

**Table 4.4 MDT pressure measurements**

#	Depth (m MD RKB)	Depth (m TVD RKB)	Formation pressure HP-gauge (bar)	Hydrost. pressure before HP-gauge (bar)	Hydrost. pressure after (bar)	Mobility (mD/CP)	Temp. (°C)	Comments
<b>Run 4B</b>								
1	3827,0	3824,2	654,16	710,98	710,80	128,9	124,4	Very good
2	3828,0	3825,2	654,25	710,90	710,54	25,9	124,9	Good
3	3829,5	3826,7	654,39	711,02	710,70	27,5	125,7	Good
4	3832,2	3829,7	654,66	711,54	711,29	25,2	126,2	Good
5	3833,2	3830,4	654,74	711,41	711,40	12,3	126,7	Good
6	3838,0	3835,1	655,20	712,50	712,34	121,7	127,0	Very good
7	3839,0	3836,1	--	712,60	712,32	--	127,1	Tight
9	3855,5	3852,4	--	715,40	715,30	--	128,4	Tight
8	3856,5	3853,4	656,84	716,20	716,00	97,9	128,1	Very good
10	3857,3	3854,2	--	--	--	--	--	Tool plugged
<b>Run 4C</b>								
11	3901,5	3897,9	--	724,32	724,10	--	127,3	Tight
12	3905,0	3901,3	666,70	725,07	725,00	0,5	128,5	Tight or supercharged
13	3906,0	3902,0	--	724,89	--	--	128,5	Tight
14	3909,2	3905,5	675,75	725,60	725,20	2,0	131,1	Good
15	3910,5	3906,8	--	725,70	725,60	--	131,7	Tight
16	3911,0	3907,2	--	725,80	725,60	13,5	132,2	Tight
17	3917,5	3913,7	--	728,30	728,20	38,8	132,5	Tight
18	3918,0	3914,2	--	728,00	727,80	29,4	133,8	Tight
19	3918,5	3914,7	--	727,68	727,30	78,0	134,5	Tight
20	3909,2	3905,5	675,50	725,3	725,00	266,2	139,2	Sampling
21	3838,0	3835,1	655,40	711,89	711,70	7,0	134,9	Pre-test for sampling
22	3838,5	3835,6	655,48	711,99	711,80	29,3	134,4	Sampling
23	3816,0	3813,3	657,00	708,20	708,00	0,7	132,9	Tight, possible supercharged
24	3816,5	3813,8	655,97	708,40	708,20	1,2	134,3	Sampling

Table 5.3

Well:		30/3-9		DRILLING FLUIDS DATA																	
Field:		C-prospect		MUD TYPE	MW [sg]	LGS [KG/m <sup>3</sup> ]	10 sec. [Pa]	10 min. [Pa]	Fann 3 rpm	O / W ratio / Filter cake*	PV [mPa]	API FL [ml]	HTHP FL [m]	MBT [KG/m <sup>3</sup> ]	pH	Kcl [KG/m <sup>3</sup> ]	Glyc. [%]	YP [Pa] / ES***	Ex lime [KG/m <sup>3</sup> ]	Total Volume Old Volume New Volume Usage [m <sup>3</sup> ]	
Rig:		West Alpha																			
HOLE SIZE	TVD MD	CASING SIZE	TVD MD																		
36"	203 203	30"	201 201	SW	1,21							< 10 in displ. volume			9-10						295 0 295 123
**Spec.#1				Comments: The section was drilled using sea water in combination with high viscous pills. Displaced to 1.35 sg Bentonite mud at TD prior to running 30" conductor. 60 m3 of 1.60 sg kill mud was ready in the pits, prior to drilling out of the 30" shoe.																	
26"	1027 1027	20"	1019 1019	SW	1,11							< 10 in displ. volume			9-10						959 172 787 959
**Spec.#1				Comments: The section was drilled using sea water in combination with high viscous pills. Displace the well to 1.20 sg Bentonite mud treated with polymers for fluid loss control, prior to running 20" casing. 60 m3 of 1.60 sg kill mud was ready in the pits, prior to drilling out of the 30" shoe.																	
17 1/2"	2466 2466	14" x 13 3/8"	2452 2452	Glydril KCl/ Polymer/ Glykol	1,20 - 1,62	68 - 137	4 - 7,5	5 - 16	8 - 15	1* - -	13 - 26	2,7 - 3,9		25 - 50	8,1 - 9	145 - 160	3,5 - 4,5	9,5 - 20			1139 100 1039 1139
**Spec.#18				Comments: The well was displaced to 1.20 SG Glydril mud while drilling out the shoetrack. The mudweight was increased to 1.35 SG at 1500 m and then increased to 1.45 SG at 1700 m. The mudweight was increased in steps up to 1.60 to control pore pressure.																	
12 1/4"	3710 3712	9 7/8"	3705 3707	OBM	1,65 - 1,82		4 - 6	6 - 12	8 - 12		26 - 59			1,7 - 2,5					-4,5 >600***	8-10	1074 710 356 636
**Spec.#46				Comments: After the formation test, the Glydril mud system from the previous section was displaced to VersaPro oil based drilling fluid with mud weight of 1.61 sg. The mud weight was increased to 1.75 SG at 2559 m due to high gas readings. The mud weight was increased in steps up to 1.85 SG at 3644 m. Lost circulation and reduced mudweight to 1.82 SG. 294 m3 VersaPro OBM were lost to formation.																	
8 1/2"	4010 4015	Optional		Glydril (KCl/ Polymer/ Glykol)*	1,90 - 1,95		3 - 5,5	6 - 11	6 - 10		22 - 35			13 - 15	12 - 26	8 - 9,2	120 - 130	2,5 - 2,8	8 - 22		356 0 356 112
**Spec. not covered in contract				Comments: The well was displaced to 1.92 SG Glydril WBM after drilling out the shoetrack. A FIT was performed to 2,05. Added 1 kg/m3 Polydrill and 1 kg/m3 of Polythin to improve the HTHP fluid loss and keeping the Rheology in Spec																	

\*\*The spec. code refers to the fluid specifications according to contract SAP 4600002159

OLJEDIREKTORATET

20 MARS 2001

Sak/Dok.nr.: 01 / 902 - 2

**REGISTRERT**  
OLJEDIREKTORATET

30 MAI 2001

BA 01-4419-1

**Geochemical study of migrated  
hydrocarbons in a condensate  
and a SWC from well 30/3-9**

**Table 1. Biomarker ratios for the condensate, SWC and mud samples from well 30/3-9**

WELL	DEPTH m MD RKB	SAMPLE NO.	SAMPLE TYPE	BIOMARKER RATIO										
				20S	BB	22S	TSTM	TTX	30D	30AB-HOP	C27BB	C28BB	C29BB	C30BB
30/3-9	3816.5	U93/0003-0	Condensate	0.56	0.64	0.66	8.05	8.78	2.45	0.89	43.15	25.91	30.94	0.07
30/3-9	3890	U93/0002-0	Mud	0.36	0.61	0.59	0.99	1.48	0.13	0.90	30.72	27.84	41.44	0.08
30/3-9	3910	U93/0004-0	SWC	0.48	0.61	0.65	3.59	6.89	0.86	0.88	40.62	27.98	31.40	0.06

WELL	DEPTH m MD RKB	SAMPLE NO.	SAMPLE TYPE	BIOMARKER RATIO									
				DIAS	C28AB	HOPST	TRICY	TETRACY	35H_34H	29H_30H	DEMET*	OLEAN*	GAMMA
30/3-9	3816.5	U93/0003-0	Condensate	4.95	0.31	1.41	0.92	0.43	0.60	0.48	0.27	0.32	0.06
30/3-9	3890	U93/0002-0	Mud	0.26	0.09	2.69	0.21	0.15	0.96	0.60	0.18	0.07	0.03
30/3-9	3910	U93/0004-0	SWC	3.11	0.14	1.93	0.97	0.43	0.60	0.72	0.15	0.08	0.05

\* almost certainly not real values for these ratios

# GEOCHEMICAL DATA REPORT

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TITLE

## Geochemical Data Report: Further Analyses of Samples from Well NOCS 30/3-9 Condensate, Sidewall Core and Mud Samples

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## Comments

This report concerns additional analyses performed on a sidewall core (3910.0 m) and mud (3890 m) previously analysed and reported by Geolab Nor, also analyses performed on a new sample, of condensate (MDT 3816.5 m), from the same well.

(Ref.: Geochemical Data Report, Analyses of Sidewall Core and Mud from Well NOCS 30/3-9, October 3, 2000).

Regarding the mud sample, this behaved in an erratic manner during the extraction / separation procedures, with formation of unrecoverable viscous material. The extraction weights data is therefore unreliable, this affecting the extraction / separation data, specifically Table 8a. Table 9a, Quantitative GC data, is neither possible to produce for the mud. The reactive nature of the mud, with loss of extracted material which was not further separated, will also affect the C isotope data. Here the EOM value will include the effect of material which is missing from any of the derived fractions.



Table 8a: MPLC Bulk Composition: Weight of Oil and Fraction for 30/3-9 Oil

Well	Description	Whole oil (mg)	Light (mg)	Topped (mg)	Sat (mg)	Aro (mg)	Asph (mg)	NSO (mg)	HC (mg)	Non-HC (mg)	Sample
3816.5m	Condensate	88.4	30.6	57.8	44.2	10.3	0.1	3.1	54.6	3.2	U93/0003

Table 8b: MPLC Bulk Composition: Comparison of topped oil (%) for 30/3-9 Oil

Well	Description	Sat	Aro	Asph	NSO	Total	HC	Non-HC	Recov. MPLC	Recov. Asph	Sample
3816.5m	Condensate	76.52	17.87	0.17	5.44	100.00	94.39	5.61	1.09	0.83	U93/0003

Table 8c: MPLC Bulk Composition: Ratios in topped oil for 30/3-9 Oil

Well	Description	Sat	HC	Asp	Sample
		Aro	Non-HC	NSO	
3816.5m	Condensate	4.28	16.82	0.03	U93/0003



Table 8E: Iatroscan TLC Bulk Composition: Rel. percentages of sep. fractions for 30/3-9 Oil

Well	Description	Sat HC	Aro HC	NSO	Asp	Total	HC	Non-HC	Recov. Iatr.	Recov. Asp	Sample
3816.5m	Condensate	42.01	53.58	4.23	0.17	100.00	95.59	4.41	2.52	0.83	U93/0003

Table 9a: Quantitative Analysis of Saturated Fraction for 30/3-9 Oil

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
3816.50m oil	35.58	33.24	8.27	28.12	14.91	22.54	5.56	19.56	16.28	12.34	10.59	9.00	7.89	7.20	5.28	4.46	3.16	2.56	1.83	1.41	0.85	0.88	0.70

Table 9B: Saturated Hydrocarbon Ratios (peak area) for 30/3-9 Oil

Well	Description	Pristane nC17	Pristane Phytane	Pristane/nC17 Phytane/nC18	Phytane nC18	CPI1	nC17 nC17+nC27	Sample
3816.5m	Condensate	0.53	2.68	2.15	0.25	1.13	0.86	U93/0003

Table 9C: Aromatic Hydrocarbon Ratios (peak area) for 30/3-9 Oil

Well	Description	MNR	DMNR	BPhR	2/1MP	MPI1	MPI2	Rc	DBT/P	4/1MDBT	(3+2) /1MDBT	Sample
3816.5m	Condensate	1.87	7.43	0.40	1.60	1.04	1.29	1.02	-	-	-	U93/0003
Well	Description	F1	F2	Sample								
3816.5m	Condensate	0.55	0.34	U93/0003								

Table 10a: Tabulation of carbon isotope data on oils for 30/3-9 Oil

<u>Well</u>	<u>Descript.</u>	<u>Whole oil</u>	<u>Topped oil</u>	<u>Saturated</u>	<u>Aromatic</u>	<u>NSO</u>	<u>Asphaltenes</u>	<u>Sample</u>
3816.5m	Condensate	-	-27.62	-27.27	-25.78	-28.28	-25.24	U93/0003

Table 10b: Tabulation of cv values from carbon isotope data for 30/3-9 Oil

<u>Well</u>	<u>Descript.</u>	<u>Saturated</u>	<u>Aromatic</u>	<u>cv value</u>	<u>Sample</u>
3816.5m	Condensate	-27.27	-25.78	0.11	U93/0003

Table 11a: Variation in Triterpane Distribution (peak height) SIR for 30/3-9 Oil

Well	Descript.	Ratio1	Ratio2	Ratio3	Ratio4	Ratio5	Ratio6	Ratio7	Ratio8	Ratio9	Rat.10	Rat.11	Rat.12	Rat.13	Rat.14	Sample
3816.5m	Condensate	0.12	0.11	0.21	0.48	0.32	2.45	0.31	0.65	0.24	0.86	0.89	0.40	0.27	65.91	U93/0003

List of Triterpane Distribution Ratios

- Ratio 1: 27Tm / 27Ts
- Ratio 2: 27Tm / 27Tm+27Ts
- Ratio 3: 27Tm / 27Tm+30aβ+30βa
- Ratio 4: 29aβ / 30aβ
- Ratio 5: 29aβ / 29aβ+30aβ
- Ratio 6: 30d / 30aβ
- Ratio 7: 28aβ / 30aβ
- Ratio 8: 28aβ / 29aβ
- Ratio 9: 28aβ / 28aβ+30aβ
- Ratio 10: 24/3 / 30aβ
- Ratio 11: 30aβ / 30aβ+30βa
- Ratio 12: 29aβ+29βa / 29aβ+29βa+30aβ+30βa
- Ratio 13: 29βa+30βa / 29aβ+30aβ
- Ratio 14: 32aβS / 32aβS+32aβR (%)

Table 11b: Variation in Sterane Distribution (peak height) SIR for 30/3-9 Oil

Well	Descript.	Ratio1	Ratio2	Ratio3	Ratio4	Ratio5	Ratio6	Ratio7	Ratio8	Ratio9	Ratio10	Sample
3816.5m	Condensate	0.85	56.45	78.02	1.44	0.76	0.57	0.41	0.64	1.30	4.07	U93/0003

List of Sterane Distribution Ratios

Ratio 1:  $27d\beta S / 27d\beta S + 27aaR$

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

Ratio 3:  $2 * (29\beta\beta R + 29\beta\beta S) / (29aaS + 29aaR + 2 * (29\beta\beta R + 29\beta\beta S))$  (%)

Ratio 4:  $27d\beta S + 27d\beta R + 27daR + 27daS / 29d\beta S + 29d\beta R + 29daR + 29daS$

Ratio 5:  $29\beta\beta R + 29\beta\beta S / 29\beta\beta R + 29\beta\beta S + 29aaS$

Ratio 6:  $21a + 22a / 21a + 22a + 29aaS + 29\beta\beta R + 29\beta\beta S + 29aaR$

Ratio 7:  $21a + 22a / 21a + 22a + 28daS + 28aaS + 29daR + 29aaS + 29\beta\beta R + 29\beta\beta S + 29aaR$

Ratio 8:  $29\beta\beta R + 29\beta\beta S / 29aaS + 29\beta\beta R + 29\beta\beta S + 29aaR$

Ratio 9:  $29aaS / 29aaR$

Ratio 10:  $29\beta\beta R + 29\beta\beta S / 29aaR$

Table 11c: Raw triterpane data (peak height) m/z 191 SIR for 30/3-9 Oil

Well	Descript.	23/3	24/3	25/3	24/4	26/3	27Ts	27Tm	28aß	25nor30aß	Sample
		29aß	29Ts	30d	29ßa	300	30aß	30ßa	30G	31aßS	
		31aßR	32aßS	32aßR	33aßS	33aßR	34aßS	34aßR	35aßS	35aßR	
3816.5m	Condensate	5017.2	4717.6	1799.0	2337.1	2082.9	13465.2	1672.7	1696.4	1451.5	U93/0003
		2604.9	4691.7	13427.0	1529.2	0.0	5474.0	655.4	0.0	1527.3	
		1117.9	1631.0	843.5	1709.5	591.8	1075.7	454.8	517.1	397.5	

Table 11d: Raw sterane data (peak height) m/z 217 SIR for 30/3-9 Oil

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					
3816.5m	Condensate	9613.5	2492.2	23201.1	14072.7	5440.5	5178.6	8447.0	5553.2	3372.9	U93/0003
		16969.5	5076.9	4158.1	10087.0	3842.3	743.8	2342.9	3282.4		
		583.7	1879.1	2914.1	2992.5	1449.7					

\* 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 30/3-9 Oil

Well	Descript.	27 $\beta$ BR	27 $\beta$ BS	28 $\beta$ BR	28 $\beta$ BS	29 $\beta$ BR	29 $\beta$ BS	30 $\beta$ BR	30 $\beta$ BS	Sample
3816.5m	Condensate	7397.1	4128.0	3092.0	3828.3	4317.2	3948.4	982.8	946.5	U93/0003

Table 11f: Raw triterpane data (peak height) m/z 177 SIR for 30/3-9 Oil

Well	Descript.	25nor28a $\beta$	25nor30a $\beta$	Sample
3816.5m	Condensate	1208.4	1317.2	U93/0003

Table 11g: Amount of triterpanes (ppb) m/z 191 SIR for 30/3-9 Oil

Well	Descript.	23/3	24/3	25/3	24/4	26/3	27Ts	27Tm	28a $\beta$	25nor30a $\beta$	Sample
		29a $\beta$	29Ts	30d	29 $\beta$ a	300	30a $\beta$	30 $\beta$ a	30G	31a $\beta$ S	
		31a $\beta$ R	32a $\beta$ S	32a $\beta$ R	33a $\beta$ S	33a $\beta$ R	34a $\beta$ S	34a $\beta$ R	35a $\beta$ S	35a $\beta$ R	
3816.5m	Condensate	6835.9	6427.7	2451.1	3184.2	2837.9	18346.4	2279.0	2311.4	1977.7	U93/0003
		3549.2	6392.5	18294.3	2083.5	0.0	7458.3	892.9	0.0	2080.9	
		1523.1	2222.2	1149.3	2329.2	806.3	1465.6	619.7	704.5	541.5	

Table 11h: Amount of steranes (ppb) m/z 217 SIR for 30/3-9 Oil

Well	Descript.	21a	22a	27d $\beta$ S	27d $\beta$ R	27daR	27daS	28d $\beta$ S	28d $\beta$ R	28daR*	Sample
		29d $\beta$ S*	28daS*	27aaR	29d $\beta$ R	29daR	28aaS	29daS*	28 $\beta$ $\beta$ S		
		28aaR	29aaS	29 $\beta$ $\beta$ R	29 $\beta$ $\beta$ S	29aaR					
3816.5m	Condensate	13098.3	3395.6	31611.4	19174.0	7412.7	7055.9	11509.0	7566.2	4595.6	U93/0003
		23120.9	6917.3	5665.4	13743.5	5235.2	1013.5	3192.2	4472.3		
		795.2	2560.3	3970.4	4077.2	1975.2					

\* 28daR coel with 27aaS, 29d $\beta$ S coel with 27 $\beta$  $\beta$ R, 28daS coel with 27 $\beta$  $\beta$ S, 29daS coel with 28 $\beta$  $\beta$ R

Table 11i: Amount of standard and weight of sample for 30/3-9 Oil

Well	Descript.	Standard	Amount	Weight	Sample
3816.5m	Condensate	52158.6	1.400	19.7	U93/0003



Table 12c: Aromatisation of Steranes (peak height) for 30/3-9 Oil

Well	Descript.	Ratio1	Ratio2	Sample
3816.5m	Condensate	0.78	-	U93/0003

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

$$\text{Ratio2: } g1 / g1 + I1$$

Table 12b: Variation in Monoaromatic Sterane Distribution (peak height) for 30/3-9 Oil

Well	Descript.	Ratio1	Ratio2	Ratio3	Ratio4	Sample
3816.5m	Condensate	0.86	0.76	0.77	0.67	U93/0003

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 12a: Variation in Triaromatic Sterane Distribution (peak height) for 30/3-9 Oil

Well	Descript.	Ratio1	Ratio2	Ratio3	Ratio4	Ratio5	Sample
3816.5m	Condensate	1.00	1.00	0.93	0.97	0.95	U93/0003

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 12d: Raw triaromatic sterane data (peak height) m/z 231 for 30/3-9 Oil

Well	Descript.	a1	b1	c1	d1	e1	f1	g1	Sample
3816.5m	Condensate	4323.9	2393.7	144.3	240.5	129.9	0.0	0.0	U93/0003

Table 12e: Raw monoaromatic sterane data (peak height) m/z 253 for 30/3-9 Oil

Well	Descript.	A1	B1	C1	D1	E1	F1	G1	H1	I1	Sample
3816.5m	Condensate	2434.4	1273.6	366.2	288.4	408.0	207.2	320.8	191.7	63.2	U93/0003

Table 13A: Light Hydrocarbons from Whole Oil GC for 30/3-9 Oil

Well	Description	2,2DMC4	2,3DMC4	nC6	MCyC5	Benz	Sample
3816.5m	Condensate	0.14	0.50	6.31	2.70	2.83	U93/0003

Table 13B: Light Hydrocarbons from Whole Oil GC for 30/3-9 Oil

Well	Description	CyC6	2MC6	3MC6	1,3ci- DMCyC5	1,3tr- DMCyC5	1,2tr- DMCyC5	nC7	MCyC6	Tol	nC8	p/m- Xylene	Sample
3816.5m	Condensate	5.58	2.01	1.57	0.46	0.44	0.82	5.84	9.10	7.34	5.25	5.23	U93/0003

Table 13C: Thompson's indices for 30/3-9 Oil

Well	Description	A	B	X	W	C	I	F	H	U	R	S	Sample
3816.5m	Condensate	0.45	1.26	1.00	5.07	0.83	2.08	0.64	22.19	2.07	2.91	45.07	U93/0003

THOMPSON'S INDICES

$$A = \frac{\text{Benzene}}{nC6}$$

$$B = \frac{\text{Toluene}}{nC7}$$

$$X = \frac{\text{p/m-xylene}}{nC8}$$

$$W = \frac{\text{Benzene} * 10}{\text{CyC6}}$$

$$C = \frac{nC6 + nC7}{\text{CyC6} + \text{MCyC6}}$$

$$I = \frac{2MC6 + 3MC6}{1,3ciDMCyC5 + 1,3trDMCyC5 + 1,2trDMCyC5}$$

$$F = \frac{nC7}{\text{MCyC6}}$$

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

$$U = \frac{\text{CyC6}}{\text{MCyC5}}$$

$$R = \frac{nC7}{2MC6}$$

$$S = \frac{nC6}{2,2DMC4}$$



Table 8a: MPLC Bulk Composition: Weight of Oil and Fraction for NOCS 30/3-9 core

Well	Description	Whole oil (mg)	Light (mg)	Topped (mg)	Sat (mg)	Aro (mg)	Asph (mg)	NSO (mg)	HC (mg)	Non-HC (mg)	Sample
3910m	swc, sst	15.7	0.3	15.4	5.0	2.4	1.1	6.8	7.4	8.0	U93/0004

Table 8b: MPLC Bulk Composition: Comparison of topped oil (%) for NOCS 30/3-9 core

Well	Description	Sat	Aro	Asph	NSO	Total	HC	Non-HC	Recov. MPLC	Recov. Asph	Sample
3910m	swc, sst	32.66	15.67	7.26	44.41	100.00	48.33	51.67	1.11	1.10	U93/0004

Table 8c: MPLC Bulk Composition: Ratios in topped oil for NOCS 30/3-9 core

Well	Description	Sat Aro	HC Non-HC	Asp NSO	Sample
3910m	swc, sst	2.08	0.94	0.16	U93/0004



Table 9a: Quantitative Analysis of Saturated Fraction for 30/3-9 Core

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
3910.00m core	0.73	3.88	1.78	7.15	2.92	8.26	2.31	9.19	7.89	6.57	5.64	4.90	4.34	4.10	3.00	2.72	2.01	1.56	1.17	1.04	0.72	0.65	0.62

Table 9B: Saturated Hydrocarbon Ratios (peak area) for NOCS 30/3-9 core

Well	Description	Pristane nC17	Pristane Phytane	Pristane/nC17 Phytane/nC18	Phytane nC18	CPI1	nC17 nC17+nC27	Sample
3910m	swc, sst	0.41	1.26	1.46	0.28	1.13	0.72	U93/0004

Table 9C: Aromatic Hydrocarbon Ratios (peak area) for NOCS 30/3-9 core

Well	Description	MNR	DMNR	BPhR	2/1MP	MPI1	MPI2	Rc	DBT/P	4/1MDBT (3+2) /1MDBT	Sample
3910m	swc, sst	-	-	-	1.47	0.95	1.15	0.97	-	-	U93/0004
Well	Description	F1	F2	Sample							
3910m	swc, sst	0.53	0.32	U93/0004							

Table 10a: Tabulation of carbon isotope data on oils for NOCS 30/3-9 core

<u>Well</u>	<u>Descript.</u>	<u>Whole oil</u>	<u>Topped oil</u>	<u>Saturated</u>	<u>Aromatic</u>	<u>NSO</u>	<u>Asphaltenes</u>	<u>Sample</u>
3910m	swc, sst	-	-27.97	-27.01	-25.98	-28.48	-26.67	U93/0004

Table 10b: Tabulation of cv values from carbon isotope data for NOCS 30/3-9 core

<u>Well</u>	<u>Descript.</u>	<u>Saturated</u>	<u>Aromatic</u>	<u>cv value</u>	<u>Sample</u>
3910m	swc, sst	-27.01	-25.98	-0.99	U93/0004

Table 11a: Variation in Triterpane Distribution (peak height) SIR for NOCS 30/3-9 core

Well	Descript.	Ratio1	Ratio2	Ratio3	Ratio4	Ratio5	Ratio6	Ratio7	Ratio8	Ratio9	Rat.10	Rat.11	Rat.12	Rat.13	Rat.14	Sample
3910m	swc, sst	0.28	0.22	0.23	0.72	0.42	0.86	0.14	0.20	0.12	0.74	0.88	0.42	0.16	64.96	U93/0004

List of Triterpane Distribution Ratios

Ratio 1:  $27Tm / 27Ts$

Ratio 2:  $27Tm / 27Tm+27Ts$

Ratio 3:  $27Tm / 27Tm+30a\beta+30\beta a$

Ratio 4:  $29a\beta / 30a\beta$

Ratio 5:  $29a\beta / 29a\beta+30a\beta$

Ratio 6:  $30d / 30a\beta$

Ratio 7:  $28a\beta / 30a\beta$

Ratio 8:  $28a\beta / 29a\beta$

Ratio 9:  $28a\beta / 28a\beta+30a\beta$

Ratio 10:  $24/3 / 30a\beta$

Ratio 11:  $30a\beta / 30a\beta+30\beta a$

Ratio 12:  $29a\beta+29\beta a / 29a\beta+29\beta a+30a\beta+30\beta a$

Ratio 13:  $29\beta a+30\beta a / 29a\beta+30a\beta$

Ratio 14:  $32a\beta S / 32a\beta S+32a\beta R$  (%)

Table 11b: Variation in Sterane Distribution (peak height) SIR for NOCS 30/3-9 core

Well	Descript.	Ratio1	Ratio2	Ratio3	Ratio4	Ratio5	Ratio6	Ratio7	Ratio8	Ratio9	Ratio10	Sample
3910m	swc, sst	0.74	47.90	75.54	1.61	0.76	0.68	0.55	0.61	0.92	2.96	U93/0004

List of Sterane Distribution Ratios

Ratio 1:  $27d\beta S / 27d\beta S + 27aaR$

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

Ratio 3:  $2 * (29\beta\beta R + 29\beta\beta S) / (29aaS + 29aaR + 2 * (29\beta\beta R + 29\beta\beta S))$  (%)

Ratio 4:  $27d\beta S + 27d\beta R + 27daR + 27daS / 29d\beta S + 29d\beta R + 29daR + 29daS$

Ratio 5:  $29\beta\beta R + 29\beta\beta S / 29\beta\beta R + 29\beta\beta S + 29aaS$

Ratio 6:  $21a + 22a / 21a + 22a + 29aaS + 29\beta\beta R + 29\beta\beta S + 29aaR$

Ratio 7:  $21a + 22a / 21a + 22a + 28daS + 28aaS + 29daR + 29aaS + 29\beta\beta R + 29\beta\beta S + 29aaR$

Ratio 8:  $29\beta\beta R + 29\beta\beta S / 29aaS + 29\beta\beta R + 29\beta\beta S + 29aaR$

Ratio 9:  $29aaS / 29aaR$

Ratio 10:  $29\beta\beta R + 29\beta\beta S / 29aaR$

Table 11c: Raw triterpane data (peak height) m/z 191 SIR for NOCS 30/3-9 core

Well	Descript.	23/3	24/3	25/3	24/4	26/3	27Ts	27Tm	28aβ	25nor30aβ	Sample
		29aβ	29Ts	30d	29βa	300	30aβ	30βa	30G	31aβS	
		31aβR	32aβS	32aβR	33aβS	33aβR	34aβS	34aβR	35aβS	35aβR	
3910m	swc, sst	2633.0 1952.9 589.5	2030.4 1053.9 605.4	802.2 2340.1 326.5	1164.0 339.5 463.1	677.0 207.6 260.7	3346.5 2725.8 325.1	933.1 386.2 167.9	382.8 315.8 175.8	400.1 846.3 121.8	U93/0004

Table 11d: Raw sterane data (peak height) m/z 217 SIR for NOCS 30/3-9 core

Well	Descript.	21a	22a	27dβS	27dβR	27daR	27daS	28dβS	28dβR	28daR*	Sample
		29dβS*	28daS*	27aaR	29dβR	29daR	28aaS	29daS*	28ββS		
		28aaR	29aaS	29ββR	29ββS	29aaR					
3910m	swc, sst	4664.1 2861.5 294.4	1272.3 1104.6 522.9	4372.1 1553.9 851.1	2862.5 1555.8 834.3	1028.7 651.6 568.8	994.5 293.1	1604.7 674.1	1026.1 853.5	770.7	U93/0004

\* 28daR coel with 27aaS, 29dβS coel with 27ββR, 28daS coel with 27ββS, 29daS coel with 28ββR

Table 11e: Raw sterane data (peak height) m/z 218 SIR for NOCS 30/3-9 core

Well	Descript.	27 $\beta$ BR	27 $\beta$ BS	28 $\beta$ BR	28 $\beta$ BS	29 $\beta$ BR	29 $\beta$ BS	30 $\beta$ BR	30 $\beta$ BS	Sample
3910m	swc, sst	1771.1	1223.1	974.9	1087.1	1184.3	1129.9	223.7	233.2	U93/0004

Table 11f: Raw triterpane data (peak height) m/z 177 SIR for NOCS 30/3-9 core

Well	Descript.	25nor28a $\beta$	25nor30a $\beta$	Sample
3910m	swc, sst	333.2	262.4	U93/0004

Table 11g: Amount of steranes (ppb) m/z 217 SIR for NOCS 30/3-9 core

Well	Descript.	21a	22a	27dBS	27dBR	27daR	27daS	28dBS	28dBR	28daR*	Sample
		29dBS*	28daS*	27aaR	29dBR	29daR	28aaS	29daS*	28 $\beta$ BS		
		28aaR	29aaS	29 $\beta$ BR	29 $\beta$ BS	29aaR					
3910m	swc, sst	13197.4	3600.1	12371.2	8099.8	2910.9	2814.0	4540.6	2903.5	2180.7	U93/0004
		8097.1	3125.6	4396.8	4402.4	1843.7	829.4	1907.5	2415.0		
		833.1	1479.6	2408.1	2360.8	1609.3					

\* 28daR coel with 27aaS, 29dBS coel with 27 $\beta$ BR, 28daS coel with 27 $\beta$ BS, 29daS coel with 28 $\beta$ BR

Table 11h: Amount of triterpanes (ppb) m/z 191 SIR for NOCS 30/3-9 core

Well	Descript.	23/3	24/3	25/3	24/4	26/3	27Ts	27Tm	28aß	25nor30aß	Sample
		29aß	29Ts	30d	29ßa	300	30aß	30ßa	30G	31aßS	
		31aßR	32aßS	32aßR	33aßS	33aßR	34aßS	34aßR	35aßS	35aßR	
3910m	swc, sst	7450.4	5745.3	2270.0	3293.6	1915.5	9469.3	2640.4	1083.3	1132.0	U93/0004
		5525.9	2982.1	6621.5	960.7	587.4	7713.1	1092.8	893.7	2394.7	
		1668.1	1713.1	923.9	1310.5	737.6	919.9	475.2	497.4	344.8	

Table 11i: Amount of standard and weight of sample for NOCS 30/3-9 core

Well	Descript.	Standard	Amount	Weight	Sample
3910m	swc, sst	98953.6	0.700	2.5	U93/0004





Table 8a.: MPLC Bulk Composition: Weight of Oil and Fraction for 30/3-9 mud

Well	Description	Whole oil (mg)	Light (mg)	Topped (mg)	Sat (mg)	Aro (mg)	Asph (mg)	NSO (mg)	HC (mg)	Non-HC (mg)	Sample
3890m	mud	-	90.0	90.0	1.2	1.2	85.0	2.5	2.5	87.5	U93/0002

Table 8b: MPLC Bulk Composition: Comparison of topped oil (%) for 30/3-9 mud

Well	Description	Sat	Aro	Asph	NSO	Total	HC	Non-HC	Recov. MPLC	Recov. Asph	Sample
3890m	mud	1.39	1.39	94.44	2.78	100.00	2.78	97.22	0.55	0.96	U93/0002

Table 8c: MPLC Bulk Composition: Ratios in topped oil for 30/3-9 mud

Well	Description	Sat	HC	Asp	Sample
		Aro	Non-HC	NSO	
3890m	mud	1.00	0.03	34.00	U93/0002

Table 9B: Saturated Hydrocarbon Ratios (peak area) for 30/3-9 mud

Well	Description	Pristane	Pristane	Pristane/nC17	Phytane	CPI1	nC17	Sample
		nC17	Phytane	Phytane/nC18	nC18		nC17+nC27	
3890m	mud	1.16	1.38	1.82	0.63	-	1.00	U93/0002

Table 9C.: Aromatic Hydrocarbon Ratios (peak area) for 30/3-9 mud

Well	Description	MNR	DMNR	BPhR	2/1MP	MPI1	MPI2	Rc	DBT/P	4/1MDBT	(3+2)	Sample
											/1MDBT	
3890m	mud	-	-	-	-	-	-	-	-	-	-	U93/0002

Table 9C.: Aromatic Hydrocarbon Ratios (peak area) for 30/3-9 mud

Well	Description	F1	F2	Sample
3890m	mud	-	-	U93/0002

Table 10a: Tabulation of carbon isotope data on oils for 30/3-9 mud

<u>Well</u>	<u>Descript.</u>	<u>Whole oil</u>	<u>Topped oil</u>	<u>Saturated</u>	<u>Aromatic</u>	<u>NSO</u>	<u>Asphaltenes</u>	<u>Sample</u>
3890m	mud	-	-27.92	-24.51	-25.57	-26.01	-26.58	U93/0002

Table 10b: Tabulation of cv values from carbon isotope data for 30/3-9 mud

<u>Well</u>	<u>Descript.</u>	<u>Saturated</u>	<u>Aromatic</u>	<u>cv value</u>	<u>Sample</u>
3890m	mud	-24.51	-25.57	-6.41	U93/0002

Well	Descript.	Ratio1	Ratio2	Ratio3	Ratio4	Ratio5	Ratio6	Ratio7	Ratio8	Ratio9	Rat.10	Rat.11	Rat.12	Rat.13	Rat.14	Sample
3890m	mud	1.01	0.50	0.19	0.60	0.37	0.13	0.09	0.15	0.08	0.15	0.90	0.38	0.12	58.96	U93/0002

List of Triterpane Distribution Ratios

Ratio 1: 27Tm / 27Ts

Ratio 2: 27Tm / 27Tm+27Ts

Ratio 3: 27Tm / 27Tm+30aβ+30βa

Ratio 4: 29aβ / 30aβ

Ratio 5: 29aβ / 29aβ+30aβ

Ratio 6: 30d / 30aβ

Ratio 7: 28aβ / 30aβ

Ratio 8: 28aβ / 29aβ

Ratio 9: 28aβ / 28aβ+30aβ

Ratio 10: 24/3 / 30aβ

Ratio 11: 30aβ / 30aβ+30βa

Ratio 12: 29aβ+29βa / 29aβ+29βa+30aβ+30βa

Ratio 13: 29βa+30βa / 29aβ+30aβ

Ratio 14: 32aβS / 32aβS+32aβR (%)

Table 11b: Variation in Sterane Distribution (peak height) SIR for 30/3-9 mud

Well	Descript.	Ratio1	Ratio2	Ratio3	Ratio4	Ratio5	Ratio6	Ratio7	Ratio8	Ratio9	Ratio10	Sample
3890m	mud	0.15	36.32	75.86	1.02	0.81	0.26	0.20	0.61	0.57	2.47	U93/0002

List of Sterane Distribution Ratios

Ratio 1:  $27d\beta S / 27d\beta S + 27aaR$

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

Ratio 3:  $2 * (29\beta\beta R + 29\beta\beta S) / (29aaS + 29aaR + 2 * (29\beta\beta R + 29\beta\beta S))$  (%)

Ratio 4:  $27d\beta S + 27d\beta R + 27daR + 27daS / 29d\beta S + 29d\beta R + 29daR + 29daS$

Ratio 5:  $29\beta\beta R + 29\beta\beta S / 29\beta\beta R + 29\beta\beta S + 29aaS$

Ratio 6:  $21a + 22a / 21a + 22a + 29aaS + 29\beta\beta R + 29\beta\beta S + 29aaR$

Ratio 7:  $21a + 22a / 21a + 22a + 28daS + 28aaS + 29daR + 29aaS + 29\beta\beta R + 29\beta\beta S + 29aaR$

Ratio 8:  $29\beta\beta R + 29\beta\beta S / 29aaS + 29\beta\beta R + 29\beta\beta S + 29aaR$

Ratio 9:  $29aaS / 29aaR$

Ratio 10:  $29\beta\beta R + 29\beta\beta S / 29aaR$

Table 11c: Raw triterpane data (peak height) m/z 191 SIR for 30/3-9 mud

Well	Descript.	23/3	24/3	25/3	24/4	26/3	27Ts	27Tm	28aβ	25nor30aβ	Sample
		29aβ	29Ts	30d	29βa	300	30aβ	30βa	30G	31aβS	
		31aβR	32aβS	32aβR	33aβS	33aβR	34aβS	34aβR	35aβS	35aβR	
3890m	mud	179.2	124.8	59.6	127.1	46.6	222.9	225.4	74.2	150.8	U93/0002
		506.3	179.4	109.8	74.3	59.5	849.3	89.2	95.1	334.1	
		255.0	267.5	186.2	182.9	134.4	192.1	127.6	179.1	128.0	

Table 11d: Raw sterane data (peak height) m/z 217 SIR for 30/3-9 mud

Well	Descript.	21a	22a	27dβS	27dβR	27daR	27daS	28dβS	28dβR	28daR*	Sample
		29dβS*	28daS*	27aaR	29dβR	29daR	28aaS	29daS*	28ββS		
		28aaR	29aaS	29ββR	29ββS	29aaR					
3890m	mud	183.9	70.3	219.3	122.9	82.3	90.1	124.3	64.6	108.0	U93/0002
		205.8	140.5	1205.9	132.6	45.7	72.1	122.1	142.5		
		75.9	99.7	229.3	202.2	174.9					

\* 28daR coel with 27aaS, 29dβS coel with 27ββR, 28daS coel with 27ββS, 29daS coel with 28ββR

Table 11e: Raw sterane data (peak height) m/z 218 SIR for 30/3-9 mud

Well	Descript.	27 $\beta$ $\beta$ R	27 $\beta$ $\beta$ S	28 $\beta$ $\beta$ R	28 $\beta$ $\beta$ S	29 $\beta$ $\beta$ R	29 $\beta$ $\beta$ S	30 $\beta$ $\beta$ R	30 $\beta$ $\beta$ S	Sample
3890m	mud	229.8	239.5	201.5	223.9	326.7	306.4	66.3	54.3	U93/0002

Table 11f: Raw triterpane data (peak height) m/z 177 SIR for 30/3-9 mud

Well	Descript.	25nor28a $\beta$	25nor30a $\beta$	Sample
3890m	mud	63.3	23.5	U93/0002

Table 11g: Amount of triterpanes (ppb) m/z 191 SIR for 30/3-9 mud

Well	Descript.	23/3	24/3	25/3	24/4	26/3	27Ts	27Tm	28a $\beta$	25nor30a $\beta$	Sample
		29a $\beta$	29Ts	30d	29 $\beta$ a	300	30a $\beta$	30 $\beta$ a	30G	31a $\beta$ S	
		31a $\beta$ R	32a $\beta$ S	32a $\beta$ R	33a $\beta$ S	33a $\beta$ R	34a $\beta$ S	34a $\beta$ R	35a $\beta$ S	35a $\beta$ R	
3890m	mud	3050.8	2125.0	1015.4	2164.2	794.1	3795.4	3838.2	1263.9	2568.2	U93/0002
		8619.5	3053.7	1869.7	1265.1	1012.6	14459.2	1518.4	1618.4	5688.2	
		4341.4	4554.9	3170.4	3114.2	2287.7	3270.9	2172.7	3049.7	2178.8	

Table 11h: Amount of steranes (ppb) m/z 217 SIR for 30/3-9 mud

Well	Descript.	21a	22a	27d $\beta$ S	27d $\beta$ R	27daR	27daS	28d $\beta$ S	28d $\beta$ R	28daR*	Sample
		29d $\beta$ S*	28daS*	27aaR	29d $\beta$ R	29daR	28aaS	29daS*	28 $\beta$ $\beta$ S		
		28aaR	29aaS	29 $\beta$ $\beta$ R	29 $\beta$ $\beta$ S	29aaR					
3890m	mud	3131.2	1197.6	3734.3	2092.7	1401.1	1533.4	2116.1	1099.3	1839.0	U93/0002
		3503.0	2392.5	20530.8	2257.1	777.4	1226.7	2078.4	2425.4		
		1293.0	1698.1	3903.9	3442.5	2977.6					

\* 28daR coel with 27aaS, 29d $\beta$ S coel with 27 $\beta$  $\beta$ R, 28daS coel with 27 $\beta$  $\beta$ S, 29daS coel with 28 $\beta$  $\beta$ R

Table 11i: Amount of standard and weight of sample for 30/3-9 mud

Well	Descript.	Standard	Amount	Weight	Sample
3890m	mud	411152.3	0.700	0.1	U93/0002