

RFT PRESSURES 6506/12-9S

RUN no.	Depth m MD RKB	Hyd. pres. kPa	Form. pres. kPa	Comment
1A	3366.5	57.754	48.292	Very poor
1A	3367.5	57.760	48.450	Poor
1A	3371.0	57.821	48.262	Poor
1A	3373.0	57.855	48.273	Medium
1A	3375.8	57.997	48.900	Supercharged
2B	4743.0	56.770	-	Tight
2B	4744.2	56.700	-	Tight
2B	4745.8	56.650	51.950	V. low perm/superc
2B	4747.8	56.460	-	Tight
2B	4749.9	56.438	48.838	Good - V. good
2B	4775.5	56.670	-	Tight
2B	4794.0	56.890	-	Tight
2B	4708.0	57.060	49.394	Very good
2B	4809.0	56.970	49.434	Good V. good
2B	4811.5	56.960	49.447	Good
2B	4813.2	56.930	49.429	Good - V. good
2B	4815.3	56.930	49.447	Good V. good
2B	4818.3	56.960	-	Tight
2B	4824.5	57.040	49.503	Good - V. good
2B	4827.0	57.080	49.800	Poor
2B	4851.7	57.490	50.143	Very good
2B	4886.2	57.930	-	Tight
2C	4851.8			Sample run
2D	4749.9			Sample
2D	4725.0	56.230	-	Tight
2D	4736.0	56.350	-	Tight
2D	4745.0	56.460	48.882	Good
2D	4748.0	56.430	48.926	Good
2D	4749.5	56.400	48.893	Good
2E	4824.5	57.156	49.630	Sample
2F	4809.0	57.020	-	Tight
2G	4812.0	56.990	49.460	Sample

Table 3.3.1

In the table just results were seal was obtained is listed.

3.4 Well Testing

In the Jurassic sandstone section 5 production tests were performed.

Drill stem test no 1 was in the interval 4846.0 to 4876 m RKB, and it produced a near-critical gas condensate. The well production was 444 000 Sm³/day of gas and 840 Sm³/day of condensate from a 44/64" (17,46 mm) choke size. Density of the gas was 0.832 (air = 1) and condensate density was 0.814 g/cm³.

Drill stem test no 2 was in the interval 4805.0 to 4834 m RKB, and it produced a light oil. The well production was 249 000 Sm³/day of gas and 900 Sm³/day of oil from a 56/64" (22,23 mm) choke size. Density of the gas was 0.832 (air = 1) and condensate density was 0.855 g/cm³.

Drill stem test no 3 was in the interval 4742.0 to 4751.0 m RKB, and it produced a light oil. The well production was 138 000 Sm³/day of gas and 567 Sm³/day of oil from a 44/64" (17.46 mm) choke size. Density of the gas was 0.794 (air = 1) and oil density was 0.825 g/cm³.

Drill stem test no 4 perforated zones in First the interval 4712 to 4730 m RKB was perforated. No production was observed from this interval. The zone 4695 to 4709 m RKB was then perforated. Just a minor influx into the well was observed. The rate measured was approximately 60 litre/hrs.

Drill stem test no 5 was in the interval 4477.0 to 4510.0 m RKB, and it produced gas condensate. The well production was 33 000 Sm³/day of gas and 17 Sm³/day of condensate from a 110/64" (43.66 mm) choke size. Density of the gas was 0.781 (air = 1) and condensate density was 0.807 g/cm³.

TOTAL MATERIAL COST AND CONSUMPTION																
OPERATOR: STATOIL														WELL: 6506/12-9S		
Product	Unit size	Unit price NOK	36" sect.	Cost NOK	26" sect.	Cost NOK	17 1/2" sect.	Cost NOK	12 1/4" sect.	Cost NOK	8 3/8" sect.	Cost NOK	P & A	Cost NOK	Total consumed	Total cost NOK
Barite	M.T	715,00	117	83 655,00	211	150 865,00	620	443 300,00	1261	901 615,00	154	110 110,00	456	326 040,00	2819	2 015 585,00
Bentonite	M.T.	1 970,00	5	9 850,00							18	35 460,00	70	137 900,00	93	183 210,00
Bentonite	kg	2,45									14000	34 300,00			14000	34 300,00
CMC EHV	kg	14,56	4200	61 152,00	10300	149 968,00	500	7 280,00							15000	218 400,00
Celpol LV	kg	28,00					17800	498 400,00	15925	445 900,00	400	11 200,00			34125	955 500,00
Celpol Regular	kg	28,00					1025	28 700,00			75	2 100,00	1975	55 300,00	3075	86 100,00
Gypsum	kg	1,62					18000	29 160,00							18000	29 160,00
Lime	kg	2,30	20	46,00			320	736,00	560	1 288,00	400	920,00	340	782,00	1640	3 772,00
Ancocide	kg	16,22					1375	22 302,50	250	4 055,00	100	1 622,00	150	2 433,00	1875	30 412,50
KCl brine	m3	485,00							465	225 525,00					465	225 525,00
KCl powder	kg	2,00							37000	74 000,00					37000	74 000,00
NaCl brine	kg	450,00											1351	607 950,00	1351	607 950,00
NaCl powder	kg	1,45											18350	26 607,50	18350	26 607,50
Anco 208	ltr	17,00							45452	772 684,00					45452	772 684,00
Anco 2000 mud	m3	700,00							307	214 900,00					307	214 900,00
Soda Ash	kg	2,31	25	57,75					5375	12 416,25	900	2 079,00	800	1 848,00	7100	16 401,00
Caustic Soda	kg	5,50											805	4 427,50	805	4 427,50
Sod. Bicarbonate	kg	2,31					75	173,25	1575	3 638,25	825	1 905,75	1925	4 446,75	4400	10 164,00
Sodium Sulphite	kg	8,28											650	5 382,00	650	5 382,00
Thermopol	kg	148,00							3925	580 900,00	3975	588 300,00	4050	599 400,00	11950	1 768 600,00
Ancotemp	kg	90,37							3825	345 665,25	4525	408 924,25	4575	413 442,75	12925	1 168 032,25
Anco Resin	kg	12,46							3650	45 479,00	5875	73 202,50	2300	28 658,00	11825	147 339,50
Ligihin	kg	15,20											100	1 520,00	100	1 520,00
Nutplug F/C	kg	3,75							25	93,75					25	93,75
Citric Acid	kg	13									525	6 825,00	1325	17 225,00	1850	24 050,00
Anco Defoamer	kg	15,55									260	4 043,00	300	4 665,00	560	8 708,00
Mixing charge	bbf	40,5									1950	78 975,00			1950	78 975,00
Total cost	NOK			154 760,75		300 833,00		1 030 051,75		3 628 159,50		1 359 966,50		2 238 027,50		8 711 799,00
Hole drilled	m			69		424		1434		2136		532		N/A		4595
Cost per metre	NOK			2 242,91		709,51		718,31		1 698,58		2 556,33		N/A		1 895,93
Total days				2		6		8		43		24		74		157
Cost per day	NOK			77 380,38		50 138,83		128 756,47		84 375,80		56 665,27		30 243,61		55 489,17
Mud mixed/received	m3			408		1050		1401		1654		663		2495		7 671,00
Cost per m3	NOK			379,32		286,51		735,23		2 193,57		2 051,23		897,01		1 135,68



SEKTOR FOR GEOTEKNOLOGI

Avdeling for Geokjemi

Rapport nr.
GEOKJEMI 94.28
Kopi nr.
Antall kopier: 17

Grading

Tittel Evaluation of potential barriers in Smørbukk reservoirs based on C10- reservoir fluid compositions and geochemical interpretations of Smørbukk drill stem tests.		
Oppdragsgiver Anders Rehkopff PETEK RESU	Prosjekt	
Dato 15.08.94	Antall sider	Antall vedlegg

Stikkord Smørbukk drill stem tests, evaluation of potential barriers, geochemical correlation

Sammendrag See page 1 in this report.	<p>BA-94-1759-1</p> <p>12.08.1994</p> <p>REGISTRERT</p> <p>OLJEDIREKTORATET</p>
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Utarbeidet av Ingun Skjevraak GEOK Knut K. Meisingset FLUIDLAB Per Arne Bjørkum GEOK
Tekstoperatør Ingun Skjevraak

Godkjent av
22.08.94

Trygve Meyer, Avd. leder

TABLE 1**OIL AND CONDENSATE DRILL STEM TESTS FROM SMØRBUKK FIELD;**
PHYSICAL DATA

WELL /DST	°API	GOR*	FLUID TYPE
6506/12-1			
DST2	47.6 ⁴	1338	gas condensate
DST4	45.5 ⁴	973	gas condensate
DST5	47.6 ⁴	1551	gas condensate
DST7	47.6 ⁴	1280	gas condensate
6506/12-6			
DST1	39.6 ⁵	410	oil
DST3	47.7 ⁵	1850	gas condensate
6506/12-7			
DST1	41.2 ²	489	oil
DST2	42.4 ²	860	gas condensate
DST3	46.4 ²	1570	gas condensate
6506/11-2			
DST1A	40.9 ¹	1392	gas condensate
DST2	41.1 ¹	915	gas condensate
DST3	31.6 ¹	-	oil (tight formation)
DST4	47.8 ¹	1440	gas condensate
DST5	42.2 ¹	513	gas condensate
DST6	43.7 ¹	170	oil
6506/12-9S			
DST1	42.3 ⁷	622	gas condensate
DST2	34.9 ⁷	390	oil
DST3	39.7 ⁷	292	oil
DST5	46.4 ⁷	1379	gas condensate

* GOR from Drill Stem Test data (Sm³/Sm³)

1:
2:
4: SEE REFERENCE LIST
5:
7:

TABLE 2**OIL AND CONDENSATE DRILL STEM TESTS FROM THE SMØRBUKK FIELD;
TESTED FORMATIONS AND DEPTHS****Plot codes are given in brackets ()****(All depths in mRKB and formation tops are given in APPENDIX
1)**

6506/12-7	6506/12-6	6506/12-1	6506/11-2	6505/12-9S
			DST6 (D6) 3373.5- 3398.5	
			DST5 (D5) 4005-4048	
		DST7 (A7) 3993-4011		
DST3 (C3) 4474-4514				
	DST3 (B3) 4312-4352		DST4 (D4) 4371-4420	DST5 (E5) 4477- 4510
			DST3 (D3) 4486-4510	
		DST5 (A5) 4203-4218		
DST2 (C2) 4702-4707	DST1 (B1) 4514-4525		DST2 (D2) 4553.2- 4597.3	
		DST4 (A4) 4251-4261		
DST1 (C1) 4741-4748	DST1 (B1) 4549-4592			
				DST3 (E3) 4742- 4751
			DST1 (D1) 4668-4707	
		DST2 (A2) 4351-4373		DST2 (E2) 4805- 4834
				DST1 (E1) 4846- 4876.4

TABLE 1. THOMPSON INDICES FOR SMØRBUKK OIL AND CONDENSATES BASED ON RESERVOIR COMPOSITIONS

Well	DST#	Sample no. (Plot)	Thompson Indices ----->										
			A	B	X	C	I	F	H	U	R	R'	W
6506/12-1	2C	1	0.43	1.37	1.10	0.85	1.46	0.62	20.10	1.53	2.95	2.93	0.53
6506/12-1	4	2	0.42	1.20	0.92	0.85	1.41	0.64	20.33	1.56	3.10	2.86	0.49
6506/12-1	7	3	0.37	0.98	0.76	0.96	1.41	0.72	21.17	1.47	2.95	2.72	0.48
6506/12-6	1	4	0.33	1.08	0.82	0.81	1.53	0.62	20.31	1.48	2.57	3.07	0.37
6506/12-6	3	5	0.36	0.97	0.70	1.00	1.58	0.74	21.32	1.36	2.31	2.68	0.50
6506/12-7	1C	6	0.31	1.04	0.79	0.83	1.56	0.63	20.64	1.45	2.55	3.04	0.36
6506/12-7	2	7	0.41	1.24	0.88	0.92	1.64	0.69	21.14	1.47	2.44	2.88	0.52
6506/12-7	3	8	0.35	1.02	0.72	0.99	1.56	0.72	21.16	1.35	2.36	2.73	0.48
6506/11-2	1A	9	0.46	1.51	1.17	0.82	1.01	0.59	20.03	1.43	10.25	2.81	0.55
6506/11-2	2	10	0.48	1.52	1.15	0.80	0.96	0.58	19.86	1.46	10.51	2.90	0.56
6506/11-2	4	11	0.37	1.00	0.81	1.01	1.43	0.75	22.15	1.40	9.96	2.78	0.52
6506/11-2	5	12	0.30	0.60	0.59	1.19	1.24	0.92	25.30	2.15	9.96	2.80	0.48
6506/11-2	6	13	0.08	0.43	0.61	1.06	1.01	0.80	23.62	1.56	12.50	2.55	0.12
6506/12-9S	1	14	0.33	1.19	0.98	0.84	0.81	0.61	20.45	1.45	2.66	2.85	0.41
6506/12-9S	2	15	0.47	1.53	1.22	0.72	0.73	0.53	18.97	1.49	2.74	2.90	0.50
6506/12-9S	3	16	0.29	0.99	0.87	0.78	0.72	0.60	20.14	1.52	3.05	3.04	0.31
6506/12-9S	5	17	0.37	1.00	0.83	1.02	0.81	0.75	22.10	1.37	2.64	2.74	0.52

TABLE 5B. Composition of differentially liberated gas from DST2, well 12-9S (at 164.8 C)

Reservoir Composition well 12-1 DST2 *		Composition of differentially liberated gas from DST2, well 12-9S (164.8 C) :									
		Pressure (bar)									
		381.1	349.7	309.1	260.5	199.1	140.1	80.6	30.1	1.0	
Component	Mol%	Mol%	Mol%	Mol%	Mol%	Mol%	Mol%	Mol%	Mol%	Mol%	Mol%
Nitrogen	0.57	0.41	0.32	0.42	0.31	0.36	0.29	0.14	0.07	0.00	
Carbondioxid	4.93	6.15	6.22	6.34	6.49	6.67	6.95	7.43	7.68	3.81	
Methane	68.09	68.07	69.20	70.30	71.52	71.37	70.38	67.02	55.51	19.43	
Ethane	10.00	9.38	9.44	9.55	9.77	10.03	10.85	12.57	16.22	12.76	
Propane	5.28	4.80	4.79	4.78	4.82	4.96	5.39	6.43	9.92	13.12	
i-Butane	0.84	0.83	0.82	0.80	0.80	0.81	0.86	1.02	1.68	3.17	
n-Butane	1.65	1.63	1.60	1.56	1.53	1.57	1.67	1.96	3.30	7.51	
i-Pentane	0.56	0.57	0.55	0.52	0.50	0.51	0.52	0.58	0.99	3.43	
n-Pentane	0.67	0.64	0.61	0.58	0.54	0.55	0.55	0.61	1.04	4.09	
Hexanes	0.80	0.81	0.75	0.68	0.61	0.60	0.57	0.59	0.97	5.58	
Hepthanes	1.27	1.31	1.17	1.01	0.83	0.78	0.69	0.68	1.07	9.56	
Octanes	1.35	1.52	1.30	1.05	0.76	0.65	0.50	0.42	0.71	9.47	
Nonanes	0.78	0.97	0.82	0.64	0.45	0.34	0.23	0.16	0.34	4.17	
Decanes plus	3.21	2.90	2.43	1.77	1.08	0.79	0.54	0.39	0.50	3.90	
	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
MOL WEIGHT	32.43	31.02	29.58	27.81	26.01	25.50	25.13	25.67	29.66	61.00	
MOL RATIO	100.00										
MASS RATIO	100.00										
GRAVITY		1.071	1.021	0.960	0.898	0.880	0.868	0.886	1.024	2.106	

* : Dew point pressure: 385.5 bars

TABLE 6**STERANE BIOMARKER DATA FOR SMØRBUKK OILS AND CONDENSATES.**

WELL /DST	A	B	C	D	E	F	G
6506/12-1							
DST2	1.04	1.48	51.2	59.8	41	28	31
DST4	1.17	1.71	51.9	61.2	38	29	33
DST5	0.91	1.63	48.9	63.4	39	29	32
DST7	0.94	2.00	48.4	73.0	36	36	28
6506/12-6							
DST1	1.63	3.60	61.9	73.4	46	28	26
DST3	1.66	3.00	62.5	69.2	48	27	25
6506/12-7							
DST1	0.95	1.35	48.7	58.2	35	32	33
DST2	1.38	1.88	57.9	61.6	33	31	36
DST3	1.00	1.00	50.0	60.0	42	30	28
6506/11-2							
DST1A	0.68	2.00	40.6	69.0	34	30	36
DST2	1.24	2.60	55.4	69.0	36	29	35
DST3	1.27	2.70	55.9	68.0	35	30	35
DST4	1.47	3.20	59.5	71.0	39	29	32
DST5	1.25	2.80	55.6	70.0	39	29	32
DST6	0.84	1.90	45.6	64.0	40	31	29
6506/12-9S							
DST1	1.37	2.16	57.8	65.0	38	30	32
DST2	1.32	2.05	56.9	64.0	35	31	34
DST3	1.15	1.08	53.4	65.0	38	29	33
DST5	1.55	1.05	60.8	69.0	40	31	29

ALL DATA HAVE BEEN TAKEN FROM STATOIL REPORT 03-88 ⁽³⁾, EXCEPT DATA FOR THE WELLS 11-2 AND 12-9S, WHERE THE DATA HAVE BEEN COMPILED IN GEOLAB NOR 02-92 ⁽¹⁾ AND GEOLAB NOR 01-94 ⁽⁷⁾ RESPECTIVELY.

A: C29 $\alpha\alpha\alpha$ 20S/C29 $\alpha\alpha\alpha$ 20R

B: C29 $\alpha\beta\beta$ 20R/C29 $\alpha\alpha\alpha$ 20R

C: 100*C29 $\alpha\alpha\alpha$ 20S/C29 $\alpha\alpha\alpha$ 20S + 20R

D: 100*C29 $\alpha\beta\beta$ 20S + R/C29 $\alpha\alpha\alpha$ 20S + 20R + C29 $\alpha\beta\beta$ 20R + 20S

E: 100*Isosterane C27 $\beta\beta$ /C27 $\beta\beta$ +C28 $\beta\beta$ +C29 $\beta\beta$

F: 100*Isosterane C28 $\beta\beta$ /C27 $\beta\beta$ +C28 $\beta\beta$ +C29 $\beta\beta$

G: 100*Isosterane C29 $\beta\beta$ /C27 $\beta\beta$ +C28 $\beta\beta$ +C29 $\beta\beta$

TABLE 7**¹³C ISOTOPE DATA FOR SMØRBUKK OILS AND CONDENSATES.**

WELL /DST Fm.	WHOLE FLUID	SATURATES (<--- PER MIL --->)	AROMATICS PER MIL	POLARS	ASPHALTENES
6506/12-1					
DST2	-28.94	-28.97	-27.47	-27.20	-28.30
DST4	-29.15	-28.95	-26.35	-26.50	-27.80
DST5	-30.23	-28.81	-27.34	-27.30	-26.30
DST7	-28.4	-29.50	-	-27.80	-28.20
6506/12-6					
DST1	-	-29.30	-27.67	-27.94	-27.71
DST3	-	-29.76	-28.10	-28.32	-28.80
6506/12-7					
DST1	-28.7	-28.73	-26.99	-30.98	-28.27
DST2	-28.7	-28.94	-27.39	-28.79	-28.57
DST3	-28.8	-29.15	-27.21	-30.51	-28.91
6506/11-2					
DST1A	-28.2	-28.67	-27.22	-27.03	-28.35
DST2	-28.1	-28.64	-27.20	-26.94	-27.83
DST3	-29.0	-29.10	-27.95	-27.93	-28.34
DST4	-29.0	-29.21	-27.96	-27.36	-28.09
DST5	-29.5	-29.57	-28.97	-28.71	-28.45
DST6	-29.3	-29.47	-28.55	-28.15	-28.33
6506/12-9S					
DST1	-28.31	-28.84	-27.45	-27.39	-28.18
DST2	-28.06	-28.93	-27.59	-27.45	-28.25
DST3	-28.37	-29.17	-27.70	-27.48	-28.26
DST5	-28.61	-29.53	-28.11	-27.47	-27.87

TABLE 8**C15+ BULK COMPOSITION OF SMØRBUKK OILS AND CONDENSATES**
(Relative %).

WELL /DST	SAT	ARO	ASPH	POLARS (NSO)
6506/12-1				
DST2	75	19	-	6
DST4	73	21	-	6
DST5	76	18	-	6
DST7	78	16	-	6
6506/12-6				
DST1	23	6	0	71*
DST3	31	10	0	59*
6506/12-7				
DST1	88	6	1	5
DST2	87	7	1	5
DST3	89	6	1	5
6506/11-2				
DST1A	72	20	2	6
DST2	74	22	1	3
DST3	69	22	3	6
DST4	77	19	1	3
DST5	75	20	1	4
DST6	79	17	1	3
6506/12-9S				
DST1	76	22	1	1
DST2	71	24	2	3
DST3	72	22	3	3
DST5	79	20	1	1

* : The extremely high NSO content is due to the inclusion of C15- hydrocarbons in this figure, according to original data report.

TABLE 9**GAS CHROMATOGRAPHY DATA FOR SMØRBUKK OILS AND CONDENSATES.**

WELL	MPI*	% R _c	<u>Pristane</u> nC17	<u>Phytane</u> nC18	<u>Pristane</u> Phytane
/DST					
6506/12-1					
DST2	⁴ 0.85	0.91	0.70	0.51	1.54
DST4	⁴ 0.77	0.86	0.76	0.54	1.65
DST5	⁴ 0.77	0.86	0.74	0.55	1.52
DST7	⁴ 0.78	0.87	0.82	0.62	1.56
6506/12-6					
DST1	0.83 ⁵	0.90	0.70 ⁶	0.50 ⁶	1.60 ⁶
DST3	0.76 ⁵	0.86	0.70 ⁶	0.60 ⁶	1.60 ⁶
6506/12-7					
DST1	0.95 ²	0.97	0.77 ⁶	0.57 ⁶	1.55 ⁶
DST2	1.13 ²	1.08	0.85 ⁶	0.57 ⁶	1.45 ⁶
DST3	0.98 ²	0.99	0.72 ⁶	0.50 ⁶	1.52 ⁶
6506/11-2					
DST1A	¹ 1.00	1.00	0.54	0.38	1.59
DST2	¹ 0.99	1.00	0.57	0.40	1.57
DST3	¹ 0.91	0.95	0.56	0.41	1.50
DST4	¹ 0.97	0.98	0.64	0.44	1.61
DST5	¹ 0.96	0.98	0.63	0.46	1.56
DST6	¹ 1.19	1.11	0.59	0.42	1.58
6506/12-9S					
DST1	⁷ 0.81	0.89	0.69	0.51	1.54
DST2	0.77	0.86	0.58	0.44	1.41
DST3	0.77	0.86	0.52	0.39	1.38
DST5	⁷ 0.85	0.91	0.62	0.45	1.50

*: MPI = Methyl Phenantrene Index (MPI 1)

% R_c = calculated vitrinite reflectance of source rock
= 0.60 MPI + 0.40

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TABLE 10**HOPANE BIOMARKER PARAMETERS FOR SMØRBUKK OILS AND CONDENSATES.**

WELL /DST	Ratio 1	Ratio 2	Ratio 3	Ratio 4
6506/12-1				
DST2	74.7	89.3	0.70	87.5
DST4	72.1	92.0	0.50	87.1
DST5	77.5	93.5	0.50	84.2
DST7	76.4	81.8	0.40	84.3
6506/12-6				
DST1	68.8	88.2	1.00	-
DST3	68.0	95.0	0.60	-
6506/12-7				
DST1	81.8	90.2	0.50	88.7
DST2	77.8	92.6	0.40	84.4
DST3	82.4	94.4	0.50	83.4
6506/11-2				
DST1A	91.3	100.0	0.78	100.0
DST2	86.6	92.0	0.63	100.0
DST3	71.3	91.0	0.57	85.7
DST4	83.7	96.0	0.39	100.0
DST5	86.4	93.0	0.35	84.8
DST6	80.6	93.0	0.60	83.2
6506/12-9S				
DST1	100.0	100.0	-	100.0
DST2	80.2	100.0	0.69	100.0
DST3	83.9	100.0	0.56	100.0
DST5	78.0	92.0	0.46	100.0

ALL DATA HAVE BEEN TAKEN FROM STATOIL REPORT 03-88 ⁽³⁾, EXCEPT DATA FOR THE WELLS 11-2 AND 12-9S, WHERE THE DATA HAVE BEEN COMPILED IN GEOLAB NOR 02-92 ⁽¹⁾ AND GEOLAB NOR 01-94 ⁽⁷⁾ RESPECTIVELY.

Ratio 1: $100 \cdot T_s / (T_s + T_m)$

Ratio 2: $100 \cdot C_{30} \alpha\beta / (\alpha\beta + \beta\alpha)$

Ratio 3: $C_{29} \alpha\beta / C_{30} \alpha\beta$

Ratio 4: $100 \cdot C_{30} \text{ diahopane } (T_tX) / (C_{30} \text{ diahopane} + C_{29} \beta\alpha)$

Table 11
GAS DRILL STEM TESTS FROM SMØRBUKK
Isotopic and chemical composition

Well	Test	Plot Code	d13 C1 per mil	d13 C2 per mil	d13 C3 per mil	d13 I-C4 per mil	d13 n-C4 per mil	dD per mil	δ13C CO2 per mil	δ18O CO2 per mil	d 13 C1-C2	d 13 C2-C3	d 13 C3-nC4	d 13 C1-CO2	C1 mol. %	C2 mol. %	C3 mol. %	I-C4 mol. %	n-C4 mol. %	CO2 mol. %	C2-C4 C1-C4	I-C4 n-C4
6506/12-1	DST-5B	A5	-45.6	-28.4	-26.3	-25.5	-24.5	-235.0	-18.9	-23.3	17.2	2.1	1.8	26.7	79.2	8.3	4.8	0.60	1.3	5.8	0.78	8.00
6506/12-1	DST-4B	A4	-45.8	-30.4	-27.2		-26.8	-251.0	-10.8	-14.9	15.4	3.2	0.4	35.0	78.6	8.3	4.6	0.53	1.0	7.0	0.72	8.68
6506/12-1	DST-2C	A2	-45.0	-30.9	-27.9		-26.1	-250.0	-13.8	-14.7	14.1	3.0	1.8	31.2	76.6	9.1	4.8	0.50	0.94	8.2	0.74	9.60
6506/12-6	DST-3	B3	-44.5	-30.4	-29.7	-29.0	-30.2	-170.0	-13.9	-17.0	14.1	0.7	-0.5	30.6	83.3	8.0	3.7	0.50	0.90	3.6	0.76	7.40
6506/12-6	DST-1	B1	-44.8	-30.8	-29.8	-28.7	-30.0	-174.0	-10.0	-8.7	14.0	1.0	-0.2	34.8	76.5	10.2	5.2	0.80	1.5	5.8	0.73	6.50
6506/12-7	DST-3	C3	-45.2	-31.0	-29.4	-27.5	-29.5	-192.0	-11.4	-14.6	14.2	1.6	-0.1	33.8	80.2	8.7	4.5	0.76	1.6	4.3	0.74	5.92
6506/12-7	DST-2	C2	-45.4	-31.7	-29.2	-30.7	-29.5	-198.0	-13.4	-18.2	13.7	2.5	-0.3	32.0	75.9	9.9	4.9	0.82	1.6	6.9	0.74	5.98
6506/12-7	DST-1	C1	-45.9	-32.7	-30.4	-29.8	-30.2	-200.0	-9.0	-16.5	13.2	2.3	0.2	36.9	78.4	9.8	4.7	0.68	1.3	5.1	0.72	6.91
6506/11-2	DST-6	D6	-45.2	-29.0	-27.8	-26.0	-27.5	-177.0	-17.8	-1.2	16.2	1.2	0.3	27.4	79.8	8.8	7.8	1.6	2.0	1.9	0.78	4.88
6506/11-2	DST-5	D5	-44.6	-30.0	-28.2	-26.9	-28.5	-187.0	-13.3	-5.4	14.6	1.8	-0.3	31.3	83.4	6.6	2.7	0.73	1.5	5.0	0.75	3.70
6506/11-2	DST-4	D4	-46.2	-30.6	-28.9	-25.2	-28.7	-195.0	-11.1	-16.2	15.6	1.7	0.2	35.1	79.7	8.6	4.2	0.63	1.1	5.7	0.73	6.67
6506/11-2	DST-2	D2	-43.5	-29.9	-27.7	-25.2	-27.4	-197.0	-14.4	-15.2	13.6	2.2	0.3	29.1	76.9	9.7	4.4	0.63	1.0	7.3	0.76	6.98
6506/11-2	DST-1A	D1	-42.8	-29.9	-28.0	-25.1	-26.8	-192.0	-12.3	-15.9	12.9	1.9	1.2	30.5	78.5	9.4	4.1	0.59	1.0	6.3	0.75	6.95
6506/12-9S	DST-5	E5	-44.4	-30.9	-29.3	-28.9	-29.5	-196.0	-11.9	-16.0					75.5	9.8	5.6	0.94	2.2	5.0	1.00	5.96
6506/12-9S	DST-3	E3	-44.8	-32.6	-30.4	-29.7	-29.9	-196.0	-9.0	-15.7					69.4	11.0	7.0	1.0	2.2	8.6	1.00	0.23
6506/12-9S	DST-2	E2	-44.4	-31.0	-28.8	-28.7	-28.6	-208.0	-14.2	-14.4					73.0	11.1	5.1	0.69	1.2	8.5	1.00	0.20
6506/12-9S	DST-1	E1	-44.4	-31.2	-28.7	-28.8	-28.9	-207.0	-13.9	-15.9					70.8	11.6	6.6	0.93	1.8	7.7	1.00	0.23

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Title		
FINGERPRINT ANALYSES OF 2 FMT SAMPLES FROM WELL 6506/12-9S		
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Terje Møgster LTEK BO/HA		
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Gas chromatography, Thompsons Indices, molecular weight, density, water.

Abstract
<p>2 FMT samples, Run 2B and 2C, from well 6506/12-9S were flashed to ambient conditions by Geco Prakla Lab. A/S. The 2 FMT samples were analyzed by Fluidlab.</p> <p>Fingerprint analyses are performed on the 2 FMT samples and the results have been compared with the stabilized condensate from 6506/12-9S DST 1.</p> <p>The FMT sample, Run 2C, is a stabilized condensate, and similar to the DST 1 sample.</p> <p>The FMT sample Run 2B is a stabilized crude oil, a more waxy sample, and is quite similar to DST 2.</p>

Prepared by
Brit Bjørndal
Liv Aase Tau
Hans Petter Rønningsen

Approved by

17/6-94 

Arne M. Martinsen
Department manager

Text operator Brit Bjørndal *Brit Bjørndal*

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APPENDIX 2: Detailed comp. of light end of samples from 6506/12-9S

Component	Weight% Run 2 B	Weight% Run 2 C	Weight% DST 1
C1	0.00	0.00	0.00
C2	0.00	0.01	0.05
C3	0.10	0.30	0.54
i-C4	0.12	0.87	0.43
n-C4	0.41	0.94	1.36
2,2-DM-C3	0.00	0.00	0.01
i-C5	0.45	0.87	1.21
n-C5	0.59	1.19	1.63
2,2-DM-C4	0.02	0.03	0.04
Cy-C5	0.08	0.13	0.16
2,3-DM-C4	0.06	0.11	0.14
2-M-C5	0.35	0.69	0.88
3-M-C5	0.22	0.41	0.51
n-C6	0.64	1.27	1.56
M-Cy-C5	0.46	0.79	0.92
2,4-DM-C5	0.03	0.06	0.07
2,2,3-TM-C4	0.01	0.01	0.01
Benzene	0.35	0.50	0.56
3,3-DM-C5	0.01	0.01	0.02
Cy-C6	0.73	1.24	1.39
2-M-C6	0.23	0.45	0.51
2,3-DM-Cy-C5	0.05	0.09	0.11
1,1-DM-Cy-C5	0.05	0.09	0.10
3-M-C6	0.23	0.45	0.50
1-cis,3-DM-Cy-C5	0.09	0.16	0.18
1-trans,3-DM-Cy-C5	0.09	0.16	0.18
1-trans,2-DM-Cy-C5	0.16	0.28	0.31
n-C7	0.66	1.33	1.47
Unspecified C7	0.00	0.00	0.00
M-Cy-C6	1.33	2.28	2.44
1,1,3-TM-Cy-C5	0.05	0.09	0.10
E-Cy-C5	0.06	0.10	0.10
2,5-DM-C6	0.03	0.06	0.07
2,4-DM-C6	0.04	0.07	0.08
1-tr,2-cis,4-TM-Cy-C5	0.04	0.09	0.09
1-tr,2-cis,3-TM-Cy-C5	0.00	0.07	0.08
2,3,4-TM-C5	0.00	0.01	0.01

Component	Weight% Run 2 B	Weight% Run 2 C	Weight% DST 1
Toluene	1.14	1.73	1.82
1,1,2-TM-Cy-C5	0.05	0.09	0.09
2,3-DM-C6	0.00	0.00	0.01
2-M-C7	0.23	0.49	0.53
4-M-C7	0.06	0.12	0.15
3,4-DM-C6	0.00	0.00	0.00
3-M-C7	0.15	0.31	0.32
1-cis,3-DM-Cy-C6	0.25	0.45	0.46
1-trans,4-DM-Cy-C6	0.10	0.18	0.19
1,1-DM-Cy-C6	0.04	0.06	0.06
Unspecified naphthene	0.02	0.03	0.03
1-M-tr,2-E-Cy-C5	0.03	0.06	0.06
Unspecified naphthene	0.01	0.01	0.01
1-trans,2-DM-Cy-C6	0.11	0.20	0.20
n-C8	0.70	1.39	1.42
Unspecified C8	0.03	0.06	0.06
1-cis,2-DM-Cy-C6	0.03	0.11	0.11
E-Cy-C6	0.37	0.74	0.73
1,1,3-TM-Cy-C6	0.07	0.16	0.16
Ethylbenzene	0.19	0.32	0.32
Unspecified naphthene	0.04	0.09	0.08
Unspecified naphthene	0.00	0.00	0.00
Meta+Para-Xylene	0.91	1.40	1.40
4-M-C8	0.08	0.15	0.14
2-M-C8	0.11	0.22	0.22
Unspecified naphthene	0.00	0.04	0.04
Unspecified naphthene	0.02	0.00	0.00
3-M-C8	0.13	0.26	0.26
Ortho-Xylene	0.28	0.45	0.44
1-M,3-E-Cy-C6	0.10	0.18	0.18
1-M,4-E-Cy-C6	0.06	0.11	0.11
Unspecified naphthene	0.00	0.01	0.01
Unspecified naphthene	0.01	0.02	0.02
n-C9	0.62	1.21	1.16
Unspecified C9	0.23	0.37	0.42



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Abstract See page 1 in this report <p style="text-align: center;">BA-94-412-1</p>
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Prepared by Geolab Nor
Text operator Geolab Nor

Approved by
16.02.94


Trygve Meyer, Dept. Manager

- 1-

Table 1a: C1 to C7 hydrocarbons in HEADSPACE gas
(μ l gas/kg rock)

Project: 6506/12-9S

Well: 6506/12-9S

Depth unit of measure: m * Indicated values in ml gas/kg rock

Depth	C1	C2	C3	iC4	nC4	C5+	sum C1-C4	sum C2-C4	%wet ness	iC4 nC4
3400.00	8047	3849	14999	7311	9685	5091	43891	35844	81.7	0.75
3600.00	40124	5830	5216	1969	3902	8487	57041	16917	29.7	0.50
3700.00	43867	7107	4967	1688	4716	3318	62345	18478	29.6	0.36
3750.00	27240	3728	2371	702	2252	1088	36293	9053	24.9	0.31
3800.00	54096	7419	3862	960	2964	6384	69301	15205	21.9	0.32
3850.00	38557	12848	24069	20059	26990	26713	122523	83966	68.5	0.74

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Table 1b: C1 to C7 hydrocarbons in CUTTINGS gas
(μl gas/kg rock)

Project: 6506/12-9S

Well: 6506/12-9S

Depth unit of measure: m * Indicated values in ml gas/kg source rock

Depth	C1	C2	C3	iC4	nC4	C5+	sum C1-C4	sum C2-C4	%wet ness	iC4 --- nC4
3400.00	584	114	324	323	862	4861	2207	1623	73.5	0.37
3600.00	4893	555	145	31	121	631	5745	852	14.8	0.26
3700.00	9412	791	178	29	1548	408	11958	2546	21.3	0.02
3750.00	8340	761	177	35	201	375	9514	1174	12.3	0.17
3800.00	8225	718	158	23	136	511	9260	1035	11.2	0.17
3850.00	11869	946	544	234	800	3024	14393	2524	17.5	0.29

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Table 1c: C1 to C7 hydrocarbons in HEADSPACE and CUTTINGS gas
(μ l gas/kg rock)

Project: 6506/12-9S

Well: 6506/12-9S

Depth unit of measure: m * Indicated values in ml gas/kg source rock

Depth	C1	C2	C3	iC4	nC4	C5+	sum C1-C4	sum C2-C4	%wet ness	iC4 --- nC4
3400.00	8631	3963	15323	7634	10547	9952	46098	37467	81.3	0.72
3600.00	45017	6385	5361	2000	4023	9118	62786	17769	28.3	0.50
3700.00	53279	7898	5145	1717	6264	3726	74303	21024	28.3	0.27
3750.00	35580	4489	2548	737	2453	1463	45807	10227	22.3	0.30
3800.00	62321	8137	4020	983	3100	6895	78561	16240	20.7	0.32
3850.00	50426	13794	24613	20293	27790	29737	136916	86490	63.2	0.73

Table 2 : Lithology description for well NOCS 6506/12-9S

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample	
Int Cvd	TOC%	%	Lithology description				
2260.00						0031	
	0.73	100	Sh/Clst:	m gy, calc		0031-1L	
			tr Ca	: w, chk		0031-2L	
2290.00						0032	
	1.62	100	Sh/Clst:	m gy, calc		0032-1L	
			tr Ca	: w, chk		0032-2L	
2600.00						0033	
	1.32	100	Sh/Clst:	m gy, calc		0033-1L	
2610.00						0034	
	1.32	100	Sh/Clst:	m gy, calc		0034-1L	
2620.00						0035	
	1.57	100	Sh/Clst:	m gy, calc		0035-1L	
3361.00						0036	
	0.72	65	Sh/Clst:	m gy to gn gy		0036-2L	
		35	Sh/Clst:	drk gy to gy blk		0036-1L	
3391.00						0037	
	1.23	55	Sh/Clst:	m gy to gn gy		0037-2L	
		35	Sh/Clst:	drk gy to gy blk		0037-1L	
		10	Cont	: dd		0037-3L	

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Table 2 : Lithology description for well NOCS 6506/12-9S

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
3400.00						0038
			40	Sh/Clst: drk gy to gy blk		0038-1L
			30	Sh/Clst: m gy to gn gy		0038-2L
			30	S/Sst : w, cem		0038-3L
3410.00						0039
	0.49		90	Sh/Clst: m gy to gn gy		0039-2L
			10	Sh/Clst: drk gy to gy blk		0039-1L
				tr Ca : dsk y brn, dol		0039-3L
3420.00						0040
	0.95		70	Sh/Clst: m gy to gn gy		0040-2L
			30	Sh/Clst: drk gy to gy blk		0040-1L
				tr S/Sst : w, f, cem		0040-3L
3830.00						0041
	0.11		100	Sh/Clst: gy blk		0041-1L
				tr Sh/Clst: gn gy		0041-2L
3837.00	swc					0001
			100	S/Sst : lt gy, calc		0001-1L
3840.00						0042
			70	Sh/Clst: gy blk		0042-1L
			20	Sh/Clst: gn gy		0042-2L
			10	Ca : lt gy, cly		0042-3L

Table 2 : Lithology description for well NOCS 6506/12-9S

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int Cvd	TOC%	%	Lithology description			
4080.00						0043
	0.24	90	Sh/Clst: gy blk			0043-1L
		10	Sh/Clst: red brn			0043-2L
4090.00						0044
	0.46	90	Sh/Clst: gy blk			0044-1L
		10	Sh/Clst: red brn			0044-2L
		tr	Sh/Clst: gn gy			0044-3L
4110.00						0045
	0.17	50	Sh/Clst: gy blk			0045-1L
		50	Sh/Clst: red brn			0045-2L
		tr	Sh/Clst: gn gy			0045-3L
4130.00	swc					0002
	1.41	100	Sh/Clst: brn blk			0002-1L
4130.00						0046
		100	Sh/Clst: gy blk			0046-1L
		tr	Sh/Clst: red brn			0046-2L
		tr	Sh/Clst: gn gy			0046-3L
4137.50	swc					0003
	0.45	100	Sh/Clst: brn blk			0003-1L

Table 2 : Lithology description for well NOCS 6506/12-9S

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample	
Int Cvd	TOC%	%	Lithology description				
4150.00						0047	
	0.68	70	Sh/Clst:	gy blk		0047-1L	
		30	Sh/Clst:	red brn		0047-2L	
		tr	Sh/Clst:	gn gy		0047-3L	
4160.00						0048	
	0.30	40	Sh/Clst:	red brn		0048-2L	
		30	Sh/Clst:	gy blk		0048-1L	
		30	Sh/Clst:	gn gy to m gy		0048-3L	
4170.00						0049	
		80	Sh/Clst:	brn blk		0049-4L	
		10	Sh/Clst:	gy blk		0049-1L	
		5	Sh/Clst:	gn gy to m gy		0049-3L	
		5	Ca	: w, chk		0049-5L	
		tr	Sh/Clst:	red brn		0049-2L	
4171.00	swc					0004	
	3.00	100	Sh/Clst:	brn blk		0004-1L	
4180.00						0050	
	5.90	90	Sh/Clst:	brn blk		0050-4L	
		5	Sh/Clst:	gn gy to m gy		0050-3L	
		5	Ca	: w, chk		0050-5L	
		tr	Sh/Clst:	gy blk		0050-1L	
		tr	Sh/Clst:	red brn		0050-2L	

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Table 2 : Lithology description for well NOCS 6506/12-9S

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
4190.00						0051
			100	Sh/Clst: brn blk		0051-2L
				tr Sh/Clst: gn gy to m gy		0051-1L
				tr Ca : w, chk		0051-3L
4193.00	swc					0005
		9.10	100	Sh/Clst: dsk y brn		0005-1L
4198.00	swc					0006
		6.23	100	Sh/Clst: dsk y brn		0006-1L
4200.00						0052
			100	Sh/Clst: brn blk		0052-2L
				tr Sh/Clst: gn gy to m gy		0052-1L
				tr Ca : w, chk		0052-3L
4207.50	swc					0007
		2.00	100	Sh/Clst: dsk y brn, calc		0007-1L
4210.00						0053
			100	Sh/Clst: brn blk		0053-2L
				tr Sh/Clst: gn gy to m gy		0053-1L
				tr Ca : w, chk		0053-3L
4260.00						0054
		0.30	100	Sh/Clst: brn blk		0054-2L
				tr Sh/Clst: gn gy to m gy		0054-1L
				tr Ca : w, chk		0054-3L

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Table 2 : Lithology description for well NOCS 6506/12-9S

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
4300.00						0055
		0.30	100	Sh/Clst: brn blk to gy blk tr Sh/Clst: gn gy to m gy tr Ca : w, chk		0055-2L 0055-1L 0055-3L
4350.00						0056
		1.02	100	Sh/Clst: brn blk tr Sh/Clst: gn gy to m gy tr Ca : w, chk		0056-2L 0056-1L 0056-3L
4415.80	ccp					0008
			100	S/Sst : w to lt gy		0008-1L
4425.40	ccp					0009
			100	S/Sst : w to lt gy		0009-1L
4431.70	ccp					0010
			100	S/Sst : lt gy		0010-1L
4468.40	ccp					0011
		1.38	100	Sh/Clst: drk brn gy, slt		0011-1L
4473.79	ccp					0012
			100	S/Sst : lt gy, carb, pyr, cly		0012-1L

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Table 2 : Lithology description for well NOCS 6506/12-9S

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int Cvd	TOC%	%	Lithology description			
4493.70	ccp					0013
		100	S/Sst	: lt gy, carb, pyr, cly		0013-1L
4510.21	ccp					0014
		100	S/Sst	: lt gy, carb, pyr, cly		0014-1L
4609.73	ccp					0015
	0.63	100	Sh/Clst:	dsk y brn, s		0015-1L
4626.73	ccp					0016
		100	S/Sst	: w to lt gy, glauc		0016-1L
4648.46	ccp					0017
		100	S/Sst	: w to lt gy, glauc		0017-1L
4673.46	ccp					0018
		100	S/Sst	: w to lt gy		0018-1L
4683.95	ccp					0019
	1.22	100	Sh/Clst:	brn blk		0019-1L
4705.30	ccp					0020
		100	S/Sst	: lt gy		0020-1L

Table 2 : Lithology description for well NOCS 6506/12-9S

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
4728.08	ccp					0021
	0.41	100	Sh/Clst:	dsk y brn		0021-1L
4742.92	ccp					0022
		100	S/Sst	: lt gy to m gy		0022-1L
4751.45	ccp					0023
		100	S/Sst	: lt gy to m brn gy		0023-1L
4762.47	ccp					0024
		100	S/Sst	: lt gy to lt brn gy		0024-1L
4767.31	ccp					0025
	1.93	100	Sh/Clst:	brn blk		0025-1L
4807.85	ccp					0026
		100	S/Sst	: lt gy to lt brn gy		0026-1L
4816.65	ccp					0027
		100	S/Sst	: lt gy		0027-1L
4821.00	ccp					0028
		100	S/Sst	: lt gy		0028-1L

Table 2 : Lithology description for well NOCS 6506/12-9S

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
4837.65	ccp					0029
			100	S/Sst : m gy to drk brn gy, cly		0029-1L
4844.62	ccp					0030
			100	S/Sst : lt gy to m gy		0030-1L

Table 3a: Rock-Eval table for well NOCS 6506/12-9S

Depth unit of measure: m

Depth	Typ	Lithology	S1	S2	S3	S2/S3	TOC	HI	OI	PP	PI	Tmax	Sample
2260.00	cut	Sh/Clst: m gy	1.14	1.93	1.49	1.30	0.73	264	204	3.1	0.37	348	0031-1L
2290.00	cut	Sh/Clst: m gy	3.27	6.08	2.30	2.64	1.62	375	142	9.4	0.35	348	0032-1L
2600.00	cut	Sh/Clst: m gy	4.20	4.22	2.15	1.96	1.32	320	163	8.4	0.50	337	0033-1L
2610.00	cut	Sh/Clst: m gy	3.46	4.16	2.57	1.62	1.32	315	195	7.6	0.45	343	0034-1L
2620.00	cut	Sh/Clst: m gy	4.31	4.98	2.56	1.95	1.57	317	163	9.3	0.46	340	0035-1L
3361.00	cut	Sh/Clst: m gy to gn gy	1.12	3.07	2.09	1.47	0.72	426	290	4.2	0.27	349	0036-2L
3391.00	cut	Sh/Clst: drk gy to gy blk	2.22	3.76	2.11	1.78	1.23	306	172	6.0	0.37	342	0037-1L
3400.00	cut	S/Sst : w	0.10	0.07	0.45	0.16	-	-	-	0.2	0.59	357	0038-3L
3410.00	cut	Sh/Clst: m gy to gn gy	1.11	2.14	2.01	1.06	0.49	437	410	3.3	0.34	347	0039-2L
3420.00	cut	Sh/Clst: drk gy to gy blk	1.90	3.64	2.36	1.54	0.95	383	248	5.5	0.34	345	0040-1L
3830.00	cut	Sh/Clst: gy blk	0.43	0.11	0.52	0.21	0.11	100	473	0.5	0.80	339	0041-1L
3837.00	swc	S/Sst : lt gy	2.60	0.82	1.52	0.54	-	-	-	3.4	0.76	379	0001-1L
4080.00	cut	Sh/Clst: gy blk	0.67	0.13	0.90	0.14	0.24	54	375	0.8	0.84	372	0043-1L
4090.00	cut	Sh/Clst: gy blk	0.74	0.13	0.72	0.18	0.46	28	157	0.9	0.85	291	0044-1L
4110.00	cut	Sh/Clst: gy blk	0.63	0.10	0.71	0.14	0.17	59	418	0.7	0.86	292	0045-1L

Depth unit of measure: m

Depth	Typ	Lithology	S1	S2	S3	S2/S3	TOC	HI	OI	PP	PI	Tmax	Sample
4130.00	swc	Sh/Clst: brn blk	2.12	2.48	3.58	0.69	1.41	176	254	4.6	0.46	358	0002-1L
4137.50	swc	Sh/Clst: brn blk	1.09	1.35	2.19	0.62	0.45	300	487	2.4	0.45	352	0003-1L
4150.00	cut	Sh/Clst: gy blk	0.59	0.43	1.34	0.32	0.68	63	197	1.0	0.58	343	0047-1L
4160.00	cut	Sh/Clst: red brn	0.41	0.21	0.89	0.24	0.30	70	297	0.6	0.66	444	0048-2L
4171.00	swc	Sh/Clst: brn blk	8.60	16.71	0.73	22.89	3.00	557	24	25.3	0.34	440	0004-1L
4180.00	cut	Sh/Clst: brn blk	9.53	11.09	1.21	9.17	5.90	188	21	20.6	0.46	435	0050-4L
4193.00	swc	Sh/Clst: dsk y brn	7.68	11.64	0.74	15.73	9.10	128	8	19.3	0.40	442	0005-1L
4198.00	swc	Sh/Clst: dsk y brn	4.02	6.23	1.24	5.02	6.23	100	20	10.3	0.39	441	0006-1L
4207.50	swc	Sh/Clst: dsk y brn	1.69	2.23	2.06	1.08	2.00	112	103	3.9	0.43	339	0007-1L
4260.00	cut	Sh/Clst: brn blk	0.70	0.31	0.92	0.34	0.30	103	307	1.0	0.69	386	0054-2L
4300.00	cut	Sh/Clst: brn blk to gy blk	0.61	0.19	0.98	0.19	0.30	63	327	0.8	0.76	345	0055-2L
4350.00	cut	Sh/Clst: brn blk	0.91	0.25	1.00	0.25	1.02	25	98	1.2	0.78	334	0056-2L
4415.80	ccp	S/Sst : w to lt gy	0.45	0.10	0.14	0.71	-	-	-	0.6	0.82	392	0008-1L
4425.40	ccp	S/Sst : w to lt gy	0.61	0.21	0.10	2.10	-	-	-	0.8	0.74	400	0009-1L
4431.70	ccp	S/Sst. : lt gy	0.64	0.25	0.09	2.78	-	-	-	0.9	0.72	407	0010-1L

Table 3a: Rock-Eval table for well NOCS 6506/12-9S

Depth unit of measure: m

Depth	Typ	Lithology	S1	S2	S3	S2/S3	TOC	HI	OI	PP	PI	Tmax	Sample
4468.40	ccp	Sh/Clst: drk brn gy	0.57	3.59	0.09	39.89	1.38	260	7	4.2	0.14	463	0011-1L
4473.79	ccp	S/Sst : lt gy	0.73	0.15	0.17	0.88	-	-	-	0.9	0.83	426	0012-1L
4493.70	ccp	S/Sst : lt gy	0.46	0.22	0.08	2.75	-	-	-	0.7	0.68	396	0013-1L
4510.21	ccp	S/Sst : lt gy	0.64	0.10	0.05	2.00	-	-	-	0.7	0.86	412	0014-1L
4609.73	ccp	Sh/Clst: dsk y brn	0.25	1.16	-	-	0.63	184	-	1.4	0.18	459	0015-1L
4626.73	ccp	S/Sst : w to lt gy	0.08	0.02	0.12	0.17	-	-	-	0.1	0.80	435	0016-1L
4648.46	ccp	S/Sst : w to lt gy	-	0.08	0.37	0.22	-	-	-	0.1	-	400	0017-1L
4673.46	ccp	S/Sst : w to lt gy	0.03	0.06	0.07	0.86	-	-	-	0.1	0.33	339	0018-1L
4683.95	ccp	Sh/Clst: brn blk	0.55	1.87	0.16	11.69	1.22	153	13	2.4	0.23	462	0019-1L
4705.30	ccp	S/Sst : lt gy	0.01	0.04	-	-	-	-	-	0.1	0.20	394	0020-1L
4728.08	ccp	Sh/Clst: dsk y brn	0.14	0.70	-	-	0.41	171	-	0.8	0.17	468	0021-1L
4742.92	ccp	S/Sst : lt gy to m gy	5.56	0.73	0.10	7.30	-	-	-	6.3	0.88	410	0022-1L
4751.45	ccp	S/Sst : lt gy to m brn gy	5.21	0.72	0.16	4.50	-	-	-	5.9	0.88	412	0023-1L
4762.47	ccp	S/Sst : lt gy to lt brn gy	3.00	0.60	0.23	2.61	-	-	-	3.6	0.83	408	0024-1L
4767.31	ccp	Sh/Clst: brn blk	0.70	2.69	0.12	22.42	1.93	139	6	3.4	0.21	464	0025-1L

Table 3a: Rock-Eval table for well NOCS 6506/12-9S

Depth unit of measure: m

Depth	Typ	Lithology	S1	S2	S3	S2/S3	TOC	HI	OI	PP	PI	Tmax	Sample
4807.85	ccp	S/Sst : lt gy to lt brn gy	4.97	1.06	0.17	6.24	-	-	-	6.0	0.82	413	0026-1L
4816.65	ccp	S/Sst : lt gy	5.20	1.34	0.20	6.70	-	-	-	6.5	0.80	402	0027-1L
4821.00	ccp	S/Sst : lt gy	3.95	0.85	0.26	3.27	-	-	-	4.8	0.82	407	0028-1L
4837.65	ccp	S/Sst : m gy to drk brn gy	0.25	1.06	0.04	26.50	-	-	-	1.3	0.19	472	0029-1L
4844.62	ccp	S/Sst : lt gy to m gy	0.98	0.21	0.11	1.91	-	-	-	1.2	0.82	399	0030-1L

Table 3b: Rock-Eval standard table for well NOCS 6506/12-9S

Standard No	S1	S2	S3	PP	PI	Tmax
1	0.53	21.03	1.93	21.56	0.02	418
2	0.50	20.96	1.97	21.46	0.02	421
3	0.45	19.46	1.89	19.91	0.02	421

Standard used = Black Ven Marl

Table 4 : Pyrolysis GC Data (S2 peak) as Percentage of Total Area for Well NOCS 6506/12-9S

Depth unit of measure: m

Depth	Typ	Lithology	C1	C2-C5	C6-C14	C15+	S2 from Rock-Eval	Sample
2290.00	cut	Sh/Clst: m gy	7.07	37.43	42.99	12.51	6.08	0032-1L
2620.00	cut	Sh/Clst: m gy	8.09	49.45	37.66	4.79	4.98	0035-1L
3391.00	cut	Sh/Clst: drk gy to gy blk	8.84	44.83	40.74	5.58	3.76	0037-1L
3420.00	cut	Sh/Clst: drk gy to gy blk	12.78	41.44	42.79	2.99	3.64	0040-1L
4130.00	swc	Sh/Clst: brn blk	12.53	34.48	39.42	13.57	2.48	0002-1L
4171.00	swc	Sh/Clst: brn blk	13.38	15.30	38.24	33.08	16.71	0004-1L
4193.00	swc	Sh/Clst: dsk y brn	15.91	16.99	37.74	29.35	11.64	0005-1L
4198.00	swc	Sh/Clst: dsk y brn	17.86	20.06	42.35	19.74	6.23	0006-1L
4468.40	ccp	Sh/Clst: drk brn gy	23.05	18.70	25.26	32.98	3.59	0011-1L
4767.31	ccp	Sh/Clst: brn blk	24.82	25.00	30.27	19.90	2.69	0025-1L

Table 5 : Visual Kerogen Composition Data for well NOCS 6506/12-9S

Depth unit of measure: m

Depth	Typ	Lithology	L	A	L	S	C	D	I	S	I	M	S	V	C	V	A	Sample				
			%	L	t	l	l	n	e	l	t	L	%	n	s	t	n		o	I	%	n
3391.00	cut	Sh/Clst: drk gy to gy blk	35	**	*		*		40	*				25	*	**		0037-1L				
4171.00	swc	Sh/Clst: brn blk	60	**	?		?	?	10	*	**			30	**	*		0004-1L				
4198.00	swc	Sh/Clst: dsk y brn	40	**	*		?	?	40	**	*			20	**	*	*	0006-1L				

Table 6 : Thermal Maturity Data for well NOCS 6506/12-9S

Depth unit of measure: m

Depth	Typ Lithology	Vitrinite Reflectance (%)	Number of Readings	Standard Deviation	Spore Fluorescence Colour	SCI	T _{max} (°C)	Sample
3391.00	cut Sh/Clst: drk gy to gy blk	-	-	-	-	6.0-6.5	342	0037-1L
4171.00	swc Sh/Clst: brn blk	-	-	-	-	8.5(??)	440	0004-1L
4198.00	swc Sh/Clst: dsk y brn	-	-	-	-	8.0-8.5(?)	441	0006-1L