

FMT results

A sample was collected at 1832 m MD and it contained mainly mud filtrate with some formation water and gas. The amount of gas was too small to perform analysis.

No.	Depth, m MD RKB	Depth, m TVD RKB	Hydrost. pressure before kPa	Hydrost. pressure after kPa	Formation pressure kPa	Mobility mD/cp	Temp °C	S e a l	Remarks
1	1774.5	1774.3	24818,00	24819,00	20008,00	1.7	54.7	Y	
2	1791.3	1791.1	25052,00	25048,00	-		58.9	Y	
3	1803	1802.8	25211,00	25212,00	20367,00	1	59.9	Y	
4	1806.3	1806.1	25257,00	25260,00	20268,00	1.3	60.8	Y	
5	1810.2	1809.9	25314,00	25314,00	20379,00	0.9	61.6	Y	
6	1832	1831.7	25616,00	25610,00	20480,00	1.7	61.8	Y	Sample
7	1836.1	1835.8	25678,00	25672,00	20591,00	1.43	63.2	Y	
8	1839.3	1839	25714,00	25717,00	20687,00	1.23	63.4	Y	
9	1840.4	1840.1	25732,00	25724,00			63.6	Y	Tight
10	1848	1847.7	25835,00	25834,00	20784,00	0.5	63.2	Y	Supercharged
11	1852.3	1852	25890,00	25891,00	20741,00	0.49	63.1	Y	
12	1865	1864.7	26064,00	26070,00	20779,00	2.99	63.6	Y	
13	1902	1901.6	26596,00	26588,00	21238,00	1.51	64.1	Y	
14	1918.2	1917.8	26799,00	26808,00	21351,00	11.31	64.7	Y	
15	1946.5	1946.1	27196,00	27197,00	21744,00	1.25	65.5	Y	
16	2050	2049.4	28611,00	28611,00			66.1	Y	Tight
17	2049.5	2048.9	28603,00	28603,00			66.7	Y	Tight
18	2394.5	2392.9	33348,00	33350,00			72.2	Y	Tight
19	2394.7	2393.1	33363,00	33362,00			73.5	Y	Tight
20	1848.8	1848.5	25841,00	25842,00	20731,00	0.5	65.6	Y	
21	1600	1599.9	22398,00	22389,00			57.2	Y	No Seal
22	1601	1600.9	22406,00	22400,00			55.6	Y	Tight
23	1606	1605.9	22479,00	22468,00			55,00	Y	Tight
24	1604	1603.9	22444,00	22444,00			54.8	Y	Tight

Client : Statoil

Well : 6608/08-1

Client Representatives		Contractor Representatives	
1	H. Kvande	1	K. Walderhaug

Dowell Engineers	
1	O.I. Jorpeland / S. Seglem

Engineering Package	
10 Engineers and/or technicians charged for 131 man days = Nkr554452.00	

Well Footage Summary								
Interval	Interval TD MD	Footage Drilled	Casing Size	Depth Set	Max. Angle	Max. B.H.S.T.	Drilling Days	Total Days
in	m	m	in	m	deg	degC	d	d
36.	419.	62.	30.	418.			5.4	6.5
26.	659.	240.	20.	653.			1.5	4.9
17.5	1627.	968.	13.375	1544.			11.6	11.7
12.25	2586.	959.	9.625	2586.			6.9	13.9
8.5	3013.	427.					6.	24.8

Sea level depth	m	23.	Sea bed depth	m	357.
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Dates & Drilling Fluids Summary						
Interval	Date TD	Fluid Type	Max. Density	Fluid Cost	Cost / Volume	Cost / Footage
in			g/cm3	Nkr	Nkr/m3	Nkr/m
36.	06-Feb-1997	BENTONITE		171923.00	112.32	3745.65
26.	09-Feb-1997	BENTONITE	1.2	510701.50	1383.26	2127.92
17.5	24-Feb-1997	KCL POLYMER	1.4	747634.33	2113.75	772.35
12.25	02-Mar-1997	KCL POLYMER	1.43	348616.70	1456.21	363.52
8.5	16-Mar-1997	KCL POLYMER	1.36	1215412.60	925.18	2846.40

Title: A Geochemical Evaluation of Well, 6608/8-1		
Document no.:	Contract no./project no.:	Filing no.:
LTEK-PE3897		

Classification: Restricted	Distribution: PL 200, Statoil, Neste, Phillips
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Distribution date: October 97	Rev. date:	Rev. no.:	Copy no.:
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Author(s)/Source(s): Linda Stalker GLN IFE	<div style="border: 1px solid black; padding: 5px; text-align: center;"> <p>BA 97-2017-1</p> <p>17 NOV 1997</p> <p>REGISTRERT</p> <p>OLJEDIREKTORATET</p> </div>
Subjects: see Summary on page i	
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1 Introduction

The mud used throughout the drilling of this well was "Quadriil" from Dowell, a KCl mud with glycols. An instant seal pill was added at 1701 mRKB, which was reported to contain an organic component (Tore Svånå, Pers. Comm).

A total of 27 wet cutting samples, 45 canned cuttings, 21 core chips, 5 muds and one FMT gas test from 1832 mRKB (only formation waters present) were analysed. The samples were analysed according to the following analytical program (see also Table 1 in the Appendix):

Analyses	Number of Samples				
	cutt/core	mud	cond.	gas	total
TOC	20				20
RockEval type pyrolysis	22				22
Vitrinite Reflectance	25				25
Thermal extraction and pyrolysis GC	4	4			8
Solvent extraction/asph. precipitation	2	4			6
Iatroscan separation	2	4			6
MPLC separation	2	4			6
GC saturates	2	4			6
GC aromatics	2	4			6
GC-MS saturates/whole extract	2				2
GC-MS aromatics	2				2
$\delta^{13}\text{C}$ of whole oil/fractions	2				2
Headspace gas bulk	37				37
Headspace gas $\delta^{13}\text{C}$	8				8

The analytical work was performed in accordance with the guidelines given in "The Norwegian Industry Guide to Organic Geochemical Analyses (1993)". The analyses were carried out at Geolab Nor with subcontracts to IFE (vitrinite reflectance).

Summary

Well 6608/8-1 was drilled with Quadrill mud (KCl with glycols). While its presence may have slightly affected some of the data, its addition and the addition of an instant seal pill at 1701 m had little effect on the interpretation of the geochemical data.

NOCS 6608/8-1

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Appendix 1: Gas Chromatograms

- I Thermal extraction GC-FID chromatograms
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- I Saturated fraction
- II Aromatic fraction

Appendix 3: IFE report

Table 1. ANALYTICAL PROGRAM, NOCS 6608/8-1

Sample Depth & Type c= Cut s= SWC p= Conv core/ plug m= Mud R= Reservoir S= Source	H S O c c l G a s	L i t h o l o g y	V i t t r i n i t e	R E T O C	T h / P y - G C	B u l k	G C S a t A r o	I s o t o p e	G C - M S S a t	G C - M S A r o	H S i s o
Table	2	3	4	5	6	8	9	10	11	12	15
670 m cut			X								
700 m cut	X										
770 m cut			X								
800 m cut	X										
850 m cut											X
870 m cut			X								
900 m cut	X										
950 m cut											X
970 m cut			X								
1000 m cut	X										
1070 m cut			X								
1100 m cut	X										
1170 m cut			X								
1200 m cut	X										
1270 m cut			X								
1300 m cut	X										
1370 m cut			X								
1400 m cut	X										
1470 m cut			X								
1490 m swc				X							
1500 m cut	X										
1508 m swc				X							
1536 m swc				X							
1550 m cut	X										
1570 m cut			X								
1597 m swc				X							

Sample Depth & Type o= Cutt s= SWC p= Conv core/ plug m= Mud R= Reservoir S= Source	H S O c c l G a s	L i t h o l o g y	V i t t r i n i t e	R E T O C	Th / Py - GC	B u l k	G C S a t A r o	I s o t o p e	G C - M S S a t	G C - M S A r o	H S i s o
Table	2	3	4	5	6	8	9	10	11	12	15
2560 m swc				X							
2570 m cut			X								
2600 m cut	X										
2650 m cut	X										
2700 m cut	X										
2750 m cut	X			X							
2750 m mud					X*	X	X***				
2759 m cut					X						
2766.35 $\leq \varphi$				X		X	X***	X	X	X	
2775 m cut											X
2800 m cut	X										
2850 m cut	X										
2900 m cut	X										
2950 m cut	X										
2950 m mud					X*	X	X***				
3000 m cut	X										
* Thermal extractio only ** Pyrolysis GC only *** GC-FID of SAT fraction only # Rock Eval only, not TOC by LECO											

Table 2a: C1 to C7 hydrocarbons in HEADSPACE gas
(µl gas/kg rock)

Project: NOCS 6608/8-1
Well: NOCS 6608/8-1
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
700.00	18244	8	3	2		3	18258	14	0.1	5.16
800.00	17875	9	4	2	1	2	17891	16	0.1	1.47
900.00	22543	13	8	2	1	3	22566	24	0.1	1.19
1000.00	11491	5	3	1	1	1	11500	9	0.1	1.11
1100.00	11498	1	3	1	1	3	11503	6	0.1	1.16
1200.00	8553	4	2	1		2	8560	7	0.1	1.68
1300.00	6027	4	3	1	1	5	6036	9	0.1	2.13
1400.00	5230	4	3	1		2	5238	9	0.2	2.55
1500.00	6181	13	5	1	1	1	6201	20	0.3	1.28
1550.00	15140	61	4	1	1	3	15207	67	0.4	0.64
1670.00	1118	9	4	2	2	13	1136	18	1.6	0.94
1720.00	555	21	38	38	60	150	712	157	22.1	0.64
1770.00	4409	241	611	500	760	1780	6521	2112	32.4	0.66
1820.00	6747	232	612	547	794	1693	8932	2185	24.5	0.69
1875.00	8461	211	148	35	64	63	8920	459	5.1	0.54
1925.00	9520	257	152	29	48	49	10006	486	4.9	0.59
2000.00	7266	460	569	169	213	218	8677	1411	16.3	0.79
2050.00	5746	199	152	35	43	53	6175	429	7.0	0.81
2100.00	2778	389	425	160	128	113	3879	1101	28.4	1.25
2150.00	2767	236	266	99	82	67	3450	684	19.8	1.21
2200.00	2265	110	138	58	43	66	2614	349	13.4	1.33
2250.00	710	37	58	30	16	22	851	141	16.6	1.88
2300.00	770	46	82	32	29	42	957	188	19.6	1.13
2350.00	609	38	60	22	23	55	753	144	19.1	0.95
2400.00	482	40	57	20	23	45	623	141	22.6	0.87
2450.00	556	42	63	26	29	38	716	160	22.4	0.88
2500.00	452	28	30	13	16	32	539	87	16.2	0.82

Table 2a: C1 to C7 hydrocarbons in HEADSPACE gas
(μ l gas/kg rock)

Project: NOCS 6608/8-1

Well: NOCS 6608/8-1

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
2550.00	444	27	10	1	5	24	488	43	8.9	0.22
2600.00	256	47	153	132	123	179	710	454	64.0	1.07
2650.00	29	4	3	1	3	11	40	11	28.2	0.33
2700.00	264	45	81	20	45	58	456	192	42.1	0.45
2750.00	310	47	113	59	128	367	656	346	52.8	0.46
2800.00	98	17	30	12	17	46	175	76	43.7	0.71
2850.00	24	4	12	9	15	46	65	41	62.8	0.63
2900.00	54	13	28	11	22	49	128	74	58.0	0.50
2950.00	22	2	4	2	4	11	35	13	36.5	0.51
3000.00	58	6	8	2	4	14	78	20	25.7	0.46

Table 2b: C1 to C7 hydrocarbons in CUTTINGS gas
(µl gas/kg rock)



Project: NOCS 6608/8-1

Well: NOCS 6608/8-1

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
700.00	27	1				2	28	1	4.0	0.31
800.00	157	10	5	1	2	13	174	17	9.8	0.32
900.00	117	9	4	1	2	12	132	16	11.9	0.36
1000.00	98	6	3		1	7	107	10	9.1	0.34
1100.00	124	9	4		2	16	140	15	11.1	0.27
1200.00	107	7	3		1	13	119	13	10.6	0.33
1300.00	67	6	3		1	11	78	11	14.0	0.33
1400.00	97	6	3		1	12	107	10	9.7	0.40
1500.00	46	5	2		1	11	55	9	15.7	0.37
1550.00	74	7	7	4	4	10	97	23	23.4	0.99
1670.00	13	1	1	1	1	22	16	3	21.4	0.52
1720.00	42	6	13	23	57	393	140	99	70.3	0.39
1770.00	49	8	42	76	176	1210	352	302	85.9	0.43
1820.00	45	5	3	3	6	91	62	17	27.7	0.42
1875.00	115	6	2	1	2	12	126	11	8.6	0.37
1925.00	44	3	2		1	8	50	7	13.0	0.34
2000.00	682	54	59	32	68	425	895	213	23.8	0.48
2050.00	31	4	2	1	2	8	39	8	21.4	0.38
2100.00	45	7	15	14	20	80	101	56	55.2	0.67
2150.00	43	6	5	2	4	16	59	16	27.8	0.39
2200.00	42	6	4	1	3	13	57	15	26.0	0.43
2250.00	32	5	4	1	2	10	43	12	27.0	0.41
2300.00	416	62	46	17	44	224	584	169	28.9	0.38
2350.00	381	48	41	13	41	222	523	143	27.3	0.31
2400.00	30	4	4	2	5	24	45	15	32.7	0.42
2450.00	182	26	36	10	23	79	277	95	34.5	0.45
2500.00	38	4	3	1	3	15	49	11	22.6	0.34

Table 2b: C1 to C7 hydrocarbons in CUTTINGS gas
(μ l gas/kg rock)



Project: NOCS 6608/8-1

Well: NOCS 6608/8-1

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
2550.00	55	6	3	2	3	28	69	14	20.0	0.57
2600.00	66	4	2	2	5	22	80	13	16.7	0.39
2650.00	64	8	6	2	8	48	88	24	27.6	0.33
2700.00	50	8	11	5	18	88	93	42	45.5	0.28
2750.00	47	5	3	2	7	135	65	18	27.3	0.28
2800.00	1117	112	84	34	59	301	1405	287	20.5	0.58
2850.00	115	12	8	4	7	107	146	31	21.0	0.52
2900.00	43	5	3		2	21	53	10	18.6	0.27
2950.00	45	4	2	1	2	11	54	9	16.9	0.48
3000.00	58	5	2	1	2	18	68	10	14.3	0.31

Table 2c: C1 to C7 hydrocarbons in HEADSPACE and CUTTINGS gas
(µl gas/kg rock)



Project: NOCS 6608/8-1

Well: NOCS 6608/8-1

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
700.00	18271	9	3	2		5	18286	15	0.1	4.03
800.00	18032	20	8	2	3	15	18065	33	0.2	0.78
900.00	22659	22	12	2	3	15	22699	39	0.2	0.71
1000.00	11589	11	6	1	2	9	11608	19	0.2	0.62
1100.00	11622	10	8	1	3	18	11643	21	0.2	0.54
1200.00	8660	11	5	1	2	15	8680	20	0.2	0.66
1300.00	6095	11	6	2	2	15	6115	20	0.3	0.88
1400.00	5326	10	6	2	2	14	5345	19	0.4	0.97
1500.00	6227	18	8	1	2	12	6256	29	0.5	0.72
1550.00	15214	68	12	5	6	12	15304	90	0.6	0.92
1670.00	1130	10	5	3	4	36	1152	21	1.8	0.81
1720.00	596	27	50	61	117	543	852	256	30.0	0.52
1770.00	4458	249	653	576	936	2990	6873	2415	35.1	0.62
1820.00	6791	237	615	549	800	1784	8993	2202	24.5	0.69
1875.00	8576	217	151	36	66	75	9045	469	5.2	0.54
1925.00	9564	260	154	29	50	57	10057	493	4.9	0.58
2000.00	7948	514	628	201	281	643	9572	1624	16.97	0.72
2050.00	5776	203	155	36	45	61	6214	438	7.0	0.80
2100.00	2823	396	440	173	148	193	3980	1157	29.1	1.17
2150.00	2809	242	271	101	86	83	3509	700	19.9	1.17
2200.00	2307	116	143	59	46	80	2671	364	13.6	1.28
2250.00	741	42	62	31	18	32	895	153	17.1	1.69
2300.00	1185	107	128	49	73	266	1542	357	23.1	0.67
2350.00	990	86	101	35	64	277	1276	287	22.4	0.54
2400.00	512	44	62	22	28	69	668	156	23.3	0.79
2450.00	737	67	100	36	52	117	993	256	25.7	0.69
2500.00	490	32	33	14	19	47	589	98	16.7	0.75

Table 2c: C1 to C7 hydrocarbons in HEADSPACE and CUTTINGS gas
(µl gas/kg rock)



Project: NOCS 6608/8-1

Well: NOCS 6608/8-1

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
2550.00	500	33	13	3	8	52	557	57	10.3	0.35
2600.00	322	51	155	134	128	201	790	467	59.2	1.04
2650.00	92	12	9	3	10	59	128	36	27.8	0.33
2700.00	314	53	92	25	63	146	548	234	42.7	0.40
2750.00	357	51	116	61	135	501	721	364	50.5	0.45
2800.00	1216	129	113	46	76	347	1580	364	23.0	0.61
2850.00	139	16	20	13	22	153	210	71	33.9	0.59
2900.00	97	18	31	11	24	69	181	84	46.4	0.48
2950.00	67	7	6	3	6	22	89	22	24.6	0.50
3000.00	116	11	10	2	6	32	146	30	20.4	0.42

Table 3 : Lithology description for well NOCS 6608/8-1

Depth unit of measure: m

Depth	Type	Grp	Frm	Age	Trb	Sample
Int Cvd	TOC%	%	Lithology description			
1774.50	swc					0017
		100	Kaolin : lt y gy, s, mic			0017-1L

Table 4 : Thermal Maturity Data for well NOCS 6608/8-1

Page: 1

Depth unit of measure: m

Depth Typ Lithology	Vitrinite Reflectance (%)	Number of Readings	Standard Deviation (%)	Spore Fluorescence Colour	SCI	Tmax (°C)	Sample
670.00 cut bulk	0.22	3	0.03	-	-	-	0038-0B
770.00 cut bulk	0.26	20	0.03	-	-	-	0039-0B
870.00 cut bulk	0.26	23	0.03	-	-	-	0040-0B
970.00 cut bulk	0.25	2	0.04	-	-	-	0041-0B
1070.00 cut bulk	0.3	7	0.04	-	-	-	0042-0B
1170.00 cut bulk	0.28	6	0.07	-	-	-	0043-0B
1270.00 cut bulk	0.28	10	0.06	-	-	-	0044-0B
1370.00 cut bulk	0.34	3	0.05	-	-	-	0045-0B
1470.00 cut bulk	0.35	17	0.07	-	-	-	0046-0B
1570.00 cut bulk	NDP	-	-	-	-	-	0047-0B
1671.00 cut bulk	0.4	16	0.06	-	-	-	0048-0B
1721.00 cut bulk	0.39	18	0.06	-	-	-	0049-0B
1741.00 cut bulk	0.38	24	0.08	-	-	-	0050-0B
1761.00 cut bulk	0.4	21	0.05	-	-	-	0051-0B
1771.00 cut bulk	0.43	6	0.07	-	-	-	0052-0B

Table 4 : Thermal Maturity Data for well NOCS 6608/8-1

Depth unit of measure: m

Depth	Typ Lithology	Vitrinite Reflectance (%)	Number of Readings	Standard Deviation (%)	Spore Fluorescence Colour	SCI	Tmax (°C)	Sample
1796.00	cut bulk	0.33	7	0.05	-	-	-	0053-0B
1821.00	cut bulk	0.4	14	0.06	-	-	-	0054-0B
1865.00	cut bulk	NDP	-	-	-	-	-	0055-0B
1970.00	cut bulk	0.4	4	0.04	-	-	-	0056-0B
2065.00	cut bulk	0.44	14	0.04	-	-	-	0057-0B
2165.00	cut bulk	NDP	-	-	-	-	-	0058-0B
2270.00	cut bulk	NDP	-	-	-	-	-	0059-0B
2372.00	cut bulk	NDP	-	-	-	-	-	0060-0B
2468.00	cut bulk	0.52	4	0.03	-	-	-	0061-0B
2570.00	cut bulk	0.5	13	0.07	-	-	-	0062-0B

Table 5A: Rock-Eval table for well NOCS 6608/8-1

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Depth unit of measure: m

Depth	Typ	Form	Lithology	S1	S2	S3	S2/S3	TOC	HI	OI	PP	PI	Tmax	Sample
1490.00	swc		bulk	-	0.16	0.07	2.29	0.06	267	117	0.2	-	403	0004-0B
1508.00	swc		bulk	0.07	0.58	2.14	0.27	0.27	215	793	0.6	0.11	375	0003-0B
1536.00	swc		bulk	0.09	0.34	3.57	0.10	0.48	71	744	0.4	0.21	382	0002-0B
1597.00	swc		bulk	0.16	0.83	0.73	1.14	0.63	132	116	1.0	0.16	387	0016-0B
1650.00	swc		bulk	0.30	1.32	0.44	3.00	0.63	210	70	1.6	0.19	407	0015-0B
1725.00	swc		bulk	0.14	1.34	0.52	2.58	0.72	186	72	1.5	0.09	459	0014-0B
1774.50	swc		bulk	11.06	2.80	0.56	5.00	-	-	-	13.9	0.80	358	0017-0B
1784.00	swc		bulk	0.38	1.60	1.19	1.34	0.95	168	125	2.0	0.19	376	0013-0B
1820.00	swc		bulk	0.46	2.78	1.46	1.90	0.41	678	356	3.2	0.14	377	0012-0B
1833.40	ccp		bulk	0.19	0.17	0.20	0.85	-	-	-	0.4	0.53	382	0001-0B
1835.08	ccp		bulk	0.02	0.05	0.34	0.15	0.04	125	850	0.1	0.29	425	0018-0B
1837.46	ccp		bulk	0.09	0.35	0.27	1.30	0.09	389	300	0.4	0.20	360	0019-0B
1838.82	ccp		bulk	0.08	0.32	0.20	1.60	0.07	457	286	0.4	0.20	362	0020-0B
2040.00	swc		bulk	0.26	1.62	0.99	1.64	0.20	810	495	1.9	0.14	372	0011-0B
2216.00	swc		bulk	0.45	1.63	1.19	1.37	0.26	627	458	2.1	0.22	360	0010-0B
2250.00	swc		bulk	0.36	1.52	1.16	1.31	0.26	585	446	1.9	0.19	364	0009-0B

Table 5A: Rock-Eval table for well NOCS 6608/8-1

Depth unit of measure: m

Depth	Typ	Form	Lithology	S1	S2	S3	S2/S3	TOC	HI	OI	PP	PI	Tmax	Sample
2362.00	swc		bulk	0.41	1.59	1.15	1.38	0.27	589	426	2.0	0.20	365	0008-0B
2481.00	swc		bulk	0.34	1.45	1.32	1.10	0.28	518	471	1.8	0.19	368	0007-0B
2533.00	swc		bulk	0.81	1.66	1.64	1.01	0.29	572	566	2.5	0.33	363	0006-0B
2560.00	swc		bulk	0.53	1.98	1.39	1.42	0.64	309	217	2.5	0.21	370	0005-0B
2750.00	cut		bulk	0.11	0.39	0.50	0.78	0.22	177	227	0.5	0.22	381	0021-0B
2766.35	ccp		bulk	0.12	0.12	0.12	1.00	0.43	28	28	0.2	0.50	424	0037-0B

Table 5B: Rock-Eval table for well RE,STD

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	0.42	19.56	1.77	11.05	-	-	-	20.0	0.02	423	0114-0B
2.00	std		bulk	0.51	19.28	1.88	10.26	-	-	-	19.8	0.03	418	0124-0B

Table 6 : Pyrolysis GC Data (S2 peak) as Percentage of Total Area for Well NOCS 6608/8-1

Depth unit of measure: m

Depth	Typ	Lithology	C1	C2-C5	C6-C14	C15+	S2 from Rock-Eval	Sample
1774.50	swc	bulk	3.31	50.43	40.32	5.94	-	0017-0B
1776.00	cut	bulk	1.53	52.65	44.04	1.78	-	0034-0B
1833.40	ccp	bulk	12.22	36.79	42.06	8.93	-	0001-0B
2759.00	cut	bulk	22.80	40.57	34.12	2.51	-	0035-0B

Table 8 a: MPLC Bulk Composition: Weight of EOM and Fraction for well NOCS 6608/8-1

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
1600.00	mud	bulk	-	2539.9	168.1	45.8	2203.8	122.2	213.9	2326.0	-	0022-0B
1700.00	mud	bulk	-	2529.4	2219.4	15.5	279.0	15.5	2234.9	294.5	-	0023-0B
1774.50	swc	Kaolin : lt	8.3	101.4	36.2	23.0	24.6	17.6	59.2	42.2	0.76	0017-1L
2750.00	mud	bulk	-	1321.3	248.5	19.1	1044.1	9.6	267.6	1053.7	0.22	0024-0B
2766.35	cap	bulk	10.1	11.2	7.3	1.3	0.8	1.8	8.6	2.6	0.43	0037-0B
2950.00	mud	bulk	-	1558.3	273.4	11.6	1232.5	40.7	285.1	1273.3	-	0025-0B

Table 8 b: MPLC Bulk Composition: Concentration of EOM and Fraction (wt ppm rock) for well NOCS 6608/8-1

Depth unit of measure: m

Depth	Typ	Lithology	EOM	Sat	Aro	Asph	NSO	HC	Non-HC	Sample
1600.00	mud	bulk	-	-	-	-	-	-	-	0022-0B
1700.00	mud	bulk	-	-	-	-	-	-	-	0023-0B
1774.50	swc	Kaolin : lt	12276	4387	2778	2974	2135	7165	5110	0017-1L
2750.00	mud	bulk	-	-	-	-	-	-	-	0024-0B
2766.35	cep	bulk	1103	718	130	75	179	848	255	0037-0B
2950.00	mud	bulk	-	-	-	-	-	-	-	0025-0B

Table 8 c: MPLC Bulk Composition: Concentration of EOM and Fraction (mg/g TOC(e)) for well NOCS 6608/8-1

Depth unit of measure: m

Depth	Typ	Lithology	EOM	Sat	Aro	Asph	NSO	HC	Non-HC	Sample
1600.00	mud	bulk	-	-	-	-	-	-	-	0022-0B
1700.00	mud	bulk	-	-	-	-	-	-	-	0023-0B
1774.50	swc	Kaolin : lt	1615.27	577.29	365.59	391.39	281.00	942.88	672.39	0017-1L
2750.00	mud	bulk	-	-	-	-	-	-	-	0024-0B
2766.35	cp	bulk	256.62	167.03	30.24	17.64	41.70	197.27	59.34	0037-0B
2950.00	mud	bulk	-	-	-	-	-	-	-	0025-0B

Table 8 d: MPLC Bulk Composition: Material extracted from the rock (%) for well NOCS 6608/8-1

Depth unit of measure: m

Depth	Typ	Lithology	Sat	Aro	Asph	NSO	Total	HC	Non-HC	Recov. MPLC	Recov. Asph	Sample
1600.00	mud	bulk	6.62	1.80	86.77	4.81	100.00	8.42	91.58	1.43	0.90	0022-0B
1700.00	mud	bulk	87.74	0.61	11.03	0.61	100.00	88.36	11.64	0.88	0.54	0023-0B
1774.50	swc	Kaolin : lt	35.74	22.63	24.23	17.40	100.00	58.37	41.63	0.92	1.00	0017-1L
2750.00	mud	bulk	18.81	1.45	79.02	0.72	100.00	20.25	79.75	1.01	0.85	0024-0B
2766.35	cp	bulk	65.09	11.79	6.88	16.25	100.00	76.88	23.13	1.43	0.96	0037-0B
2950.00	mud	bulk	17.55	0.75	79.09	2.61	100.00	18.29	81.71	1.17	0.90	0025-0B

Table 8 e: MPLC Bulk Composition: Ratios for well NOCS 6608/8-1

Depth unit of measure: m

Depth	Typ	Lithology	Sat	HC	Asp	Sample
			Aro	Non-HC	NSO	
1600.00	mud	bulk	3.67	0.09	18.03	0022-0B
1700.00	mud	bulk	143.00	7.59	17.98	0023-0B
1774.50	swc	Kaolin : lt	1.58	1.40	1.39	0017-1L
2750.00	mud	bulk	13.00	0.25	109.22	0024-0B
2766.35	cp	bulk	5.52	3.32	0.42	0037-0B
2950.00	mud	bulk	23.51	0.22	30.27	0025-0B

Table 8f: Iatroscan TLC Bulk Composition: Absolute yields in mg of EOM for well NOCS 6608/8-1

Depth unit of measure: m

Depth	Typ	Lithology	Rock ex	EOM	Sat HC	Aro HC	NSO	Asp	HC	Non-HC	Sample
1600.00	mud	bulk	0.00	2539.90	195.41	14.67	126.01	2203.81	210.08	2329.82	0022-0B
1700.00	mud	bulk	0.00	2529.40	2128.95	0.00	121.45	278.99	2128.95	400.45	0023-0B
1774.50	swc	Kaolin	8.26	101.40	41.12	18.17	17.54	24.57	59.29	42.11	0017-1L
2750.00	mud	bulk	0.00	1321.30	174.80	7.29	95.07	1044.14	182.09	1139.21	0024-0B
2766.35	cp	bulk	10.15	11.20	8.04	0.69	1.70	0.77	8.73	2.47	0037-0B
2950.00	mud	bulk	0.00	1558.30	232.98	14.33	78.46	1232.52	247.31	1310.99	0025-0B

Table 8g: Iatroscan TLC Bulk Composition: Rel. percentages of sep. fractions for well NOCS 6608/8-1

Depth unit of measure: m

Depth	Typ	Lithology	Sat HC	Aro HC	NSO	Asp	Total	HC	Non-HC	Recov. Iatr.	Recov. Asp	Sample
1600.00	mud	bulk	7.69	0.58	4.96	86.77	100.00	8.27	91.73	0.59	0.90	0022-0B
1700.00	mud	bulk	84.17	-	4.80	11.03	100.00	84.17	15.83	0.40	0.54	0023-0B
1774.50	swc	Kaolin	40.55	17.92	17.30	24.23	100.00	58.47	41.53	0.92	1.00	0017-1L
2750.00	mud	bulk	13.23	0.55	7.20	79.02	100.00	13.78	86.22	0.45	0.85	0024-0B
2766.35	asp	bulk	71.82	6.12	15.19	6.86	100.00	77.94	22.06	0.64	0.96	0037-0B
2950.00	mud	bulk	14.95	0.92	5.04	79.09	100.00	15.87	84.13	0.51	0.90	0025-0B

Table 9A: Quantitative Analysis of Saturated Fraction for well NOCS 6608/8-1

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
1600.00m mud	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.39	0.45	0.47	0.78	1.02	1.34	1.55	1.34	0.94	0.98	0.79	0.53	0.45	0.37	0.49	0.50
1700.00m mud	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.10	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1774.50m swc	0.72	1.39	1.01	1.63	1.33	1.41	0.76	1.36	1.46	0.89	0.85	0.43	0.41	0.18	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2750.00m mud	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.30	0.20	0.19	0.21	0.19	0.22	0.14	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2766.35m n/a	2.67	3.92	2.31	4.05	2.71	4.75	2.59	5.67	4.49	3.80	3.43	3.23	2.55	2.79	2.18	1.89	1.53	1.14	0.81	0.55	0.27	0.24	0.20
2950.00m mud	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.52	0.46	0.36	0.33	0.27	0.31	0.30	0.19	0.16	0.21	0.11	0.09	0.00	0.00	0.00	0.00

Table 9B: Saturated Hydrocarbon Ratios (peak area) for well NOCS 6608/8-1

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Depth unit of measure: m

Depth	Typ	Lithology	Pristane	Pristane	Pristane/nC17	Phytane	CPI1	nC17	Sample
			nC17	Phytane	Phytane/nC18	nC18		nC17+nC27	
1600.00	mud	bulk	-	-	-	-	1.02	-	0022-0B
1700.00	mud	bulk	-	-	-	-	-	-	0023-0B
1774.50	swc	Kaolin : lt y gy	0.82	1.75	1.52	0.54	0.33	1.00	0017-1L
2750.00	mud	bulk	-	-	-	-	1.79	-	0024-0B
2766.35	ccp	bulk	0.67	1.05	1.23	0.55	1.12	0.68	0037-0B
2950.00	mud	bulk	-	-	-	-	0.95	-	0025-0B

Table 9Ca: Aromatic Hydrocarbon Ratios (peak area) for well NOCS 6608/8-1

Depth unit of measure: m

Depth	Typ	Lithology	MNR	DMNR	BPhR	2/1MP	MPI1	MPI2	Rc	DBT/P	4/1MDBT	(3+2) /1MDBT	Sample
1774.50	swc	Kaolin : lt y gy	-	-	-	-	-	-	-	-	-	-	0017-1L

Table 9Cb: Aromatic Hydrocarbon Ratios (peak area) for well NOCS 6608/8-1

Depth unit of measure: m

Depth	Typ	Lithology	F1	F2	Sample
1774.50	swc	Kaolin : lt y gy	-	-	0017-1L

Table 10A: Tabulation of carbon isotope data for EOM/EOM - fractions for well NOCS 6608/8-1

Depth unit of measure: m

Depth	Typ	Lithology	EOM	Saturated	Aromatic	NSO	Asphaltenes	Kerogen	Sample
1774.50	swc	Kaolin	-28.02	-28.14	-27.38	-27.95	-28.08	-	0017-1
2766.35	cp	bulk	-27.88	-28.81	-28.00	-28.77	-27.74	-	0037-0

Table 10B: Tabulation of cv values from carbon isotope data for well NOCS 6608/8-1

Depth unit of measure: m

<u>Depth</u>	<u>Typ</u>	<u>Lithology</u>	<u>Saturated</u>	<u>Aromatic</u>	<u>cv value</u>	<u>Sample</u>
1774.50	swc	Kaolin	-28.14	-27.38	-1.24	0017-1
2766.35	ccp	bulk	-28.81	-28.00	-0.92	0037-0

Table 11a: Variation in Triterpane Distribution (peak height) SIR for Well NOCS 6608/8-1

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
1774.50	Kaolin	1.01	0.50	0.31	0.69	0.41	0.23	0.09	0.13	0.08	0.29	0.86	0.42	0.18	58.56	0017-1
2766.35	bulk	0.95	0.49	0.14	0.59	0.37	0.14	0.07	0.11	0.06	0.20	0.90	0.38	0.12	60.28	0037-0

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 Well NOCS 6608/8-1

Depth unit of measure: m

Depth	Lithology	Ratio1	Ratio2	Ratio3	Ratio4	Ratio5	Ratio6	Ratio7	Ratio8	Ratio9	Ratio10	Sample
1774.50	Kaolin	0.78	46.29	72.85	1.35	0.74	0.68	0.56	0.57	0.86	2.50	0017-1
2766.35	bulk	0.25	42.58	75.60	1.15	0.78	0.38	0.28	0.61	0.74	2.70	0037-0

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) for Well NOCS 6608/8-1

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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	300	30aß	30ßa	30G	31aßS	
		31aßR	32aßS	32aßR	33aßS	33aßR	34aßS	34aßR	35aßS	35aßR	
1774.50	Kaolin	38638.4	29506.6	8462.9	54113.3	6926.6	51782.5	52301.3	8881.7	129624.7	0017-1
		69802.1	27629.4	22796.5	14211.9	0.0	101168.3	15797.9	0.0	22424.7	
		13674.7	11997.7	8490.6	6905.2	3867.4	3815.5	1885.9	1750.7	827.4	
2766.35	bulk	2229.9	2015.1	701.2	980.6	738.1	1916.7	1829.6	684.4	0.0	0037-0
		5979.0	2088.8	1462.4	785.7	0.0	10093.6	1096.3	454.9	4097.8	
		2749.9	2545.6	1677.2	1694.2	1081.5	1580.7	1050.0	1123.5	679.8	

Table 11d: Raw sterane data (peak height) m/z 217 SIR for Well NOCS 6608/8-1

Depth unit of measure: m

Depth	Lithology	21a	22a	27d β S	27d β R	27daR	27daS	28d β S	28d β R	28daR*	Sample
		29d β S*	28daS*	27aaR	29d β R	29daR	28aaS	29daS*	28 β β S		
		28aaR	29aaS	29 β β R	29 β β S	29aaR					
1774.50	Kaolin	59484.2	22945.2	41770.8	30614.4	9984.8	10535.9	18335.8	10542.7	10852.1	0017-1
		28561.4	12289.0	11575.5	23047.4	6775.6	3183.6	10447.8	11974.4		
		3928.7	7607.1	12240.9	9807.1	8826.7					
2766.35	bulk	3830.5	1827.8	2940.8	2680.5	907.5	830.1	838.4	928.1	5099.6	0037-0
		2573.2	2788.6	9052.5	1562.6	453.5	812.8	1818.7	2277.9		
		1078.9	1512.1	2884.6	2616.5	2038.8					

* 28daR coel with 27aaS, 29d β S coel with 27 β β R, 28daS coel with 27 β β S, 29daS coel with 28 β β R

Table 11e: Raw sterane data (peak height) m/z 218 SIR for Well NOCS 6608/8-1

Depth unit of measure: m

Depth	Lithology	27 β RR	27 β BS	28 β RR	28 β BS	29 β RR	29 β BS	30 β RR	30 β BS	Sample
1774.50	Kaolin	17681.9	14346.1	11048.7	15511.8	16244.2	15423.0	2805.0	3413.1	0017-1
2766.35	bulk	3368.1	3506.4	2337.7	2822.6	3992.9	3988.3	415.5	438.9	0037-0

Table 11f: Raw triterpane data (peak height) m/z 177 SIR for Well NOCS 6608/8-1

Depth unit of measure: m

<u>Depth</u>	<u>Lithology</u>	<u>25nor28aß</u>	<u>25nor30aß</u>	<u>Sample</u>
1774.50	Kaolin	27154.4	86095.5	0017-1
2766.35	bulk	198.4	0.0	0037-0

Table 11g: Amount of triterpanes (ppb) for Well NOCS 6608/8-1

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	300	30aß	30ßa	30G	31aßS	
		31aßR	32aßS	32aßR	33aßS	33aßR	34aßS	34aßR	35aßS	35aßR	
1774.50	Kaolin	323082.3	246724.4	70764.0	452477.9	57918.4	432988.7	437326.5	74266.0	1083880.1	0017-1
		583662.8	231027.9	190616.8	118835.4	0.0	845936.8	132096.6	0.0	187508.5	
		114343.1	100320.8	70995.4	57738.9	32337.6	31903.8	15769.1	14638.7	6918.4	
2766.35	bulk	4069.2	3677.3	1279.5	1789.5	1347.0	3497.7	3338.8	1248.9	0.0	0037-0
		10910.8	3811.8	2668.7	1433.7	0.0	18419.3	2000.6	830.2	7477.8	
		5018.2	4645.4	3060.6	3091.7	1973.6	2884.6	1916.0	2050.2	1240.6	

Table 11h: Amount of steranes (ppb) m/z 217 SIR for Well NOCS 6608/8-1

Depth unit of measure: m

Depth	Lithology	21a	22a	27d β S	27d β R	27daR	27daS	28d β S	28d β R	28daR*	Sample
		29d β S*	28daS*	27aaR	29d β R	29daR	28aaS	29daS*	28 β β S		
		28aaR	29aaS	29 β β R	29 β β S	29aaR					
1774.50	Kaolin	497387.5	191860.1	349274.3	255987.5	83490.1	88098.0	153318.3	88154.3	90741.9	0017-1
		238821.3	102756.8	96790.9	192714.7	56655.8	26620.1	87361.3	100126.3		
		32850.2	63608.3	102354.1	82004.2	73806.3					
2766.35	bulk	6990.1	3335.5	5366.6	4891.6	1656.1	1514.9	1530.0	1693.6	9306.0	0037-0
		4695.7	5088.8	16519.5	2851.5	827.6	1483.3	3318.8	4156.8		
		1968.8	2759.4	5263.9	4774.7	3720.5					

* 28daR coel with 27aaS, 29d β S coel with 27 β β R, 28daS coel with 27 β β S, 29daS coel with 28 β β R

Table 11i: Amount of standard and weight of sample for Well NOCS 6608/8-1

Depth unit of measure: m

<u>Depth</u>	<u>Lithology</u>	<u>Standard</u>	<u>Amount</u>	<u>Weight</u>	<u>Sample</u>
1774.50	Kaolin	5581.0	0.700	15.0	0017-1
2766.35	bulk	87180.1	0.700	4.4	0037-0

Table 12a: Variation in Triaromatic Sterane Distribution (peak height) for Well NOCS 6608/8-1

Depth unit of measure: m

<u>Depth</u>	<u>Lithology</u>	<u>Ratio1</u>	<u>Ratio2</u>	<u>Ratio3</u>	<u>Ratio4</u>	<u>Ratio5</u>	<u>Sample</u>
1774.50	Kaolin	0.48	0.48	0.20	0.20	0.25	0017-1
2766.35	bulk	0.62	0.57	0.33	0.35	0.44	0037-0

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 11j.

Well	Depth	Sample code	GCMS parameters for saturates fraction																						
			20S	BB	22S	TSTM	TTX	30D	30AB-HOP	C27BB	C28BB	C29BB	C30BB	DIAS	C28AB	HOPST	PPMH	PPMS	TRICY	TETRACY	35H_34H	29H_30H	DEMET	OLEANAN	GAMMA
6608/8-1	1600	0022-0																							
6608/8-1	1700	0023-0																							
6608/8-1	1774.5	0017-1	0.46	0.57	0.59	0.99	1.6	0.23	0.86	35	29	35	0.07	3.23	0.09	4.28	nd.	nd.	0.38	0.53	0.45	0.69	1.28	0	nd.
6608/8-1	1774.5	0017-0																							
6608/8-1	1776	0034-0																							
6608/8-1	1833.4	0001-0																							
6608/8-1	2750	0024-0																							
6608/8-1	2759	0035-0																							
6608/8-1	2766.35	0037-0	0.43	0.61	0.6	1.05	1.86	0.14	0.9	34	26	40	0.04	0.4	0.07	2.05	nd.	nd.	0.22	0.1	0.69	0.59	0	0	0

Derivation of biomarker ratios reported in Table 11

<u>Ratio</u>	<u>Derivation</u>	<u>m/z</u>
Triterpanes		
22S	$32\alpha\beta S / (32\alpha\beta S + 32\alpha\beta R)$	191
TSTM	$27Ts / 27Tm$	191
TTX	$30d / 29\beta\alpha$	191
30D	$30d / 30\alpha\beta$	191
29H_30H	$29\alpha\beta / 30\alpha\beta$	191
30AB-HOP	$30\alpha\beta / (30\alpha\beta + 30\beta\alpha)$	191
C28AB	$28\alpha\beta / 30\alpha\beta$	191
TRICY	$(23/3) / 30\alpha\beta$	191
TETRACY	$(24/4) / 30\alpha\beta$	191
35H_34H	$(35\alpha\beta R + 35\alpha\beta S) / (34\alpha\beta R + 34\alpha\beta S)$	191
DEMET	$25nor30\alpha\beta / 30\alpha\beta$	191
OLEANAN	$30O / 30\alpha\beta$	191
GAMMA	$30G / 30\alpha\beta$	191
PPMH'	ppm $27Ts + 27Tm + 29\alpha\beta + 29\beta\alpha + 30\alpha\beta + 30\beta\alpha + 31\alpha\beta S + 31\alpha\beta R + 32\alpha\beta S + 32\alpha\beta R + 33\alpha\beta S + 33\alpha\beta R + 34\alpha\beta S + 34\alpha\beta R + 35\alpha\beta S + 35\alpha\beta R$	191
Steranes		
20S	$29\alpha\alpha S / (29\alpha\alpha R + 29\alpha\alpha S)$	217
BB	$(29\beta\beta R + 29\beta\beta S) / (29\beta\beta R + 29\beta\beta S + 29\alpha\alpha R + 29\alpha\alpha S)$	217
C27BB	$100 * (27\beta\beta R + 27\beta\beta S) / (27\beta\beta R + 27\beta\beta S + 28\beta\beta R + 28\beta\beta S + 29\beta\beta R + 29\beta\beta S)$	218
C28BB	$100 * (28\beta\beta R + 28\beta\beta S) / (27\beta\beta R + 27\beta\beta S + 28\beta\beta R + 28\beta\beta S + 29\beta\beta R + 29\beta\beta S)$	218
C29BB	$100 * (29\beta\beta R + 29\beta\beta S) / (27\beta\beta R + 27\beta\beta S + 28\beta\beta R + 28\beta\beta S + 29\beta\beta R + 29\beta\beta S)$	218
C30BB	$(30\beta\beta R + 30\beta\beta S) / (27\beta\beta R + 27\beta\beta S + 28\beta\beta R + 28\beta\beta S + 29\beta\beta R + 29\beta\beta S)$	218
DIAST	$(27d\beta R + 27d\beta S) / (27\alpha\alpha R + 27\alpha\alpha S)$	217
PPMS'	ppm $27\beta\beta R + 27\beta\beta S + 28\beta\beta R + 28\beta\beta S + 29\beta\beta R + 29\beta\beta S$	218
HOPST	$Intensities(27Ts + 27Tm + 29\alpha\beta + 29\beta\alpha + 30\alpha\beta + 30\beta\alpha + 31\alpha\beta S + 31\alpha\beta R + 32\alpha\beta S + 32\alpha\beta R + 33\alpha\beta S + 33\alpha\beta R + 34\alpha\beta S + 34\alpha\beta R + 35\alpha\beta S + 35\alpha\beta R) / Intensities(27\beta\beta R + 27\beta\beta S + 28\beta\beta R + 28\beta\beta S + 29\beta\beta R + 29\beta\beta S)$	

* ppm calculated from comparison with m/z 219 intensity for D2-cholestane

Biomarker codes used in derivation of ratios

<u>Compound name</u>	<u>Old code</u>	<u>NEW CODE</u>
Triterpanes		
C ₂₃ H ₄₂ tricyclic terpane	P	23/3
C ₂₄ H ₄₄ tricyclic terpane	Q	24/3
C ₂₅ H ₄₆ tricyclic terpane ¹	R	25/3
C ₂₄ H ₄₂ tetracyclic terpane	S	24/4
C ₂₆ H ₄₈ tricyclic terpane ²	T	26/3
18 α (H)-22,29,30-trisnorneohopane	27A	27Ts
17 α (H)-22,29,30-trisnorhopane	27B	27Tm
17 α (H), 21 β (H)-25,28,30-trisnorhopane		25nor28 $\alpha\beta$
17 α (H), 21 β (H)-28,30-bisnorhopane	28A	28 $\alpha\beta$
17 α (H), 21 β (H)-25-norhopane		25nor30 $\alpha\beta$ ³
17 α (H), 21 β (H)-30-norhopane	C29A	29 $\alpha\beta$
18 α (H)-30-norneohopane		29Ts
15 α -methyl-17 α (H)-27-norhopane (TiX)	X	30D
17 β (H), 21 α (H)-30-norhopane (normoretane)	C29B	29 $\beta\alpha$
18 α (H)-oleanane		30O
17 α (H), 21 β (H)-hopane	C30A	30 $\alpha\beta$
17 β (H), 21 α (H)-hopane (moretane)	C30B	30 $\beta\alpha$
Gammacerane		
17 α (H), 21 β (H), 22(S)-homohopane	C31S	31 $\alpha\beta$ S
17 α (H), 21 β (H), 22(R)-homohopane	C31R	31 $\alpha\beta$ R
17 α (H), 21 β (H), 22(S)-bishomohopane	C32S	32 $\alpha\beta$ S
17 α (H), 21 β (H), 22(R)-bishomohopane	C32R	32 $\alpha\beta$ R
17 α (H), 21 β (H), 22(S)-trishomohopane	C33S	33 $\alpha\beta$ S
17 α (H), 21 β (H), 22(R)-trishomohopane	C33R	33 $\alpha\beta$ R
17 α (H), 21 β (H), 22(S)-tetrakishomohopane	C34S	34 $\alpha\beta$ S
17 α (H), 21 β (H), 22(R)-tetrakishomohopane	C34R	34 $\alpha\beta$ R
17 α (H), 21 β (H), 22(S)-pentakishomohopane	C35S	35 $\alpha\beta$ S
17 α (H), 21 β (H), 22(R)-pentakishomohopane	C35R	35 $\alpha\beta$ R

1 may be broad peak or doublet 2 may be doublet 3 listed in Statoil spreadsheets as "nor30" for convenience

13 β (H), 17 α (H), 20(S)-cholestane (diasterane)	27a	27d β S
13 β (H), 17 α (H), 20(R)-cholestane (diasterane)	27b	27d β R
13 α (H), 17 β (H), 20(R)-cholestane (diasterane)	27c	27d α R
13 α (H), 17 β (H), 20(S)-cholestane (diasterane)	27d	27d α S
5 α (H), 14 α (H), 17 α (H), 20(S)-cholestane	27e	27 $\alpha\alpha$ S
5 α (H), 14 β (H), 17 β (H), 20(R)-cholestane	27f	27 $\beta\beta$ R
5 α (H), 14 β (H), 17 β (H), 20(S)-cholestane	27g	27 $\beta\beta$ S
5 α (H), 14 α (H), 17 α (H), 20(R)-cholestane	27h	27 $\alpha\alpha$ R
24-methyl-13 β (H), 17 α (H), 20(S)-cholestane (diasterane)	28a	28d β S
24-methyl-13 β (H), 17 α (H), 20(R)-cholestane (diasterane)	28b	28d β R
24-methyl-13 α (H), 17 β (H), 20(R)-cholestane (diasterane)	28c	28d α R
24-methyl-13 α (H), 17 β (H), 20(S)-cholestane (diasterane)	28d	28d α S
24-methyl-5 α (H), 14 α (H), 17 α (H), 20(S)-cholestane	28e	28 $\alpha\alpha$ S
24-methyl-5 α (H), 14 β (H), 17 β (H), 20(R)-cholestane	28f	28 $\beta\beta$ R
24-methyl-5 α (H), 14 β (H), 17 β (H), 20(S)-cholestane	28g	28 $\beta\beta$ S
24-methyl-5 α (H), 14 α (H), 17 α (H), 20(R)-cholestane	28h	28 $\alpha\alpha$ R
24-ethyl-13 β (H), 17 α (H), 20(S)-cholestane (diasterane)	29a	29d β S
24-ethyl-13 β (H), 17 α (H), 20(R)-cholestane (diasterane)	29b	29d β R
24-ethyl-13 α (H), 17 β (H), 20(R)-cholestane (diasterane)	29c	29d α R
24-ethyl-13 α (H), 17 β (H), 20(S)-cholestane (diasterane)	29d	29d α S
24-ethyl-5 α (H), 14 α (H), 17 α (H), 20(S)-cholestane	29e	29 $\alpha\alpha$ S
24-ethyl-5 α (H), 14 β (H), 17 β (H), 20(R)-cholestane	29f	29 $\beta\beta$ R
24-ethyl-5 α (H), 14 β (H), 17 β (H), 20(S)-cholestane	29g	29 $\beta\beta$ S
24-ethyl-5 α (H), 14 α (H), 17 α (H), 20(R)-cholestane	29h	29 $\alpha\alpha$ R
24-propyl-5 α (H), 14 α (H), 17 α (H), 20(S)-cholestane	30e	30 $\alpha\alpha$ S
24-propyl-5 α (H), 14 β (H), 17 β (H), 20(R)-cholestane	30f	30 $\beta\beta$ R
24-propyl-5 α (H), 14 β (H), 17 β (H), 20(S)-cholestane	30g	30 $\beta\beta$ S
24-propyl-5 α (H), 14 α (H), 17 α (H), 20(R)-cholestane	30h	30 $\alpha\alpha$ R
4-methyl-14 α (H), 17 α (H)-cholestanes		M28 $\alpha\alpha$
4,24-dimethyl-14 α (H), 17 α (H)-cholestanes		M29 $\alpha\alpha$
4-methyl-24-ethyl-14 α (H), 17 α (H)-cholestanes		M30 $\alpha\alpha$
4,23,24-trimethyl-14 α (H), 17 α (H)-cholestanes (dinosteranes)		M30D

Derivation of aromatic steroid ratios reported in Table 11

$$\text{Arom 1} = g1 / ((g1 + H1b + I1) - (I1 * f1 / g1))$$

$$\text{Arom 2} = (a1 + b1 + c1 + d1 + e1 + f1 + g1) / (a1 + b1 + c1 + d1 + e1 + f1 + g1 + A1 + B1 + C1 + D1 + E1 + F1 + G1 + H1 + I1)$$

$$\text{Crack 1} = a1 / (a1 + g1)$$

$$\text{Crack 2} = (a1 + b1) / (a1 + b1 + c1 + d1 + e1 + f1 + g1)$$

N.B. H1b refers to second eluting (split) peak of doublet corresponding to H1 in standard figure

Codes for aromatic steroids

ABC-RING TRIAROMATIC STEROID HYDROCARBONS (m/z 231)

Peak	Substituents		Abbreviation of Compound
	R ₁	R ₂	
a1	CH ₃	H	C ₂₀ TA
b1	CH ₃	CH ₃	C ₂₁ TA
c1	S(CH ₃)	C ₆ H ₁₃	SC ₂₆ TA
d1	R(CH ₃)	C ₆ H ₁₃	RC ₂₆ TA
	S(CH ₃)	C ₇ H ₁₅	SC ₂₇ TA
e1	S(CH ₃)	C ₈ H ₁₇	SC ₂₈ TA
f1	R(CH ₃)	C ₇ H ₁₅	RC ₂₇ TA
g1	R(CH ₃)	C ₈ H ₁₇	RC ₂₈ TA

C-RING MONOAROMATIC STEROID HYDROCARBONS (m/z 253)

Peak	R ₁	Substituents		R ₄	Abbreviation of Compound
		R ₂	R ₃		
A1					C ₂₁ M
B1					C ₂₂ MA
C1	β(H) β(CH ₃)	CH ₃ H	S(CH ₃) S(CH ₃)	H H	βSC ₂₇ MA βSC ₂₇ DMA
D1	β(CH ₃) β(H) α(H)	H CH ₃ CH ₃	R(CH ₃) R(CH ₃) S(CH ₃)	H H H	βRC ₂₇ DMA βRC ₂₇ MA αSC ₂₇ MA
E1	β(H) α(CH ₃) β(CH ₃)	CH ₃ H H	S(CH ₃) R(CH ₃) S(CH ₃)	CH ₃ H CH ₃	βSC ₂₈ MA αRC ₂₇ DMA βSC ₂₈ DMA
F1	α(CH ₃)	H	S(CH ₃)	CH ₃	αSC ₂₇ DMA
G1	α(H)	CH ₃	R(CH ₃)	H	αRC ₂₇ MA
	α(H)	CH ₃	S(CH ₃)	CH ₃	αSC ₂₈ MA
	β(H)	CH ₃	R(CH ₃)	CH ₃	βRC ₂₈ MA
	β(CH ₃)	H	R(CH ₃)	CH ₃	βRC ₂₈ DMA
	β(H)	CH ₃	S(CH ₃)	C ₂ H ₅	βSC ₂₉ MA
	βCH ₃	H	S(CH ₃)	C ₂ H ₅	βSC ₂₉ DMA
H1	α(H)	CH ₃	S(CH ₃)	C ₂ H ₅	αSC ₂₉ MA
	α(H)	CH ₃	R(CH ₃)	CH ₃	αRC ₂₈ MA
	β(H)	CH ₃	R(CH ₃)	C ₂ H ₅	βRC ₂₉ MA
	βCH ₃	H	R(CH ₃)	C ₂ H ₅	βRC ₂₉ DMA
I1	α(H)	CH ₃	R(CH ₃)	C ₂ H ₅	αRC ₂₉ MA

N.B. Not all possible DMA isomers are marked (rarely present in geological samples)

Table 12b: Variation in Monoaromatic Sterane Distribution (peak height) for Well NOCS 6608/8-1

Depth unit of measure: m

Depth	Lithology	Ratio1	Ratio2	Ratio3	Ratio4	Sample
1774.50	Kaolin	0.35	0.28	0.22	0.20	0017-1
2766.35	bulk	0.83	0.58	0.74	0.63	0037-0

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 NOCS 6608/8-1

Depth unit of measure: m

<u>Depth</u>	<u>Lithology</u>	<u>Ratio1</u>	<u>Ratio2</u>	<u>Sample</u>
1774.50	Kaolin	0.40	0.86	0017-1
2766.35	bulk	0.42	0.81	0037-0

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

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

Table 12d: Raw triaromatic sterane data (peak height) m/z 231 for Well NOCS 6608/8-1

Depth unit of measure: m

Depth	Lithology	a1	b1	c1	d1	e1	f1	g1	Sample
1774.50	Kaolin	28796.9	28201.4	33318.4	85923.4	46244.7	34859.5	31033.4	0017-1
2766.35	bulk	4604.6	3680.5	2113.2	5880.9	3137.3	2765.7	2829.9	0037-0

Table 12e: Raw monoaromatic sterane data (peak height) m/z 253 for Well NOCS 6608/8-1

Depth unit of measure: m

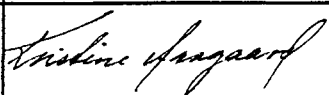
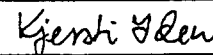
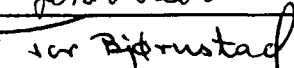
Depth	Lithology	A1	B1	C1	D1	E1	F1	G1	H1	I1	Sample
1774.50	Kaolin	23519.4	16562.1	22744.5	18623.1	43418.3	11278.1	37638.8	17848.1	4869.5	0017-1
2766.35	bulk	16219.8	4521.2	1436.1	1447.8	3252.7	651.7	2566.8	2129.0	653.9	0037-0

Table 15: Isotope GC Analysis of Headspace Gas for well NOCS 6608/8-1

Page: 1

Depth unit of measure: m

Depth	Typ	Lithology	C1	C2	C3	iC4	nC4	CO2	D	Sample
850.00	cut	bulk	-69.0	-	-	-	-	-12.1	-	0026-0B
950.00	cut	bulk	-70.7	-	-	-	-	-18.8	-	0027-0B
1695.00	cut	bulk	-39.1	-30.5	-28.2	-27.9	-26.7	-8.8	-	0036-0B
1795.00	cut	bulk	-45.4	-29.0	-27.5	-27.5	-26.3	-10.7	-	0029-0B
1975.00	cut	bulk	-41.4	-29.4	-28.3	-29.1	-27.9	-9.3	-	0030-0B
2025.00	cut	bulk	-40.8	-28.8	-27.9	-28.3	-27.4	-8.6	-	0031-0B
2325.00	cut	bulk	-43.2	-35.0	-32.9	-26.2	-28.2	-12.7	-	0032-0B
2775.00	cut	bulk	-37.7	-30.5	-29.6	-28.7	-28.8	-15.6	-	0033-0B

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REPORT TYPE	REPORT NO. IFE/KR/F-97/156		DATE 1997-08-27
	REPORT TITLE VITRINTE REFLECTANCE WELL 6608/8-1		DATE OF LAST REV.
			REV. NO.
	CLIENT Geolab Nor AS		NUMBER OF PAGES
	CLIENT REF. Marianne Sandstad		NUMBER OF ISSUES 9
SUMMARY			DISTRIBUTION Geolab Nor (5) Iden, K. Aasgaard, K. File (2)
KEYWORDS			
	NAME	DATE	SIGNATURE
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1 Introduction

This report gives the result of routine vitrinite reflectance analyses on 25 samples covering the interval from 670 to 2570 mRKB in well 6608/8-1 offshore Norway.

2 Material

2.1 Samples

The material was provided from the client as 25 unwashed cuttings samples.

2.2 Geological information and casing points

Information on stratigraphy in well 6608/8-1 was not provided from the client.

3 Analytical techniques

3.1 Preparation

The cuttings samples were washed and then 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 are calculated for this population and other populations. A quality rating is given to the true population. The results are listed in the attached table. Also attached is a vitrinite reflectance versus depth plot.

4 Results

Well 6608/6-1 consists of mostly bright claystone/siltstones which are generally poor in vitrinite content. The vitrinite fragments were to a great extent too small to get a proper reflectance measurement. It has been possible to establish a fairly good vitrinite reflectance towards depth trend.

Vitrinite reflectance data table

Analysis type:	Vitrinite reflectance
Well/Area:	6608/8-1
Number of samples:	25
Time period for analysis:	27.06.97-02.07.97
Analysis performed by:	Kristine Aasgaard, Institutt for energiteknikk
Analysis ordered by:	GEOLAB NOR

Vitrinite reflectance data table, well 6608/8-1

IFE sample code	Depth (m)	Sample type	Lithology	Vitr. refl. (%Rm)	Stand. dev.	Number of readings	Sample description	Sample quality	Sample preparation
970619	670	cut	clst	0.22	0.02	3	-0---0	P	HF
970620	770	cut	clst	0.26	0.03	20	000-0+	M	HF
970621	870	cut	clst	0.26	0.03	23	000--0	M	HF
970622	970	cut	clst	0.25	0.04	2	-00--+	P	HF
970623	1070	cut	clst	0.3	0.04	7	-00--0	P	HF
970624	1170	cut	clst	0.28	0.07	6	-00--0	p	HF
970625	1270	cut	clst	0.28	0.06	10	-±0--0	P	HF
970626	1370	cut	clst	0.34	0.05	3	-00--0	M	HF
970627	1470	cut	clst	0.35	0.07	17	-00--0	M	HF
970628	1570	cut	clst	barren					HF
970629	1671	cut	clst	0.4	0.06	16	0±±--+	P	HF
970630	1721	cut	clst	0.39	0.06	18	000--+	M	HF
970631	1741	cut	clst	0.38	0.08	24	0±0--+	P	HF
970632	1761	cut	clst	0.4	0.05	21	000--+	M	HF
970633	1771	cut	clst	0.43	0.07	6	-00--+	P	HF
970634	1796	cut	clst	0.33	0.05	7	-0---+	P	HF
970635	1821	cut	clst	0.4	0.06	14	-00--+	M	HF
970636	1865	cut	clst/sst	barren					HF
970637	1970	cut	clst	0.4	0.04	4	-00--+	P	HF
970638	2065	cut	clst	0.44	0.04	14	-00--+	M	HF
970639	2165	cut	clst	barren					HF
970640	2270	cut	clst	barren					HF
970641	2372	cut	clst	barren					HF
970642	2468	cut	clst	0.52	0.03	4	-±±--0	P	HF
970643	2570	cut	clst	0.5	0.07	13	000--+	M	HF

Legend to vitrinite reflectance data table			
sst	sandstone		
slst	siltstone		
clst	claystone		
sh	shale		
lst	limestone		
HF	sample treated with hydrofluoric acid prior to analysis		
G	Good quality sample		
M	Moderate quality sample		
P	Poor quality sample		
ooooo	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		