17	6.45	5.84	5.41	4.78	R37/0002
6506/11-6	DST 3	3.69	2.06	1.74	0.48	0.42	0.77	4.92	6.17	5.58	4.98	4.48	R37/0003

Table 13C: Thompson's indices for WELL 6506/11-6

Well	Description	A	B	X	W	C	I	F	H	U	R	S	Sample
6506/11-6	DST 1	0.47	1.28	0.97	6.39	1.00	2.26	0.77	23.45	1.58	2.38	29.24	R37/0001
6506/11-6	DST 2	0.45	1.13	0.88	5.64	0.96	2.34	0.80	24.84	1.72	2.51	21.95	R37/0002
6506/11-6	DST 3	0.45	1.13	0.90	5.96	1.00	2.28	0.80	23.94	1.64	2.39	38.00	R37/0003

THOMPSON'S INDICES

$$A = \frac{\text{Benzene}}{\text{nC6}} \qquad B = \frac{\text{Toluene}}{\text{nC7}} \qquad X = \frac{\text{p/m-xylene}}{\text{nC8}} \qquad W = \frac{\text{Benzene} * 10}{\text{CyC6}}$$

$$C = \frac{\text{nC6} + \text{nC7}}{\text{CyC6} + \text{MCyC6}} \qquad I = \frac{\text{2MC6} + \text{3MC6}}{\text{1,3ciDMCyC5} + \text{1,3trDMCyC5} + \text{1,2trDMCyC5}} \qquad F = \frac{\text{nC7}}{\text{MCyC6}}$$

$$H = \frac{\text{nC7} * 100}{\text{CyC6} + \text{2MC6} + \text{2,3DMC4} + \text{3MC6} + \text{1,3ciDMCyC5} + \text{1,3trDMCyC5} + \text{1,2trDMCyC5} + \text{nC7} + \text{MCyC6}}$$

$$U = \frac{\text{CyC6}}{\text{MCyC5}} \qquad R = \frac{\text{nC7}}{\text{2MC6}} \qquad S = \frac{\text{nC6}}{\text{2,2DMC4}}$$

Table 14B: Isotopic Composition of Gas Samples from well NOCS 6506/11-6

Depth unit of measure: m

Depth	Typ	Lithology	C1 d13C	C1 dD	C2 d13C	C3 d13C	iC4 d13C	nC4 d13C	CO2 d13C	CO2 d18O	Sample
4669.00	gas	bulk	-46.1	-213.0	-31.4	-28.3	-26.6	-28.7	-10.6	-10.4	0007-0B
4737.00	gas	bulk	-45.9	-198.0	-31.3	-29.4	-26.8	-28.8	-11.5	-13.1	0006-0B
4849.00	gas	bulk	-45.6	-208.0	-30.9	-28.9	-27.9	-28.2	-10.0	-14.6	0004-0B
4849.00	gas	bulk	-45.2	-199.0	-30.8	-29.0	-26.9	-28.6	-10.4	-12.1	0005-0B

Table 14A: Volume Composition of Gas Samples from well NOCS 6506/11-6

Depth unit of measure: m

Depth	Typ	Lithology	C1	C2	C3	iC4	nC4	iC5	nC5	CO2	sum C1-C5	wet-ness	iC4/ nC4	Sample
4669.00	gas	bulk	80.30	9.50	3.80	0.61	1.10	0.25	0.27	4.20	95.8	0.16	0.55	0007-0B
4737.00	gas	bulk	78.40	9.70	4.70	0.84	1.70	0.39	0.40	3.90	96.1	0.18	0.49	0006-0B
4849.00	gas	bulk	83.80	8.30	3.20	0.45	0.70	0.17	0.16	3.20	96.8	0.13	0.64	0004-0B
4849.00	gas	bulk	83.00	8.40	3.50	0.53	0.90	0.24	0.24	3.10	96.8	0.14	0.59	0005-0B

	KJELLER	HALDEN
Address	N-2007 Kjeller, Norway	N-1751 Halden, Norway
Telephone	+47 63 80 60 00	+47 69 21 22 00
Telex	76 361 isotp n	76 335 energ n
Telefax	+47 63 81 11 68	+47 69 21 22 01

Availability
In Confidence

Report type
IFE/KR/F-98/160

Date
1998-10-19

Report title
DATAREPORT ON STABLE ISOTOPES, GAS SAMPLES FROM WELL 6506/11-6
(ref. IFE no 2.5.152.98)

Date of last revision

Client
Statoil

Revision number

Client reference
G98-11

Number of pages
6

Number of issues
15

Summary

Four gas samples from well 6506/11-6; DST 1, C/U and MR2 4839 - 4849m, DST 2 4695 -4737m and DST 3 4651 - 4669m are analysed for gas and isotopic composition.

The work is done in accordance with «The Norwegian Industry Guide to Organic Geochemical Analyses», third edition 1993.

Distribution

Statoil (8)
Andresen, B.
Bjørnstad, T.
Johansen, H.
Sieglé, S.
File (3)

Keywords:

	Name	Date	Signature
Prepared by	Bjørg Andresen Sylviane Sieglé	1998-10-19	Bjørg Andresen Sylviane Sieglé
Reviewed by	Harald Johansen	1998-10-19	Harald Johansen
Approved by	Tor Bjønstad	1998-10-19	Tor Bjørnstad

1 Introduction

Four gas samples from well 6506/11-6; DST 1, C/U and MR2 4839 - 4849m, DST 2 4695 - 4737m and DST 3 4651 - 4669m are analysed for gas and isotopic composition.

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

2 Analytical procedures

Aliquots of 0.5 ml are sampled with a syringe for analysis on a Poraplot Q column connected with flame ionisation (FID) and thermal conductivity (TCD) detectors. The detection limit for the hydrocarbon gas components is 0.01 µl/ml and for CO_2 0.2 µl/ml.

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

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

IFEs value on NBS 22 is -29.77 ± .06‰ PDB.

The uncertainty in the $\delta^{13}C$ value is estimated to be ± 0.3‰ PDB and includes all the different analytical steps. The estimate is based on repeated analysis of a laboratory standard gas mixture. The uncertainty in the δD value is likewise estimated to be ± 10‰.

3 Results

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

The molecular composition related to the carbon isotope variation in methane from the samples are plotted in Figure 1 (Schoell, 1983), the carbon and hydrogen variations in

methane are plotted in Figure 2 (Schoell, 1983) and the carbon isotope variation in ethane related to the carbon isotope variation in methane in Figure 3 (Schoell, 1983).

The $\delta^{13}C$ values of methane, ethane, propane and n-butane are plotted in James maturity diagram (James, 1983), Figure 4.

Table 1 Volume composition of gas samples (normalised values) from well 6506/11-6

Sample	IFE no GEO	C_1 %	C_2 %	C_3 %	iC_4 %	nC_4 %	iC_5 %	nC_5 %	CO_2 %	ΣC_1- C_5 %	Wet-ness	iC_4/ nC_4
DST 1, C/U	981021	83.8	8.3	3.2	0.45	0.7	0.17	0.16	3.2	96.8	0.13	0.61
DST 1, MR2, 4839-4849m	981022	83.0	8.4	3.5	0.53	0.9	0.24	0.24	3.1	96.9	0.14	0.57
DST 2, 4695-4737m	981116	78.4	9.7	4.7	0.84	1.7	0.39	0.40	3.9	96.1	0.18	0.50
DST 3, 4651-4669m	981118	80.3	9.5	3.8	0.61	1.1	0.25	0.27	4.2	95.8	0.16	0.54

Table 2 Isotopic composition of gas samples from well 6506/11-6

Sample	IFE no GEO	C_1 $\delta^{13}C$ ‰ PDB	C_1 δD ‰ SMOW	C_2 $\delta^{13}C$ ‰ PDB	C_3 $\delta^{13}C$ ‰ PDB	iC_4 $\delta^{13}C$ ‰ PDB	nC_4 $\delta^{13}C$ ‰ PDB	CO_2 $\delta^{13}C$ ‰ PDB	CO_2 $\delta^{18}O$ ‰ PDB
DST1, C/U	981021	-45.6	-208	-30.9	-28.9	-27.9	-28.2	-10.0	-14.6
DST 1, MR2, 4839-4849m	981022	-45.2	-199	-30.8	-29.0	-26.9	-28.6	-10.4	-12.1
DST 2, 4695-4737m	981116	-45.9	-198	-31.3	-29.4	-26.8	-28.8	-11.5	-13.1
DST 3, 4651-4669m	981118	-46.1	-213	-31.4	-28.3	-26.6	-28.7	-10.6	-10.4

4 Literature

James, A.T. (1983). Correlation of natural gas by use of carbon isotopic distribution between hydrocarbon components. *The American Association of Petroleum Geologists Bulletin*, **67**, 1176-1191.

Robert, P. (1985) methods and means of paleothermal analysis. *Organic methamorphism and Geothermal History*, Elf-Aquitaine and D. Reidel Publishing Company.

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