

DAILY MUD PROPERTIES:RHEOLOGY PARAMETERS

Well: 35/8-5 S		PO: 1		WATER BASED SYSTEM															
Hole section : 36"		WATER BASED SYSTEM																	
Date	Depth [m]		Mud Type	Funnel Visc [sec]	Dens [sg]	Mudtmp Out [DegC]	Fann Readings							Rheo Test [DegC]	PV [mPas]	YP [Pa]	Gel0 [Pa]	Gel10 [Pa]	
	MD	TVD					600	300	200	100	60	30	6						3
2003-06-01	412	412	SPUD MUD	0.0	1.25		0	0	0	0	0	0	0	0					
Hole section : 26"		WATER BASED SYSTEM																	
Date	Depth [m]		Mud Type	Funnel Visc [sec]	Dens [sg]	Mudtmp Out [DegC]	Fann Readings							Rheo Test [DegC]	PV [mPas]	YP [Pa]	Gel0 [Pa]	Gel10 [Pa]	
	MD	TVD					600	300	200	100	60	30	6						3
2003-06-04	412	412	SPUD MUD	0.0	1.25		0	0	0	0	0	0	0	0					
2003-06-05	458	458	NACL/POLYMER ML	0.0	1.25		0	0	0	0	0	0	0	0					
2003-06-06	682	682	NACL/POLYMER ML	0.0	1.25		0	0	0	0	0	0	0	0					
2003-06-07	682	682	NACL/POLYMER ML	0.0	1.30		0	0	0	0	0	0	0	0					
2003-06-08	682	682	NACL/POLYMER ML	0.0	1.30		0	0	0	0	0	0	0	0					
2003-06-09	682	682	NACL/POLYMER ML	0.0	1.30		0	0	0	0	0	0	0	0					
2003-06-10	682	682	NACL/POLYMER ML	0.0	1.30		0	0	0	0	0	0	0	0					
2003-06-11	682	682	NACL/POLYMER ML	0.0	1.30		0	0	0	0	0	0	0	0					
2003-06-12	537	537	SPUD MUD	0.0	1.30		0	0	0	0	0	0	0	0					
2003-06-13	629	629	KCL/POLYMER	80.0	1.10	18.0	44	33	28	21	0	0	8	7	50.0	11.0	11.0	8.0	10.0
Hole section : 17"		WATER BASED SYSTEM																	
Date	Depth [m]		Mud Type	Funnel Visc [sec]	Dens [sg]	Mudtmp Out [DegC]	Fann Readings							Rheo Test [DegC]	PV [mPas]	YP [Pa]	Gel0 [Pa]	Gel10 [Pa]	
	MD	TVD					600	300	200	100	60	30	6						3
2003-06-14	946	946	KCL/POLYMER	106.0	1.11	15.0	57	43	35	26	0	0	10	8	50.0	14.0	14.5	8.0	10.0
2003-06-15	1285	1284	KCL/POLYMER	104.0	1.11	18.0	66	49	41	31	0	0	11	9	50.0	17.0	16.0	11.0	12.0
2003-06-16	1326	1325	KCL/POLYMER	0.0	1.13	16.5	59	42	36	26	0	0	10	8	50.0	17.0	12.5	5.0	7.0
2003-06-17	1326	1325	KCL/POLYMER	105.0	1.13	17.0	61	45	37	28	0	0	10	9	50.0	16.0	14.5	5.0	8.0
2003-06-18	1329	1328	KCL/POLYMER	104.0	1.13	18.0	61	46	37	29	0	0	10	9	50.0	15.0	15.5	5.0	9.0
Hole section : 12 1/4"		WATER BASED SYSTEM																	
Date	Depth [m]		Mud Type	Funnel Visc [sec]	Dens [sg]	Mudtmp Out [DegC]	Fann Readings							Rheo Test [DegC]	PV [mPas]	YP [Pa]	Gel0 [Pa]	Gel10 [Pa]	
	MD	TVD					600	300	200	100	60	30	6						3
2003-06-19	1331	1330			1.25	23.0	72	46	35	25	0	0	12	11	50.0	26.0	10.0	8.0	10.0

DAILY MUD PROPERTIES:RHEOLOGY PARAMETERS

Well: 35/8-5 S		PO: 1		OIL BASED SYSTEM																
Hole section : 12 1/4"				OIL BASED SYSTEM																
Date	Depth [m]		Mud Type	Funnel Visc [sec]	Dens [sg]	Mudtmp Out [DegC]	Fann Readings							Rheo Test [DegC]	PV [mPas]	YP [Pa]	Gel0 [Pa]	Gel10 [Pa]		
	MD	TVD					600	300	200	100	60	30	6						3	
2003-06-20	2014	2013	VERSAVERT	81.0	1.20	31.0	68	45	36	27	0	0	14	13	50.0	23.0	11.0	8.0	10.0	
2003-06-21	2773	2758	VERSAVERT	69.0	1.20	35.0	70	47	39	29	0	0	14	13	50.0	23.0	12.0	8.0	10.0	
2003-06-22	2903	2886	VERSAVERT	65.0	1.20	47.0	75	51	42	32	0	0	15	13	50.0	24.0	13.5	8.5	10.5	
2003-06-23	2962	2945	VERSAVERT	64.0	1.25	53.0	75	51	42	31	0	0	15	14	50.0	24.0	13.5	9.0	10.5	
2003-06-24	3154	3135	VERSAVERT	63.0	1.25	46.0	78	52	42	31	0	0	15	13	50.0	26.0	13.0	9.0	10.5	
2003-06-25	3265	3237	VERSAVERT	61.0	1.27	50.0	80	54	44	33	0	0	15	14	50.0	26.0	14.0	9.0	11.0	
2003-06-26	3265	3237	VERSAVERT	61.0	1.27		80	54	44	33	0	0	15	14	50.0	26.0	14.0	9.0	11.0	
2003-06-27	3265	3237	VERSAVERT		1.35		82	55	44	32	0	0	14	13	50.0	27.0	14.0	8.0	10.0	
2003-06-28	3315	3278	VERSAVERT	73.0	1.35		85	56	45	33	0	0	15	14	50.0	29.0	13.5	8.0	10.0	
Hole section : 8 1/2"				OIL BASED SYSTEM																
Date	Depth [m]		Mud Type	Funnel Visc [sec]	Dens [sg]	Mudtmp Out [DegC]	Fann Readings							Rheo Test [DegC]	PV [mPas]	YP [Pa]	Gel0 [Pa]	Gel10 [Pa]		
	MD	TVD					600	300	200	100	60	30	6						3	
2003-06-29	3381	3331	VERSAVERT		1.35		86	58	46	34	0	0	15	14	50.0	28.0	15.0	8.5	10.0	
2003-06-30	3382	3332	VERSAVERT	86.0	1.35		86	57	45	33	0	0	15	13	50.0	29.0	14.0	8.0	10.0	
2003-07-01	3402	3348	VERSAVERT	81.0	1.50	40.0	104	68	54	39	0	0	17	16	50.0	36.0	16.0	9.5	11.0	
2003-07-02	3402	3348	VERSAVERT	90.0	1.50	33.0	103	67	54	39	0	0	17	16	50.0	36.0	15.5	9.0	11.0	
2003-07-03	3443	3381	VERSAVERT	89.0	1.50		107	69	56	41	0	0	19	16	50.0	38.0	15.5	10.0	11.0	
2003-07-04	3684	3576	VERSAVERT	82.0	1.62	42.0	123	79	63	45	0	0	20	18	50.0	44.0	17.5	9.0	12.0	
2003-07-05	3845	3706	VERSAVERT	82.0	1.65		131	83	67	47	0	0	20	18	50.0	48.0	17.5	10.0	13.0	
2003-07-06	3856	3715	VERSAVERT	82.0	1.65	35.0	133	84	66	46	0	0	19	17	50.0	49.0	17.5	9.0	13.0	
2003-07-07	3883	3737	VERSAVERT	94.0	1.66	30.0	133	82	65	44	0	0	18	16	50.0	51.0	15.5	10.0	12.0	
2003-07-08	3939	3782	VERSAVERT	87.0	1.65	44.0	123	77	60	42	0	0	17	15	50.0	46.0	15.5	8.5	10.0	
2003-07-09	4000	3832	VERSAVERT		1.65	32.0	125	78	62	43	0	0	18	16	50.0	47.0	15.5	8.5	10.0	
2003-07-10	4000	3832	VERSAVERT	78.0	1.65	30.0	126	79	62	43	0	0	18	16	50.0	47.0	16.0	8.5	10.0	
2003-07-11	4000	3832	VERSAVERT	76.0	1.65	30.0	126	79	62	43	0	0	18	16	50.0	47.0	16.0	8.5	10.0	
2003-07-12	4000	3832	VERSAVERT	76.0	1.65	30.0	126	79	62	43	0	0	18	16	50.0	47.0	16.0	8.5	10.0	
Hole section : P&A				OIL BASED SYSTEM																
Date	Depth [m]		Mud Type	Funnel Visc [sec]	Dens [sg]	Mudtmp Out [DegC]	Fann Readings							Rheo Test [DegC]	PV [mPas]	YP [Pa]	Gel0 [Pa]	Gel10 [Pa]		
	MD	TVD					600	300	200	100	60	30	6						3	
2003-07-13	4000	3832	VERSAVERT	76.0	1.65	30.0	126	79	62	43	0	0	18	16	50.0	47.0	16.0	8.5	10.0	
2003-07-14	4000	3832	VERSAVERT	76.0	1.65	30.0	126	79	62	43	0	0	18	16	50.0	47.0	16.0	8.5	10.0	
2003-07-15	4000	3832	VERSAVERT		1.27		70	43	34	24	0	0	9	8	50.0	27.0	8.0	4.5	6.5	

DAILY MUD PROPERTIES:RHEOLOGY PARAMETERS

Well: 35/8-5 S		PO: 1																		
Hole section : P&A				OIL BASED SYSTEM																
Date	Depth [m]		Mud Type	Funnel Visc [sec]	Dens [sg]	Mudtmp Out [DegC]	Fann Readings							Rheo Test [DegC]	PV [mPas]	YP [Pa]	Gel0 [Pa]	Gel10 [Pa]		
	MD	TVD					600	300	200	100	60	30	6						3	
2003-07-16	4000	3832	VERSAVERT		1.27		70	43	34	24	0	0	9	8	50.0	27.0	8.0	4.5	6.5	
Hole section : P&A				WATER BASED SYSTEM																
Date	Depth [m]		Mud Type	Funnel Visc [sec]	Dens [sg]	Mudtmp Out [DegC]	Fann Readings							Rheo Test [DegC]	PV [mPas]	YP [Pa]	Gel0 [Pa]	Gel10 [Pa]		
	MD	TVD					600	300	200	100	60	30	6						3	
2003-07-17	4000	3832	SPUD MUD	80.0	1.16		0	0	0	0	0	0	0	0						
2003-07-18	4000	3832	SPUD MUD	80.0	1.16		0	0	0	0	0	0	0	0						
2003-07-19		0	SPUD MUD				0	0	0	0	0	0	0	0						

DAILY MUD PROPERTIES : OTHER PARAMETERS

Well: 35/8-5 S

PO: 1

Hole section : 36"

WATER BASED SYSTEM

Date	Depth [m]		Mud Type	Dens [sg]	Filtrate		Filtcake		HPHT Press/Temp [bar/DegC]	pH	Alcalinity			Inhib Chem [Kg/m3]	K+ [mg/l]	CL- [mg/l]	Ca++ [mg/l]	Mg++ [mg/l]	Tot hard [mg/l]	Percentage Solid Oil Sand			CEC [Kg/m3]	ASG [sg]	LGS [Kg/m3]
	MD	TVD			API [ml]	HPHT [ml]	API [mm]	HPHT [mm]			Pm [ml]	Pf [ml]	Mf [ml]							[%]	[%]	[%]			
2003-06-01	412	412	SPUD MUD	1.25					/																

Hole section : 26"

WATER BASED SYSTEM

Date	Depth [m]		Mud Type	Dens [sg]	Filtrate		Filtcake		HPHT Press/Temp [bar/DegC]	pH	Alcalinity			Inhib Chem [Kg/m3]	K+ [mg/l]	CL- [mg/l]	Ca++ [mg/l]	Mg++ [mg/l]	Tot hard [mg/l]	Percentage Solid Oil Sand			CEC [Kg/m3]	ASG [sg]	LGS [Kg/m3]
	MD	TVD			API [ml]	HPHT [ml]	API [mm]	HPHT [mm]			Pm [ml]	Pf [ml]	Mf [ml]							[%]	[%]	[%]			
2003-06-04	412	412	SPUD MUD	1.25					/																
2003-06-05	458	458	NACL/POLYMER M	1.25					/																
2003-06-06	682	682	NACL/POLYMER M	1.25					/																
2003-06-07	682	682	NACL/POLYMER M	1.30					/																
2003-06-08	682	682	NACL/POLYMER M	1.30					/																
2003-06-09	682	682	NACL/POLYMER M	1.30					/																
2003-06-10	682	682	NACL/POLYMER M	1.30					/																
2003-06-11	682	682	NACL/POLYMER M	1.30					/																
2003-06-12	537	537	SPUD MUD	1.30					/																
2003-06-13	629	629	KCL/POLYMER	1.10	3.0		1		/	9.5	0.5	0.1	1.0	43000	20000	0	0	0	6.0	1.0	0.2	14	3.0	76	

Hole section : 17"

WATER BASED SYSTEM

Date	Depth [m]		Mud Type	Dens [sg]	Filtrate		Filtcake		HPHT Press/Temp [bar/DegC]	pH	Alcalinity			Inhib Chem [Kg/m3]	K+ [mg/l]	CL- [mg/l]	Ca++ [mg/l]	Mg++ [mg/l]	Tot hard [mg/l]	Percentage Solid Oil Sand			CEC [Kg/m3]	ASG [sg]	LGS [Kg/m3]
	MD	TVD			API [ml]	HPHT [ml]	API [mm]	HPHT [mm]			Pm [ml]	Pf [ml]	Mf [ml]							[%]	[%]	[%]			
2003-06-14	946	946	KCL/POLYMER	1.11	4.0		1		/	8.5	0.2	0.0	0.4	21000	24000	0	0	0	5.0	1.0	1.0	14	3.2	56	
2003-06-15	1285	1284	KCL/POLYMER	1.11	3.8		1		/	8.0	0.0	0.0	0.4	25000	32000	0	0	0	5.0	1.0	1.4	14	3.6	29	
2003-06-16	1326	1325	KCL/POLYMER	1.13	3.2		1		/	8.0	0.0	0.0	0.4	32000	37000	0	0	0	6.0	1.0	1.8	14	3.6	33	
2003-06-17	1326	1325	KCL/POLYMER	1.13	3.2		1		/	8.0	0.0	0.0	0.4	32000	37000	0	0	0	6.0	1.0	1.8	14	3.6	33	
2003-06-18	1329	1328	KCL/POLYMER	1.13	3.2		1		/	9.0	0.0	0.0	0.4	32000	32000	0	0	0	6.0	1.0	1.5	14	3.6	36	

Hole section : 12 1/4"

WATER BASED SYSTEM

Date	Depth [m]		Mud Type	Dens [sg]	Filtrate		Filtcake		HPHT Press/Temp [bar/DegC]	pH	Alcalinity			Inhib Chem [Kg/m3]	K+ [mg/l]	CL- [mg/l]	Ca++ [mg/l]	Mg++ [mg/l]	Tot hard [mg/l]	Percentage Solid Oil Sand			CEC [Kg/m3]	ASG [sg]	LGS [Kg/m3]
	MD	TVD			API [ml]	HPHT [ml]	API [mm]	HPHT [mm]			Pm [ml]	Pf [ml]	Mf [ml]							[%]	[%]	[%]			
2003-06-19	1331	1330		1.25	4.8		1		/ 121					21000				14.0	63.0	0.2		3.6	137		

DAILY MUD PROPERTIES : OTHER PARAMETERS

Well: 35/8-5 S		PO: 1		OIL BASED SYSTEM												
Hole section : 12 1/4"				OIL BASED SYSTEM												
Date	Depth [m]		Mud Type	Density [sg]	Filtrate HPHT [ml]	Filtcake HPHT [mm]	HPHT Press/Temp [bar/DegC]	Electrical stability [V]	Alcalinity Pm [ml]	CaCl2 [mg/l]	Oil/Water Ratio	Percentage			ASG [sg]	LGS [Kg/m3]
	MD	TVD										Solid [%]	Oil [%]	Sand [%]		
2003-06-20	2014	2013	VERSAVERT	1.20	3.2	1	/ 121	629		154	76/ 24	11.5	67.0	0.3	3.8	77
2003-06-21	2773	2758	VERSAVERT	1.20	3.8	1	/ 121	787		164	76/ 24	12.5	66.5	0.3	3.5	130
2003-06-22	2903	2886	VERSAVERT	1.20	3.6	1	/ 121	888		157	75/ 25	13.0	65.0	0.2	3.4	160
2003-06-23	2962	2945	VERSAVERT	1.25	3.6	1	/ 121	850		157	75/ 25	13.0	65.0	0.3	3.8	79
2003-06-24	3154	3135	VERSAVERT	1.25	4.0		/ 121	858		171	74/ 26	15.0	64.0	0.2	3.5	153
2003-06-25	3265	3237	VERSAVERT	1.27	4.0	1	/ 121	882		172	76/ 24	15.0	65.0	0.2	3.6	133
2003-06-26	3265	3237	VERSAVERT	1.27	4.0	1	/ 121	882		172	76/ 24	15.0	65.0	0.2	3.6	133
2003-06-27	3265	3237	VERSAVERT	1.35	3.2	1	/ 121	874		179	76/ 24	18.0	62.0	0.3	3.5	184
2003-06-28	3315	3278	VERSAVERT	1.35	3.0	1	/ 121	868		171	75/ 25	17.0	62.0	0.3	3.7	132
Hole section : 8 1/2"				OIL BASED SYSTEM												
Date	Depth [m]		Mud Type	Density [sg]	Filtrate HPHT [ml]	Filtcake HPHT [mm]	HPHT Press/Temp [bar/DegC]	Electrical stability [V]	Alcalinity Pm [ml]	CaCl2 [mg/l]	Oil/Water Ratio	Percentage			ASG [sg]	LGS [Kg/m3]
	MD	TVD										Solid [%]	Oil [%]	Sand [%]		
2003-06-29	3381	3331	VERSAVERT	1.35	3.0	1	/ 121	859		171	75/ 25	17.5	61.5	0.2	3.6	160
2003-06-30	3382	3332	VERSAVERT	1.35	3.2	1	/ 121	867		171	75/ 25	17.5	61.5	0.3	3.6	160
2003-07-01	3402	3348	VERSAVERT	1.50	3.0	1	/ 121	787		172	75/ 25	21.0	59.0	0.3	3.9	105
2003-07-02	3402	3348	VERSAVERT	1.50	3.8	1	35 / 121	840		157	73/ 27	21.0	58.0	0.3	3.9	108
2003-07-03	3443	3381	VERSAVERT	1.50	4.0	1	35 / 121	830		164	74/ 26	20.0	59.0	0.3	4.0	53
2003-07-04	3684	3576	VERSAVERT	1.62	4.0	1	35 / 121	930		173	75/ 25	24.0	57.0	0.4	3.5	266
2003-07-05	3845	3706	VERSAVERT	1.65	3.7	1	/ 121	1010		172	73/ 27	25.0	55.0	0.3	4.0	80
2003-07-06	3856	3715	VERSAVERT	1.65	3.8	1	35 / 121	920		181	75/ 25	25.0	56.0	0.5	4.0	77
2003-07-07	3883	3737	VERSAVERT	1.66	3.8	1	35 / 121	870		178	75/ 25	25.5	56.0	0.3	4.0	87
2003-07-08	3939	3782	VERSAVERT	1.65	4.0	1	35 / 121	908		181	75/ 25	25.0	56.0	0.3	4.0	77
2003-07-09	4000	3832	VERSAVERT	1.65	4.0	1	35 / 121	910		178	76/ 25	25.5	56.0	0.4	3.9	103
2003-07-10	4000	3832	VERSAVERT	1.65	4.0	1	35 / 121	923		190	76/ 24	26.0	56.0	0.4	3.9	128
2003-07-11	4000	3832	VERSAVERT	1.65	4.0	1	35 / 121	923		190	76/ 24	26.0	56.0	0.3	3.9	128
2003-07-12	4000	3832	VERSAVERT	1.65	4.0	1	/ 121	923		190	75/ 25	26.0	56.0	0.3	3.9	128
Hole section : P&A				OIL BASED SYSTEM												
Date	Depth [m]		Mud Type	Density [sg]	Filtrate HPHT [ml]	Filtcake HPHT [mm]	HPHT Press/Temp [bar/DegC]	Electrical stability [V]	Alcalinity Pm [ml]	CaCl2 [mg/l]	Oil/Water Ratio	Percentage			ASG [sg]	LGS [Kg/m3]
	MD	TVD										Solid [%]	Oil [%]	Sand [%]		
2003-07-13	4000	3832	VERSAVERT	1.65	4.0	1	35 / 121	923		190	76/ 24	26.0	56.0	0.3	3.9	128
2003-07-14	4000	3832	VERSAVERT	1.65	4.0	1	35 / 121	923		190	76/ 24	26.0	56.0	0.3	3.9	128

TOTAL CONSUMPTION OF MUD ADDITIVES

Well: 35/8-5 S

PO: 1

Section	Product/ Additive	Unit	Total Amount Used
36"	BARITE	kg	30000.00
	CMC EHV	kg	900.00
Section	Product/ Additive	Unit	Total Amount Used
26"	BARITE	kg	182000.00
	CELPOL ESL	kg	2250.00
	CMC EHV	kg	3625.00
	DUOTEC NS	kg	750.00
	MICA COARSE	kg	325.00
	MICA FINE	kg	775.00
	MICA MEDIUM	kg	775.00
	NUTPLUG F	kg	100.00
	NUTPLUG M	kg	775.00
	POTASSIUM CARBONATE	kg	25.00
	SODA ASH	kg	100.00
	Section	Product/ Additive	Unit
17"	BARITE	kg	30000.00
	CELPOL ESL	kg	11150.00
	CMC EHV	kg	650.00
	DUOTEC NS	kg	4500.00
	GLYDRIL MC	l	6900.00
	KCL BRINE	l	179000.00
	MICA FINE	kg	625.00
	MICA MEDIUM	kg	700.00
	NUTPLUG F	kg	875.00
	NUTPLUG M	kg	575.00
	SODA ASH	kg	75.00
	Section	Product/ Additive	Unit
12 1/4"	BARITE	kg	116000.00
	BENTONE 128	kg	4825.00
	CALCIUM CHLORIDE	kg	12000.00
	EDC 95/11	l	170000.00
	LIME	kg	5600.00
	VERSAVERT F	l	1000.00
	VERSAVERT PE	l	5000.00
	VERSAVERT SE	l	2500.00
Section	Product/ Additive	Unit	Total Amount Used
8 1/2"	BARITE	kg	281000.00
	EDC 95/11	l	17000.00
	KCL BRINE	l	11000.00
	LIME	kg	4800.00
	VERSAVERT F	l	1000.00
	VERSAVERT PE	l	4000.00
	VERSAVERT SE	l	2500.00

TOTAL CONSUMPTION OF MUD ADDITIVES**Well:** 35/8-5 S**PO:** 1

Section	Product/ Additive	Unit	Total Amount Used
P&A	BARITE	kg	77000.00
	BENTONE 128	kg	100.00
	CMC EHV	kg	1475.00
	DUOTEC NS	kg	125.00
	EDC 95/11	l	13000.00
	SAFE SURF E	l	800.00



Title: Petroleum Geochemistry in Well 35/8-5 S

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Type	Start- depth	End- depth	Lith.	RE	E/D	latro	13G	GVo	SathC	SatMS	AroMS	VIT	Org-ID	Formation
DC	1990.0	2000.0	CLYST										1 2192918	
DC	2090.0	2100.0	CLYST/SST										1 2192919	
DC	2190.0	2200.0	CLYST										1 2192920	
DC	2290.0	2300.0	CLYST										1 2192921	
DC	2390.0	2400.0	CLYST										1 2192922	
DC	2490.0	2500.0	CLYST										1 2192923	
DC	2590.0	2600.0	CLYST										1 2192924	
DC	2690.0	2700.0	CLYST										1 2192925	
DC	2790.0	2800.0	CLYST										1 2192926	
DC	2890.0	2900.0	CLYST										1 2192927	
DC	2990.0	3000.0	CLYST										1 2192928	
DC	3090.0	3100.0	CLYST										1 2192929	
DC	3190.0	3200.0	SST/CLYST										1 2192930	
DCG	3270.0	3290.0					1	1					2185592	DRAUPNE
DC	3297.0	3300.0	CLYST										1 2192931	DRAUPNE
DCG	3290.0	3310.0					1	1					2185595	DRAUPNE
DCG	3310.0	3330.0					1	1					2185598	OXFORDIAN TURBIDITE
DCG	3330.0	3350.0					1	1					2185601	OXFORDIAN TURBIDITE
DCG	3350.0	3370.0					1	1					2185604	OXFORDIAN TURBIDITE
MUD	3370.0	3370.0					1	1					2185662	OXFORDIAN TURBIDITE
DC	3378.0	3381.0											2192932	OXFORDIAN TURBIDITE
COCH	3388.6	3388.6	CLYST										1 2190944	OXFORDIAN TURBIDITE
COCH	3394.6	3394.6	SST	1	1	1			1	1	1		2190939	OXFORDIAN TURBIDITE
MUD	3395.0	3395.0		1	1	1			1	1	1		2185664	OXFORDIAN TURBIDITE
COCH	3419.5	3419.5	SST	1	1	1			1	1	1		2190940	OXFORDIAN TURBIDITE
COCH	3435.5	3435.5	CLYST	1	1	1			1	1	1		2190941	HEATHER
COCH	3442.3	3442.3	CLYST										1 2190945	HEATHER
DCG	3425.0	3445.0					1	1					2185607	BREAK
DCG	3450.0	3470.0											2185610	BREAK
MUD	3470.0	3470.0					1	1					2185666	BREAK
DCG	3470.0	3490.0											2185613	BREAK
DC	3498.0	3501.0	CLYST/SST										1 2192933	BREAK
DCG	3510.0	3530.0					1	1					2185619	BREAK
DCG	3550.0	3570.0											2185625	BREAK
DC	3597.0	3600.0	CLYST/SST										1 2192934	BREAK
DCG	3590.0	3610.0					1	1					2185558	BREAK
DCG	3630.0	3650.0											2185564	BREAK
DCG	3670.0	3690.0					1	1					2185570	BREAK
DC	3699.0	3702.0	SST/CLYST										1 2192935	BREAK
DCG	3710.0	3730.0											2185576	BREAK
DCG	3750.0	3770.0					1	1					2185582	BREAK
DC	3798.0	3801.0	CLYST										1 2192936	BREAK
DCG	3790.0	3810.0											2185588	BREAK
DCG	3810.0	3830.0					1	1					2185632	TARBERT
MUD	3845.0	3845.0					1	1					2185516	TARBERT
COCH	3850.5	3850.5	CLYST										1 2190946	TARBERT
COCH	3860.5	3860.5	SST	1	1	1			1	1	1		2190942	TARBERT
MUD	3870.0	3870.0		1	1	1			1	1	1		2185517	NESS
COCH	3876.8	3876.8	SST	1	1	1			1	1	1		2190943	NESS
COCH	3882.7	3882.7	CLYST										1 2190947	NESS
DCG	3870.0	3890.0					1	1					2185635	NESS
MUD	3895.0	3895.0					1	1					2185518	NESS
DC	3897.0	3900.0											2192937	NESS
DCG	3890.0	3910.0					1	1					2185638	NESS
DCG	3930.0	3950.0											2185644	ETIVE
DCG	3970.0	3990.0					1	1					2185650	RANNOCH
DC	3996.0	3999.0	SST/CLYST										1 2192938	RANNOCH
Sum:				7	7	7	18	18	7	7	7	22		

Table 2.1. Sample list and analytical program



Title: Petroleum Geochemistry in Well 35/8-5 S

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3 Experimental

The analytical and preparative methods employed in this study comprise geochemical characterization of canned DC-samples and sediment extracts.. All chromatographic data are based on quantitative measurements.

The analytical methods are based on the guidelines in the Norwegian Industry Guide to Organic Geochemical Analyses (NIGOGA¹). Major deviations from this guide are:

- Extract and asphaltene workup by centrifugation.
- Internal standard mixture added for quality control and quantitative measurements. GC analysis of SAT and ARO fractions by 5% phenyl methyl-silicone stationary phase.
- GC-MSD detection of the aromatic hydrocarbons (not FID).
- Report of a restricted number of compounds relative to the NIGOGA guide, due to known co-elutions or disputable identities.

Most analytical and interpretative works were carried out at the Norsk Hydro O&E Research Center in Bergen. However, IFE, Kjeller and IKU-Sintef, Trondheim performed the gas volume and isotope measurements.

The data quality control is according to NIGOGA and defined internal laboratory procedures, available on request.

Samples that are annotated "nso1, nso2 ..." represent the internal North Sea reference oil (NGS-NSO1) and reflect the analytical repeatability.

All depths are quoted as measured depths (in mRKB).

¹The Norwegian Industry Guide to Organic Geochemical Analyses, edition 4.0, 2000



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Appendix 1

Summary data sheets

Country, well/location: **NOR 35/8-5 S**
 Sample type, depth (m): **COCH, 3394.6-3394.6m**
 Stratigraphy (Gr./Fm.): **OXFORDIAN TURBIDITE**

**Sediment
sample**



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Bergen, Norway

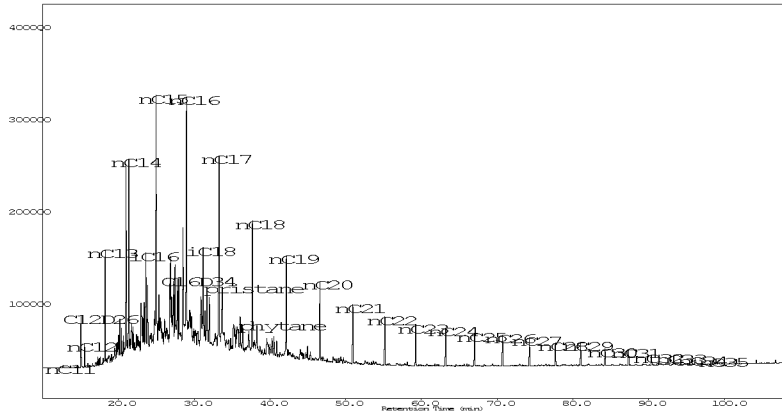
Remarks:

OrgID: 2190939, PlanID: 485906

Bulk data, latroscan and EOM		Rock Eval		δ13C isotope		ISTD-mix.(ng/mg EOM):		
	EOM, mg	65.0	S1, kg/t	20.6	Sat.	F28	C12D26	3700
	EOM, %	2.6	S2, kg/t	3.2	Aro.	F29	C16D34	3700
	EOM/TOC	32.8	PI	0.9	NSO	F30	24αββ	22
	HC/nonHC	17.4	TOC, %	2.0	Asph.	F31	d8N	44
			HI	160	Total	F32	d10BP	44
		Tmax		Kerogen	F33	d10P	44	
						d12C	44	

PyGC:

GC/FID, C15+ hydrocarbons:



GC/FID	Area	Amount
Pr/nC ₁₇	0.4	0.4
Ph/nC ₁₈	0.3	0.3
Pr/Ph	2.0	2.0
nC ₁₇ /(C ₁₇ +C ₂₇)	0.9	0.9
nC ₁₇		11710
Pristane		4140
ΣC ₁₅₋₃₅		99830

Country, well/location: **NOR 35/8-5 S**
 Sample type, depth (m): **COCH, 3394.6-3394.6m**
 Stratigraphy (Gr./Fm.): **OXFORDIAN TURBIDITE**

**Sediment
sample**

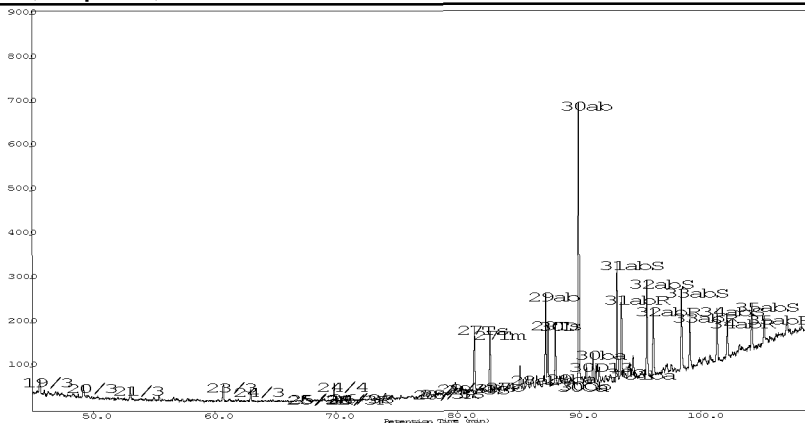


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Bergen, Norway

Remarks:

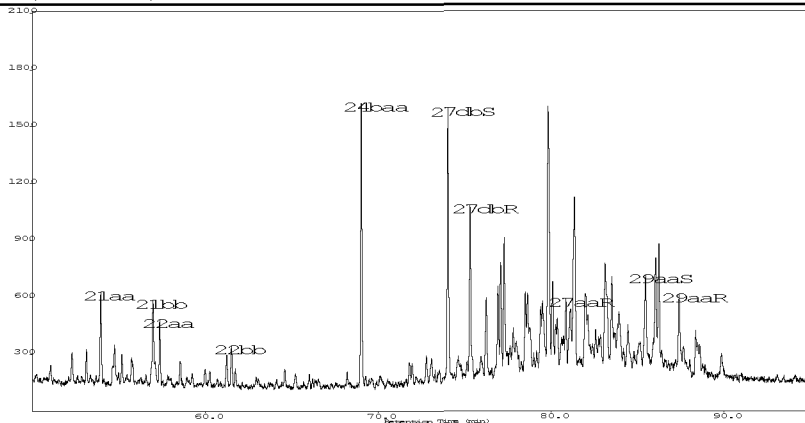
OrgID: 2190939, PlanID: 485906

GC/MS, Terpanes, m/z 191:



GC/MS	Height	Amount
%Tri	5	6
%20/3	19	19
%23/3	58	58
%24/4	37	37
C26/C25	1.0	1.0
%27Ts	52	52
%28αβ	4	6
%29Ts	41	41
%25nor30αβ	0.7	1.0
%29αβ	24	33
%30βα	10	10
%30D	18	26
%30G	3	5
%32αβS	59	59
%35αβ	45	45

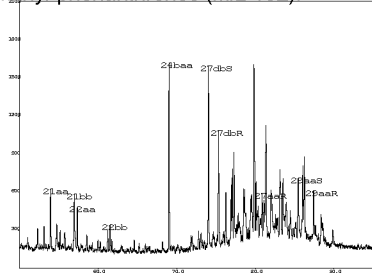
GC/MS, Steranes, m/z 217:



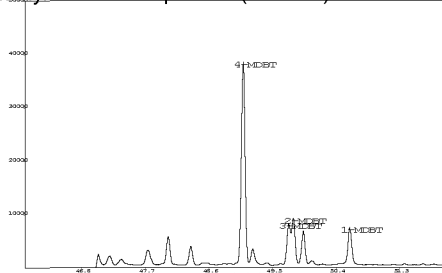
30αβ		47
25nor30αβ		0
Σterpanes		367
%29ααS	56	56
%29ββ	66	66
%27dia	61	61
%27ster.	32	32
%28ster.	24	24
%29ster.	35	35
%30ster.	9	9
29ααS		8
29ααR		6
Σsteranes		157

Aromatic hydrocarbons, GC/MS:

Methyl-phenanthrenes (m/z 192):

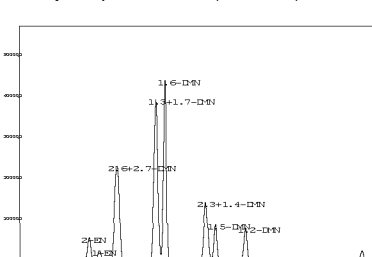


Methyl-dibenzothiophenes (m/z 198):

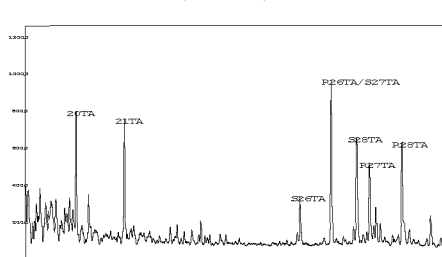




GC/MS	Height	Amount
Naphth	27951	30
C1-naph.	594242	444
C2-naph.	1374914	972
C3-naph.	1135500	816
DNR	2.6	2.6
2/1MN	1.1	1.1
2/1EN	2.3	2.3
Phen.	460831	211
C1phen.	858734	461
C2-phen.	505733	259
MPI1	0.61	0.66
F1	0.44	0.44
F2	0.24	0.24
%TAS'n	37.2	37.2
DBT/P	0.06	0.02
F/P	0.37	0.48
BP/1.6DMN	0.30	0.21
4/1MDBT	5.44	5.46
3MP/R	3.7	4.3

Dimethyl-naphthalenes (m/z 156):



Triaromatic steroids (m/z 231):



Country, well/location: NOR 35/8-5 S	  <small>E&P Research Centre, Bergen, Norway</small>
Sample type, depth (m): COCH, 3394.6-3394.6m	
Stratigraphy (Gr./Fm.): OXFORDIAN TURBIDITE	
Remarks:	
OrgID: , PlanID:	

Saturated HC's, GC/FID			cont...	Height	ng/mg	Aromatic HC's, GC/MS		
	Area	ng/mg					Height	ng/mg
nC11	11932	0	27b	167	2	N	27951	30
nC12	89617	0	25nor28ab	302	3	2MN	268058	202
nC13	366496	0	28ab	284	3	1MN	245215	185
nC14	778391	0	25nor29ab	139	2	2EN	56319	40
iC16	506911	5660	29ab	2025	23	1EN	24650	17
nC15	1119094	12500	29ba	227	3	2627DMN	230706	163
nC16	1302595	14550	29Ts	1411	16	1317DMN	392869	278
iC18	567013	6330	25nor30ab	43	0	16DMN	440031	311
nC17	1048219	11710	30ab	6400	47	2314DMN	142818	101
Prinstane	370470	4140	30ba	693	5	15DMN	88514	63
nC18	734931	8210	30D	1415	16	12DMN	79976	57
Phytane	187865	2100	30G	213	2	C3N1	35228	25
nC19	572320	6390	30O	0	0	C3N2	43770	31
nC20	426923	4770	30D13	462	5	137TMN	143014	103
nC21	327422	3660	31abS	2751	31	136TMN	231457	166
nC22	257739	2880	31abR	1890	21	135146TMN	203440	146
nC23	224595	2510	31ba	114	1	236TMN	150817	108
nC24	200298	2240	32abS	2193	25	167127TMN	128298	92
nC25	178053	1990	32abR	1547	18	126TMN	79881	57
nC26	159297	1780	33abS	1882	21	124TMN	26037	19
nC27	150624	1680	33abR	1238	14	125TMN	93558	67
nC28	123702	1380	34abS	1221	14	BP	132835	66
nC29	119681	1340	34abR	892	10	3MBP	249174	123
nC30	92359	1030	35abS	1065	12	4MBP	75487	37
nC31	83949	940	35abR	655	7	23XDMBP	5499	4
nC32	58029	650	21aa	478	8	25DMBP	3022	2
nC33	55239	620	21bb	437	7	2424XDMBP	5917	4
nC34	33216	370	22aa	345	6	23DMBP	13766	10
nC35	36214	400	22bb	210	3	3EBP	23307	17
			27dbS	1412	23	35DMBP	27793	20
			27dbR	877	14	33XDMBP	91752	66
			27bbR	923	15	4EBP	8123	6
			27bbS	566	9	34XDMBP	60177	43
			27aaR	341	6	44XDMBP	10954	8
			28bbR	480	8	34DMBP	36748	26
			28bbS	620	10	DBF	39895	20
			29aaS	479	8	DBF1	51739	37
			29bbR	784	13	MDBF2	39797	29
			29bbS	853	14	MDBF3	35351	25
			29aaR	382	6	F	168327	101
			30bbR	211	3	C1F1	43759	26
			30bbS	207	3	C1F2	152284	91
						1MF	24274	15
						DBT	29885	5
						4MDBT	37893	6
						3MDBT	0	0
						1MDBT	6961	1
						P	460831	211
						3MP	172123	92
Saturated HC biomarkers, GC/MS								
	Height	ng/mg						
19/3	333	4						
20/3	287	3						
21/3	296	3						
23/3	406	5						
24/3	293	3						
25/3	0	0						
25/3R	116	1						
25/3S	114	1						
26/3R	112	1						
26/3S	128	1						
28/3R	125	1						
28/3S	118	1						
29/3R	166	2						
29/3S	202	2						
24/4	411	5						
27Ts	1463	17						
27Tm	1352	15						

Country, well/location: **NOR 35/8-5 S**
Sample type, depth (m): **COCH, 3394.6-3394.6m**
Stratigraphy (Gr./Fm.): **OXFORDIAN TURBIDITE**
Remarks:

**Sediment
sample**



E&P Research Centre,
Bergen, Norway

OrgID: , PlanID:

Aromatic HC's, GC/MS cont...

	Height	ng/mg
2MP	208476	112
9MP	259444	139
1MP	218691	117
2EP9EP36DMP	42015	22
1EP	36935	19
262735DMP	21219	11
13210393DMP	143274	73
162529DMP	70765	36
17DMP	99101	51
23DMP	25169	13
194941DMP	50298	26
18DMP	16957	9
RETENE	46636	21
20TA	6682	1
21TA	6788	1
S26TA	2624	0
R26TAS27TA	8869	2
S28TA	5728	1
R27TA	4254	1
R28TA	5553	1

Country, well/location: **NOR 35/8-5 S**
 Sample type, depth (m): **COCH, 3419.5-3419.5m**
 Stratigraphy (Gr./Fm.): **OXFORDIAN TURBIDITE**

Remarks:

OrgID: 2190940, PlanID: 485907

**Sediment
sample**

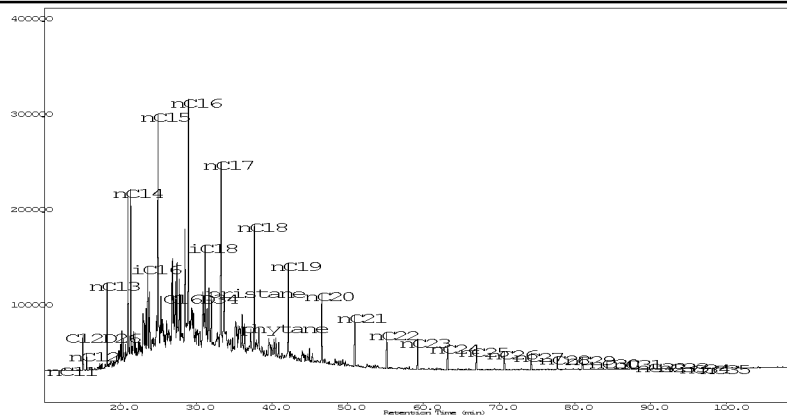


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Bulk data, latroscan and EOM	Rock Eval	δ13C isotope	ISTD-mix.(ng/mg EOM):
	EOM, mg 46.0	S1, kg/t 15.8	Sat. F28 3470
	EOM, % 1.6	S2, kg/t 2.0	Aro. F29 3470
	EOM/TOC 31.1	PI 0.9	NSO F30 21
	HC/nonHC 18.2	TOC, % 1.5	Asph. F31 42
		HI 136	Total F32 42
	Tmax 422	Kerogen F33 42	d12C 42

PyGC:

GC/FID, C15+ hydrocarbons:



GC/FID	Area	Amount
Pr/nC ₁₇	0.3	0.3
Ph/nC ₁₈	0.2	0.2
Pr/Ph	2.0	2.0
nC ₁₇ /(C ₁₇ +C ₂₇)	0.9	0.9
nC ₁₇		13120
Pristane		4250
ΣC ₁₅₋₃₅		102580

Country, well/location: NOR 35/8-5 S
 Sample type, depth (m): COCH, 3419.5-3419.5m
 Stratigraphy (Gr./Fm.): OXFORDIAN TURBIDITE

Sediment
 sample

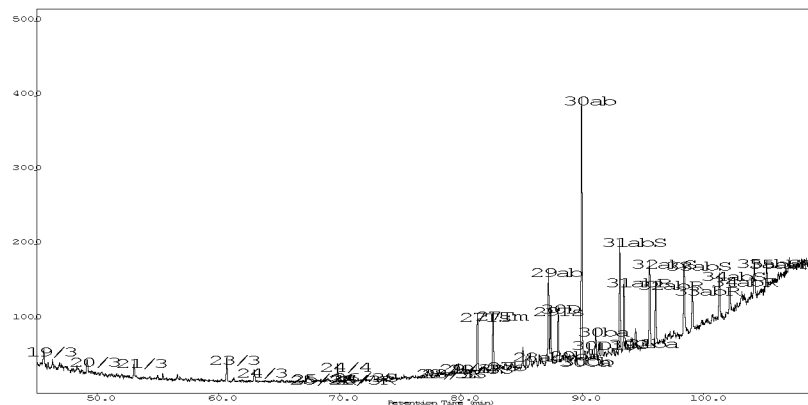


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 Bergen, Norway

Remarks:

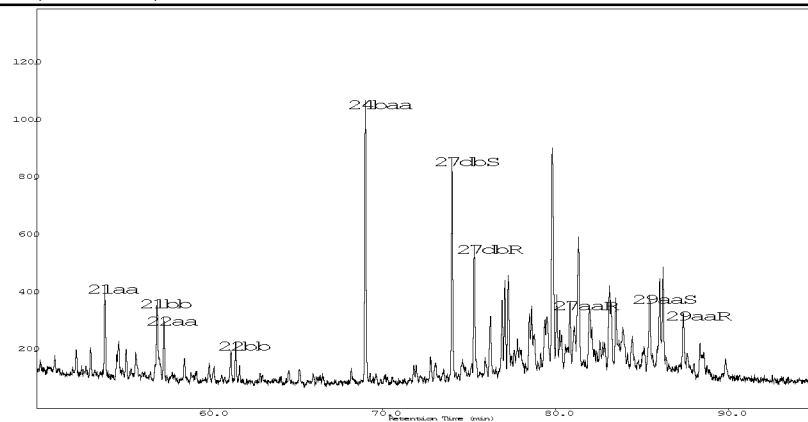
OrgID: 2190940, PlanID: 485907

GC/MS, Terpanes, m/z 191:



GC/MS	Height	Amount
%Tri	7	7
%20/3	18	18
%23/3	67	67
%24/4	33	33
C26/C25	1.2	1.2
%27Ts	50	50
%28αβ	5	7
%29Ts	37	37
%25nor30αβ	2.3	3.5
%29αβ	26	35
%30βα	10	10
%30D	18	25
%30G	4	6
%32αβS	58	58
%35αβ	45	45

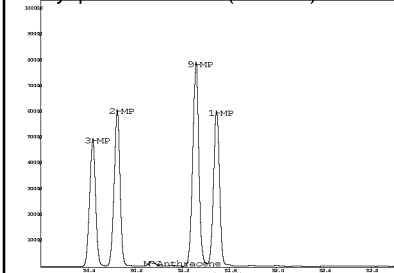
GC/MS, Steranes, m/z 217:



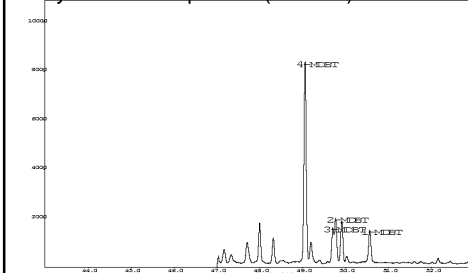
30αβ		37
25nor30αβ		1
Σterpanes		296
%29αaS	55	55
%29ββ	67	67
%27dia	58	58
%27ster.	33	33
%28ster.	24	24
%29ster.	34	34
%30ster.	9	9
29αaS		6
29αaR		5
Σsteranes		126

Aromatic hydrocarbons, GC/MS:

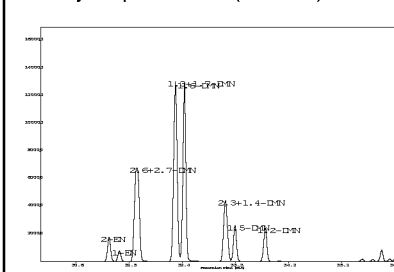
Methyl-phenanthrenes (m/z 192):



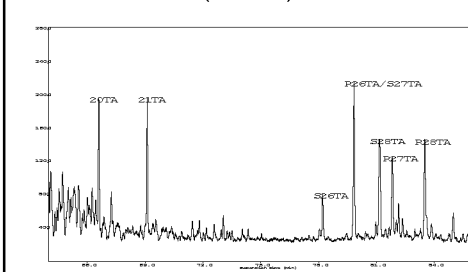
Methyl-dibenzothiophenes (m/z 198):



Dimethyl-naphthalenes (m/z 156):



Triaromatic steroids (m/z 231):



GC/MS	Height	Amount
Naphth	10063	33
C1-naph.	177249	404
C2-naph.	421102	908
C3-naph.	367796	807
DNR	2.6	2.6
2/1MN	1.1	1.1
2/1EN	2.3	2.3
Phen.	153645	218
C1phen.	250769	418
C2-phen.	147574	235
MPI1	0.57	0.62
F1	0.44	0.44
F2	0.24	0.24
%TAS'n	40.2	40.2
DBT/P	0.05	0.02
F/P	0.33	0.42
BP/1.6DMN	0.29	0.21
4/1MDBT	6.14	6.12
3MP/R	3.2	3.7

Country, well/location: **NOR 35/8-5 S**
 Sample type, depth (m): **COCH, 3419.5-3419.5m**
 Stratigraphy (Gr./Fm.): **OXFORDIAN TURBIDITE**
 Remarks:
 OrgID: , PlanID:

**Sediment
sample**



E&P Research Centre,
Bergen, Norway

Saturated HC's, GC/FID			cont...	Height	ng/mg	Aromatic HC's, GC/MS		
	Area	ng/mg					Height	ng/mg
nC11	12748	0	27b	70	1	N	10063	33
nC12	64465	0	25nor28ab	162	3	2MN	80695	186
nC13	258512	0	28ab	182	3	1MN	70741	163
nC14	637128	0	25nor29ab	61	1	2EN	17913	39
iC16	457807	6000	29ab	1234	20	1EN	7900	17
nC15	1159512	15190	29ba	125	2	2627DMN	67649	146
nC16	1237296	16210	29Ts	735	12	1317DMN	130248	281
iC18	542727	7110	25nor30ab	84	1	16DMN	129036	278
nC17	1001500	13120	30ab	3543	37	2314DMN	43870	95
Prinstane	324540	4250	30ba	400	4	15DMN	26126	56
nC18	699765	9170	30D	770	13	12DMN	24173	52
Phytane	165039	2160	30G	133	2	C3N1	11632	26
nC19	518818	6800	30O	0	0	C3N2	14653	32
nC20	374794	4910	30D13	236	4	137TMN	49538	109
nC21	262709	3440	31abS	1556	25	136TMN	71394	157
nC22	191442	2510	31abR	977	16	135146TMN	63250	139
nC23	151008	1980	31ba	81	1	236TMN	48208	106
nC24	124844	1640	32abS	1168	19	167127TMN	42016	92
nC25	104541	1370	32abR	846	14	126TMN	26794	59
nC26	91966	1200	33abS	1012	16	124TMN	8753	19
nC27	82076	1080	33abR	606	10	125TMN	31558	69
nC28	66577	870	34abS	646	10	BP	37830	57
nC29	63197	830	34abR	489	8	3MBP	81281	123
nC30	58429	770	35abS	513	8	4MBP	25690	39
nC31	58429	770	35abR	433	7	23XDMBP	1650	4
nC32	46313	610	21aa	317	7	25DMBP	1013	2
nC33	36607	480	21bb	254	6	2424XDMBP	1854	4
nC34	30659	400	22aa	220	5	23DMBP	4530	10
nC35	22959	300	22bb	140	3	3EBP	7941	17
nC35	13436	180	27dbS	761	18	35DMBP	9609	21
			27dbR	442	10	33XDMBP	30706	67
			27bbR	516	12	4EBP	2885	6
			27bbS	352	8	34XDMBP	19127	42
			27aaR	214	5	44XDMBP	3839	8
			28bbR	280	7	34DMBP	11625	26
			28bbS	331	8	DBF	13383	20
			29aaS	239	6	DBF1	17935	39
			29bbR	439	10	MDBF2	13528	30
			29bbS	452	11	MDBF3	11679	26
			29aaR	199	5	F	50398	92
			30bbR	129	3	C1F1	14526	27
			30bbS	99	2	C1F2	47536	87
						1MF	7655	14
						DBT	6956	3
						4MDBT	8184	4
						3MDBT	0	0
						1MDBT	1333	1
						P	153645	218
						3MP	49857	83
Saturated HC biomarkers, GC/MS								
	Height	ng/mg						
19/3	245	4						
20/3	198	3						
21/3	266	4						
23/3	329	5						
24/3	164	3						
25/3	0	0						
25/3R	67	1						
25/3S	69	1						
26/3R	66	1						
26/3S	98	2						
28/3R	89	1						
28/3S	78	1						
29/3R	119	2						
29/3S	115	2						
24/4	241	4						
27Ts	786	13						
27Tm	773	13						

Country, well/location: **NOR 35/8-5 S**
 Sample type, depth (m): **COCH, 3419.5-3419.5m**
 Stratigraphy (Gr./Fm.): **OXFORDIAN TURBIDITE**
 Remarks:
 OrgID: , PlanID:

**Sediment
sample**



E&P Research Centre,
Bergen, Norway

Aromatic HC's, GC/MS cont...		
	Height	ng/mg
2MP	61169	102
9MP	79352	132
1MP	60391	101
2EP9EP36DMP	12217	19
1EP	10755	17
262735DMP	6734	11
13210393DMP	41951	67
162529DMP	21950	35
17DMP	28662	46
23DMP	7182	11
194941DMP	13432	21
18DMP	4691	7
RETENE	15615	22
20TA	1608	1
21TA	1713	1
S26TA	550	0
R26TAS27TA	1909	1
S28TA	1199	1
R27TA	975	1
R28TA	1195	1

Country, well/location: **NOR 35/8-5 S**
 Sample type, depth (m): **COCH, 3435.5-3435.5m**
 Stratigraphy (Gr./Fm.): **HEATHER**

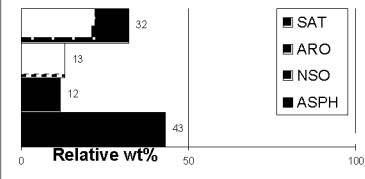
**Sediment
sample**



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Bergen, Norway

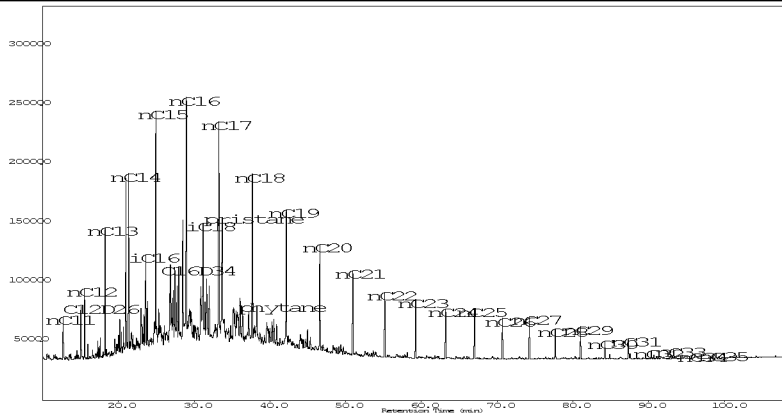
Remarks:

OrgID: 2190941, PlanID: 485908

Bulk data, latroscan and EOM		Rock Eval		δ13C isotope		ISTD-mix.(ng/mg EOM):		
	EOM, mg	16.0	S1, kg/t	0.5	Sat.	F28	C12D26	3750
	EOM, %	0.1	S2, kg/t	3.4	Aro.	F29	C16D34	3750
	EOM/TOC	6.7	PI	0.1	NSO	F30	24αββ	23
	HC/nonHC	0.8	TOC, %	2.4	Asph.	F31	d8N	45
			HI	141	Total	F32	d10BP	45
			Tmax	440	Kerogen	F33	d10P	45
							d12C	45

PyGC:

GC/FID, C15+ hydrocarbons:



GC/FID	Area	Amount
Pr/nC ₁₇	0.8	0.8
Ph/nC ₁₈	0.3	0.3
Pr/Ph	4.1	4.1
nC ₁₇ /(C ₁₇ +C ₂₇)	0.8	0.8
nC ₁₇		11530
Pristane		9250
ΣC ₁₅₋₃₅		106220

Country, well/location: NOR 35/8-5 S
 Sample type, depth (m): COCH, 3435.5-3435.5m
 Stratigraphy (Gr./Fm.): HEATHER

Sediment
 sample

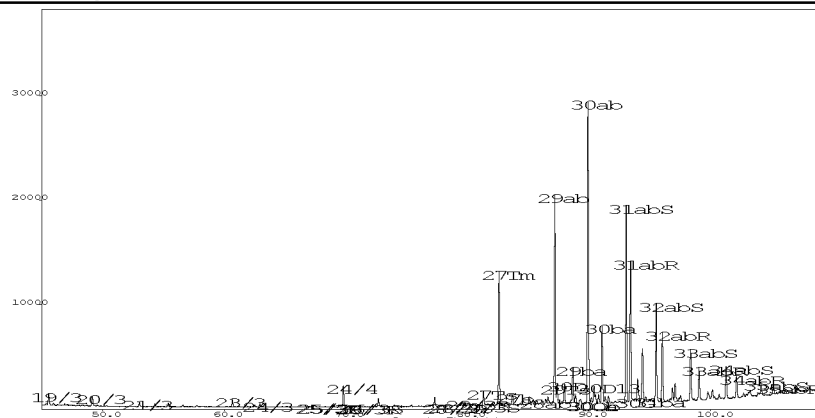


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Remarks:

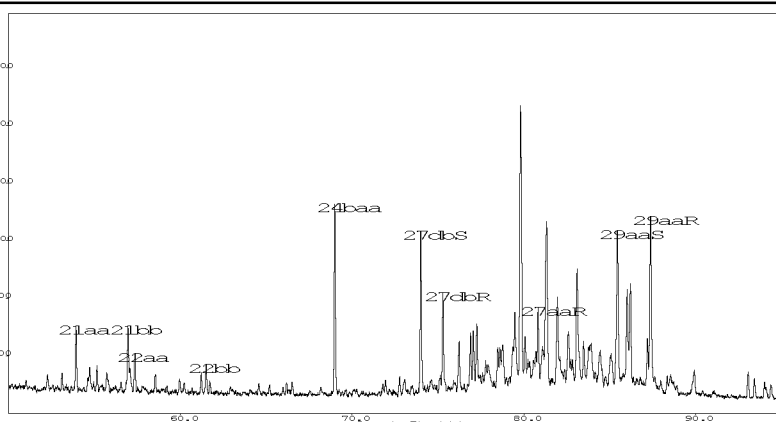
OrgID: 2190941, PlanID: 485908

GC/MS, Terpanes, m/z 191:



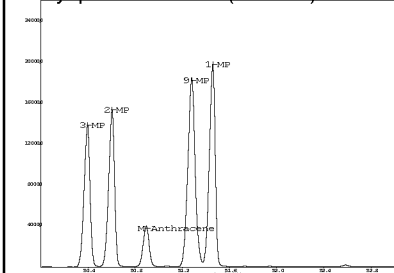
GC/MS	Height	Amount
%Tri	2	2
%20/3	36	36
%23/3	69	69
%24/4	66	66
C26/C25	1.2	1.2
%27Ts	9	9
%28αβ	1	2
%29Ts	7	7
%25nor30αβ	0.6	0.9
%29αβ	40	51
%30βα	20	20
%30D	6	9
%30G	1	2
%32αβS	59	59
%35αβ	28	28
30αβ		240
25nor30αβ		2
Σterpanes		1768
%29αS	50	50
%29ββ	47	47
%27dia	59	59
%27ster.	31	31
%28ster.	17	17
%29ster.	48	48
%30ster.	4	4
29αS		20
29αR		20
Σsteranes		178

GC/MS, Steranes, m/z 217:

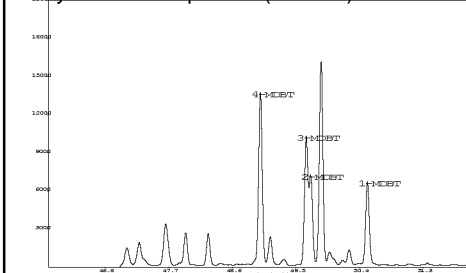


Aromatic hydrocarbons, GC/MS:

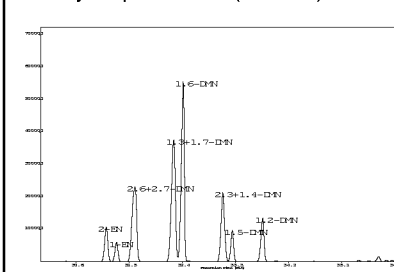
Methyl-phenanthrenes (m/z 192):



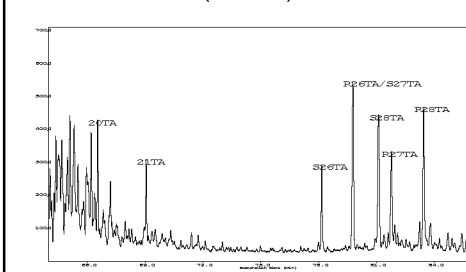
Methyl-dibenzothiophenes (m/z 198):



Dimethyl-naphthalenes (m/z 156):



Triaromatic steroids (m/z 231):



GC/MS	Height	Amount
Naphth	1550830	23863
C1-naph.	3065162	27498
C2-naph.	1609811	13590
C3-naph.	791167	6792
DNR	2.4	2.4
2/1MN	1.4	1.4
2/1EN	1.8	1.8
Phen.	706101	3740
C1phen.	682321	4240
C2-phen.	249682	1484
MPI1	0.41	0.45
F1	0.44	0.44
F2	0.23	0.23
%TAS'n	29.2	29.2
DBT/P	0.07	0.02
F/P	0.27	0.37
BP/1.6DMN	0.45	0.32
4/1MDBT	2.05	2.05
3MP/R	0.5	0.6

Country, well/location: **NOR 35/8-5 S**
 Sample type, depth (m): **COCH, 3435.5-3435.5m**
 Stratigraphy (Gr./Fm.): **HEATHER**
 Remarks:
 OrgID: , PlanID:

**Sediment
sample**



E&P Research Centre,
Bergen, Norway

Saturated HC's, GC/FID			cont...	Height	ng/mg	Aromatic HC's, GC/MS		
	Area	ng/mg					Height	ng/mg
nC11	158247	0	27b	940	12	N	1550830	23863
nC12	203255	0	25nor28ab	100	1	2MN	1684405	15163
nC13	323590	0	28ab	433	6	1MN	1212511	10915
nC14	526399	0	25nor29ab	288	4	2EN	107932	911
iC16	380020	4820	29ab	19733	252	1EN	60314	509
nC15	764023	9680	29ba	3453	44	2627DMN	231418	1954
nC16	957157	12130	29Ts	1537	20	1317DMN	376237	3176
iC18	496572	6290	25nor30ab	168	2	16DMN	555588	4690
nC17	909972	11530	30ab	29238	240	2314DMN	214219	1808
Prinstane	729841	9250	30ba	7322	60	15DMN	97425	822
nC18	712242	9030	30D	1959	25	12DMN	134924	1139
Phytane	180005	2280	30G	326	4	C3N1	20449	176
nC19	601240	7620	30O	0	0	C3N2	28395	244
nC20	451047	5720	30D13	1719	22	137TMN	58998	507
nC21	360630	4570	31abS	18849	240	136TMN	115407	991
nC22	273657	3470	31abR	13521	172	135146TMN	97671	839
nC23	255856	3240	31ba	226	3	236TMN	77928	669
nC24	204283	2590	32abS	9438	120	167127TMN	88138	757
nC25	203309	2580	32abR	6636	85	126TMN	81538	700
nC26	166860	2110	33abS	4898	62	124TMN	24221	208
nC27	182465	2310	33abR	3120	40	125TMN	198422	1703
nC28	128789	1630	34abS	3127	40	BP	251727	1489
nC29	135822	1720	34abR	2070	26	3MBP	117322	694
nC30	79793	1010	35abS	1159	15	4MBP	40068	237
nC31	83483	1060	35abR	876	11	23XDMBP	2029	17
nC32	39319	500	21aa	460	8	25DMBP	960	8
nC33	41758	530	21bb	435	8	2424XDMBP	1683	14
nC34	16881	210	22aa	262	5	23DMBP	9121	78
nC35	26875	340	22bb	204	4	3EBP	5812	50
			27dbS	1116	21	35DMBP	8167	70
			27dbR	641	12	33XDMBP	25448	218
			27bbR	848	16	4EBP	2755	24
			27bbS	383	7	34XDMBP	18930	163
			27aaR	492	9	44XDMBP	2773	24
			28bbR	279	5	34DMBP	8988	77
			28bbS	373	7	DBF	241327	1427
			29aaS	1065	20	DBF1	103343	887
			29bbR	946	17	MDBF2	95143	817
			29bbS	919	17	MDBF3	62398	536
			29aaR	1060	20	F	192625	1382
			30bbR	98	2	C1F1	28620	205
			30bbS	67	1	C1F2	74824	537
						1MF	16726	120
						DBT	49663	91
						4MDBT	13574	25
						3MDBT	0	0
						1MDBT	6610	12
						P	706101	3740
						3MP	141032	876
Saturated HC biomarkers, GC/MS								
	Height	ng/mg						
19/3	1015	13						
20/3	959	12						
21/3	461	6						
23/3	718	9						
24/3	327	4						
25/3	0	0						
25/3R	72	1						
25/3S	117	1						
26/3R	87	1						
26/3S	133	2						
28/3R	73	1						
28/3S	106	1						
29/3R	401	5						
29/3S	109	1						
24/4	2035	26						
27Ts	1324	17						
27Tm	12797	163						

Country, well/location: **NOR 35/8-5 S**
Sample type, depth (m): **COCH, 3435.5-3435.5m**
Stratigraphy (Gr./Fm.): **HEATHER**
Remarks:

**Sediment
sample**



E&P Research Centre,
Bergen, Norway

OrgID: , PlanID:

Aromatic HC's, GC/MS cont...

	Height	ng/mg
2MP	156005	970
9MP	185032	1150
1MP	200252	1245
2EP9EP36DMP	24966	148
1EP	19990	119
262735DMP	8451	50
13210393DMP	52644	313
162529DMP	39369	234
17DMP	52550	312
23DMP	17654	105
194941DMP	23500	140
18DMP	10558	63
RETENE	265075	1404
20TA	3448	6
21TA	2536	5
S26TA	2635	5
R26TAS27TA	5107	10
S28TA	4067	8
R27TA	2831	5
R28TA	4303	8

Country, well/location: **NOR 35/8-5 S**
 Sample type, depth (m): **COCH, 3860.5-3860.5m**
 Stratigraphy (Gr./Fm.): **TARBERT**

**Sediment
sample**



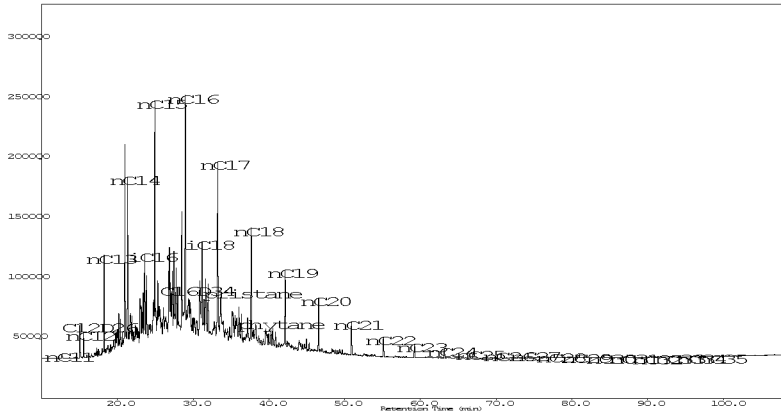
Remarks:

OrgID: 2190942, PlanID: 485924

Bulk data, latroscan and EOM		Rock Eval		δ13C isotope		ISTD-mix.(ng/mg EOM):		
	EOM, mg	36.0	S1, kg/t	7.4	Sat.	F28	C12D26	3340
	EOM, %	1.0	S2, kg/t	0.5	Aro.	F29	C16D34	3340
	EOM/TOC	43.9	PI	0.9	NSO	F30	24αββ	20
	HC/nonHC	16.0	TOC, %	0.8	Asph.	F31	d8N	40
			HI	66	Total	F32	d10BP	40
			Tmax	404	Kerogen	F33	d10P	40
							d12C	40

PyGC:

GC/FID, C15+ hydrocarbons:



GC/FID	Area	Amount
Pr/nC ₁₇	0.2	0.2
Ph/nC ₁₈	0.2	0.2
Pr/Ph	1.2	1.2
nC ₁₇ /(C ₁₇ +C ₂₇)	1.0	1.0
nC ₁₇		12660
Pristane		2510
ΣC ₁₅₋₃₅		85940

Country, well/location: NOR 35/8-5 S
 Sample type, depth (m): COCH, 3860.5-3860.5m
 Stratigraphy (Gr./Fm.): TARBERT

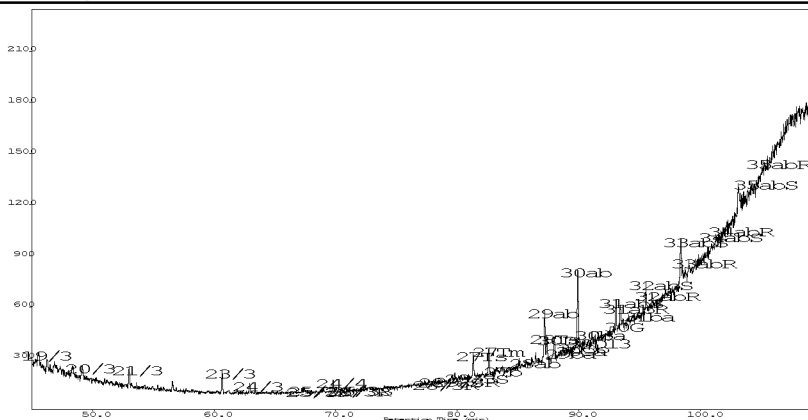
**Sediment
sample**



Remarks:

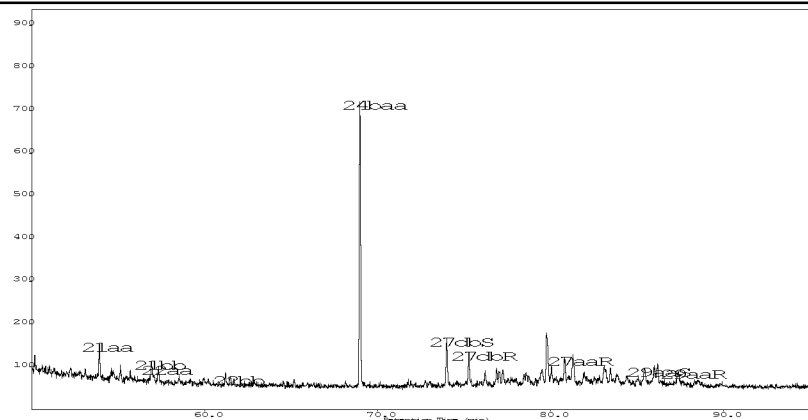
OrgID: 2190942, PlanID: 485924

GC/MS, Terpanes, m/z 191:

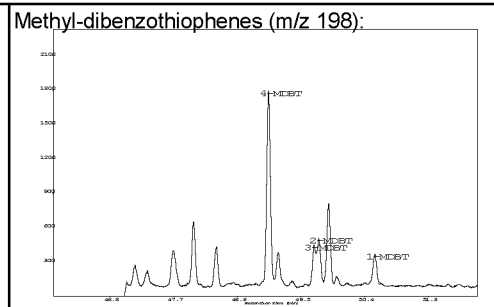
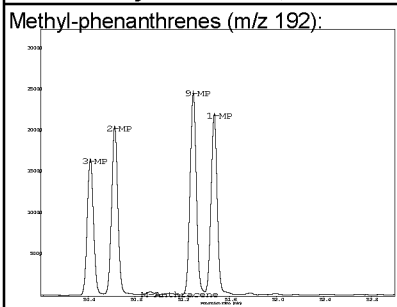


GC/MS	Height	Amount
%Tri	15	16
%20/3	18	18
%23/3	68	68
%24/4	27	27
C26/C25	1.1	1.1
%27Ts	47	47
%28αβ	8	12
%29Ts	32	32
%25nor30αβ	5.7	8.6
%29αβ	37	48
%30βα	13	13
%30D	21	29
%30G	6	10
%32αβS	68	68
%35αβ	56	56
30αβ		7
25nor30αβ		1
Σterpanes		82
%29ααS	52	51
%29ββ	66	66
%27dia	59	59
%27ster.	35	35
%28ster.	25	25
%29ster.	34	34
%30ster.	5	5
29ααS		1
29ααR		1
Σsteranes		29

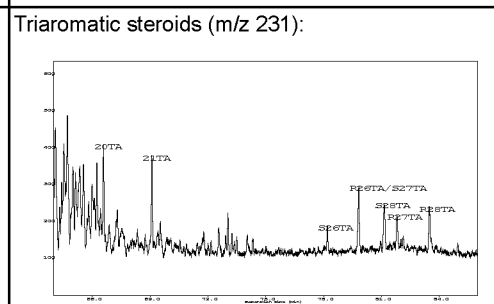
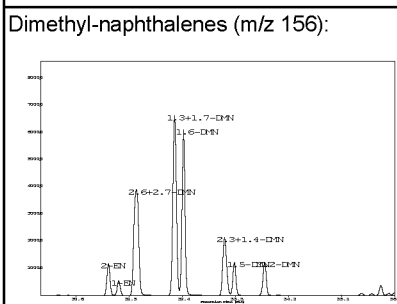
GC/MS, Steranes, m/z 217:



Aromatic hydrocarbons, GC/MS:



GC/MS	Height	Amount
Naphth	23370	56
C1-naph.	170620	302
C2-naph.	212556	355
C3-naph.	143116	243
DNR	3.2	3.2
2/1MN	1.4	1.4
2/1EN	2.2	2.2
Phen.	52645	62
C1phen.	83943	116
C2-phen.	48607	64
MP11	0.56	0.61
F1	0.44	0.44
F2	0.24	0.24
%TAS'n	51.1	50.0
DBT/P	0.03	0.01
F/P	0.54	0.65
BP/1.6DMN	0.42	0.29
4/1MDBT	6.09	6.27
3MP/R	2.6	3.0



Country, well/location: **NOR 35/8-5 S**
 Sample type, depth (m): **COCH, 3860.5-3860.5m**
 Stratigraphy (Gr./Fm.): **TARBERT**
 Remarks:
 OrgID: , PlanID:

**Sediment
sample**



Saturated HC's, GC/FID			cont...	Height	ng/mg	Aromatic HC's, GC/MS		
	Area	ng/mg					Height	ng/mg
nC11	15124	0	27b	31	1	N	23370	56
nC12	75334	0	25nor28ab	12	0	2MN	88860	158
nC13	240822	0	28ab	42	1	1MN	64383	115
nC14	505145	0	25nor29ab	29	1	2EN	11868	20
iC16	354549	6250	29ab	286	7	1EN	5509	9
nC15	756016	13340	29ba	34	1	2627DMN	39098	65
nC16	899396	15870	29Ts	134	3	1317DMN	66385	111
iC18	384969	6790	25nor30ab	29	1	16DMN	61117	102
nC17	717772	12660	30ab	477	7	2314DMN	21418	36
Prinstane	141993	2510	30ba	74	1	15DMN	12173	20
nC18	473561	8350	30D	128	3	12DMN	12365	21
Phytane	114182	2010	30G	33	1	C3N1	4798	8
nC19	325660	5750	30O	0	0	C3N2	6075	10
nC20	218883	3860	30D13	46	1	137TMN	19061	32
nC21	133272	2350	31abS	198	5	136TMN	27170	46
nC22	89016	1570	31abR	136	3	135146TMN	23341	40
nC23	53090	940	31ba	54	1	236TMN	18004	31
nC24	37847	670	32abS	205	5	167127TMN	15741	27
nC25	29126	510	32abR	98	2	126TMN	11097	19
nC26	25912	460	33abS	289	7	124TMN	3231	5
nC27	24530	430	33abR	124	3	125TMN	14598	25
nC28	15483	270	34abS	74	2	BP	25581	30
nC29	15403	270	34abR	54	1	3MBP	32932	38
nC30	15377	270	35abS	79	2	4MBP	9652	11
nC31	11857	210	35abR	82	2	23XDMBP	880	1
nC32	9394	170	21aa	80	3	25DMBP	476	1
nC33	8806	160	21bb	43	1	2424XDMBP	752	1
nC34	7455	130	22aa	38	1	23DMBP	2480	4
nC35	7988	140	22bb	25	1	3EBP	2376	4
			27dbS	112	4	35DMBP	3810	6
			27dbR	76	3	33XDMBP	11345	19
			27bbR	77	3	4EBP	930	2
			27bbS	54	2	34XDMBP	6695	11
			27aaR	58	2	44XDMBP	1276	2
			28bbR	43	1	34DMBP	3574	6
			28bbS	50	2	DBF	8121	9
			29aaS	34	1	DBF1	9087	15
			29bbR	63	2	MDBF2	6538	11
			29bbS	64	2	MDBF3	5206	9
			29aaR	32	1	F	28294	40
			30bbR	8	0	C1F1	6141	9
			30bbS	12	0	C1F2	17847	25
						1MF	3731	5
						DBT	1510	1
						4MDBT	1700	1
						3MDBT	0	0
						1MDBT	279	0
						P	52645	62
						3MP	16603	23
Saturated HC biomarkers, GC/MS								
	Height	ng/mg						
19/3	91	2						
20/3	81	2						
21/3	121	3						
23/3	138	3						
24/3	66	2						
25/3	0	0						
25/3R	19	0						
25/3S	32	1						
26/3R	26	1						
26/3S	28	1						
28/3R	19	0						
28/3S	33	1						
29/3R	20	0						
29/3S	34	1						
24/4	76	2						
27Ts	146	3						
27Tm	164	4						

Country, well/location: **NOR 35/8-5 S**
Sample type, depth (m): **COCH, 3860.5-3860.5m**
Stratigraphy (Gr./Fm.): **TARBERT**
Remarks:

**Sediment
sample**



OrgID: , PlanID:

Aromatic HC's, GC/MS cont...

	Height	ng/mg
2MP	20516	28
9MP	24767	34
1MP	22057	30
2EP9EP36DMP	4338	6
1EP	3926	5
262735DMP	2529	3
13210393DMP	13166	17
162529DMP	7299	10
17DMP	8499	11
23DMP	2646	3
194941DMP	4611	6
18DMP	1593	2
RETENE	6461	8
20TA	274	0
21TA	258	0
S26TA	80	0
R26TAS27TA	186	0
S28TA	135	0
R27TA	95	0
R28TA	127	0

Country, well/location: **NOR 35/8-5 S**
 Sample type, depth (m): **COCH, 3876.8-3876.8m**
 Stratigraphy (Gr./Fm.): **NESS**

**Sediment
sample**



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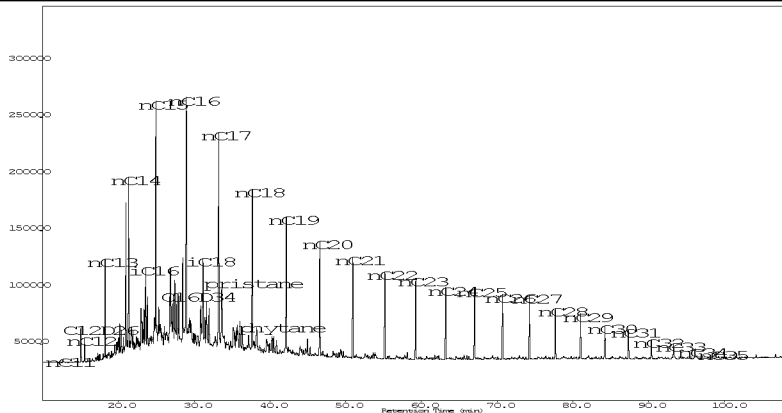
Remarks:

OrgID: 2190943, PlanID: 485925

Bulk data, latroscan and EOM		Rock Eval		δ13C isotope		ISTD-mix.(ng/mg EOM):		
	EOM, mg	24.0	S1, kg/t	7.3	Sat.	F28	C12D26	3340
	EOM, %	0.6	S2, kg/t	0.6	Aro.	F29	C16D34	3340
	EOM/TOC	29.6	PI	0.9	NSO	F30	24αββ	20
	HC/nonHC	9.0	TOC, %	0.8	Asph.	F31	d8N	40
			HI	74	Total	F32	d10BP	40
		Tmax	414	Kerogen	F33	d10P	40	
						d12C	40	

PyGC:

GC/FID, C15+ hydrocarbons:




GC/FID	Area	Amount
Pr/nC ₁₇	0.4	0.4
Ph/nC ₁₈	0.2	0.2
Pr/Ph	3.1	3.1
nC ₁₇ /(C ₁₇ +C ₂₇)	0.8	0.8
nC ₁₇		16290
Pristane		6140
ΣC ₁₅₋₃₅		154620

Country, well/location: **NOR 35/8-5 S**
 Sample type, depth (m): **COCH, 3876.8-3876.8m**
 Stratigraphy (Gr./Fm.): **NESS**

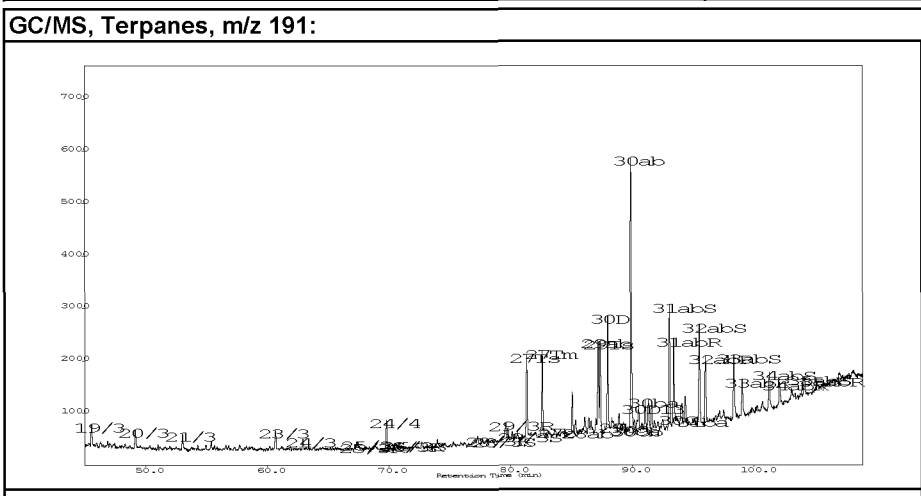
Remarks:

OrgID: 2190943, PlanID: 485925

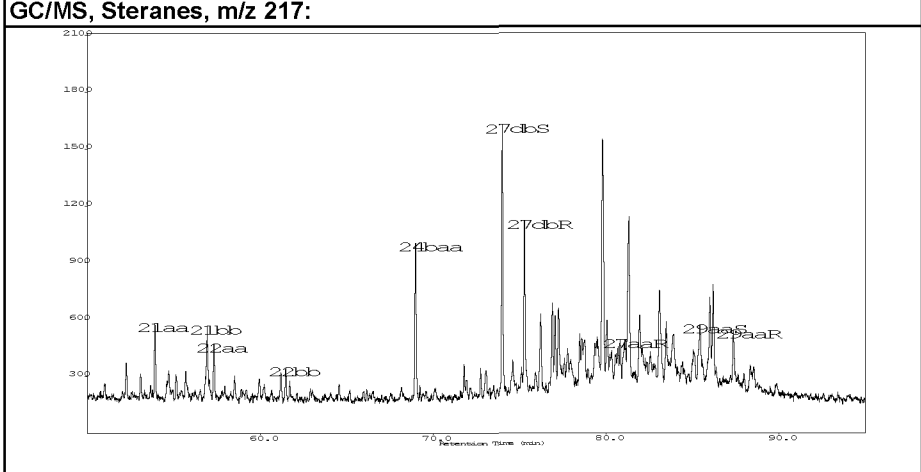
Sediment sample



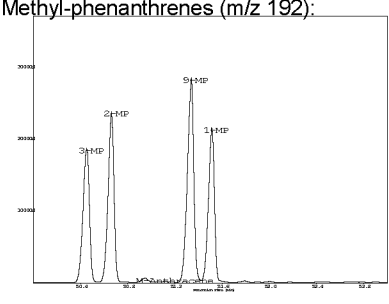
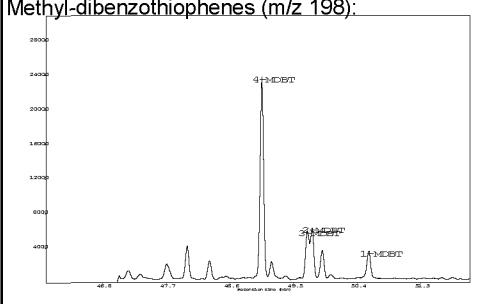
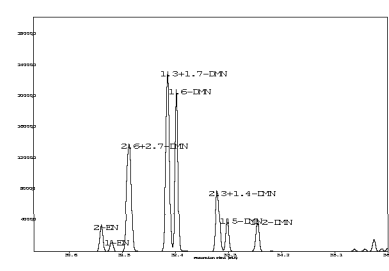
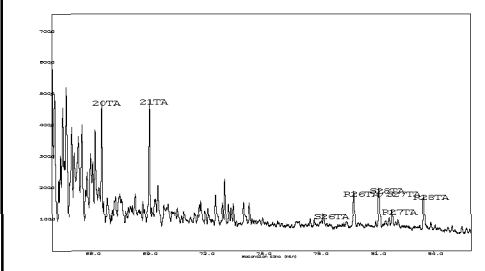
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GC/MS	Height	Amount
%Tri	6	7
%20/3	24	24
%23/3	64	64
%24/4	49	49
C26/C25	1.3	1.3
%27Ts	49	49
%28αβ	1	2
%29Ts	51	51
%25nor30αβ	2.0	3.1
%29αβ	24	32
%30βα	10	10
%30D	29	39
%30G	3	5
%32αβS	59	59
%35αβ	34	34



30αβ		60
25nor30αβ		2
Σterpanes		492
%29ααS	49	49
%29ββ	70	70
%27dia	65	65
%27ster.	36	36
%28ster.	20	20
%29ster.	38	38
%30ster.	5	5
29ααS		7
29ααR		7
Σsteranes		192

Aromatic hydrocarbons, GC/MS:		GC/MS	Height	Amount		
Methyl-phenanthrenes (m/z 192):		Methyl-dibenzothiophenes (m/z 198):		Naphth	29588	82
Dimethyl-naphthalenes (m/z 156):		Triaromatic steroids (m/z 231):		C1-naph.	387919	697
				C2-naph.	743430	1263
				C3-naph.	696910	1204
				DNR	3.3	3.3
				2/1MN	1.3	1.3
				2/1EN	2.4	2.4
				Phen.	512575	564
				C1phen.	929363	1200
				C2-phen.	553318	683
				MPI1	0.63	0.68
				F1	0.46	0.46
				F2	0.26	0.26
				%TAS'n	60.0	60.0
				DBT/P	0.03	0.01
				F/P	0.38	0.50
				BP/1.6DMN	0.39	0.27
				4/1MDBT	7.29	7.30
				3MP/R	8.9	10.5

Country, well/location: **NOR 35/8-5 S**
 Sample type, depth (m): **COCH, 3876.8-3876.8m**
 Stratigraphy (Gr./Fm.): **NESS**
 Remarks:
 OrgID: , PlanID:

**Sediment
sample**



E&P Research Centre,
Bergen, Norway

Saturated HC's, GC/FID			cont...	Height	ng/mg	Aromatic HC's, GC/MS		
	Area	ng/mg					Height	ng/mg
nC11	14373	0	27b	100	2	N	29588	82
nC12	73888	0	25nor28ab	51	1	2MN	193917	351
nC13	251930	0	28ab	72	1	1MN	145050	263
nC14	546371	0	25nor29ab	126	2	2EN	34674	59
iC16	341589	5640	29ab	1624	29	1EN	14278	24
nC15	902685	14900	29ba	113	2	2627DMN	139131	236
nC16	1014527	16750	29Ts	1705	30	1317DMN	232798	396
iC18	385816	6370	25nor30ab	110	2	16DMN	209575	356
nC17	986623	16290	30ab	5270	60	2314DMN	78246	133
Prinstane	371839	6140	30ba	589	7	15DMN	42585	72
nC18	756831	12500	30D	2184	39	12DMN	41095	70
Phytane	118398	1950	30G	167	3	C3N1	19801	34
nC19	628302	10370	30O	0	0	C3N2	25360	44
nC20	517255	8540	30D13	427	8	137TMN	98686	171
nC21	448064	7400	31abS	2408	43	136TMN	146386	253
nC22	392354	6480	31abR	1692	30	135146TMN	108061	187
nC23	369326	6100	31ba	91	2	236TMN	102743	178
nC24	333371	5500	32abS	1899	34	167127TMN	81954	142
nC25	313977	5180	32abR	1319	23	126TMN	47639	82
nC26	281054	4640	33abS	1218	22	124TMN	15238	26
nC27	267531	4420	33abR	704	12	125TMN	51042	88
nC28	219942	3630	34abS	753	13	BP	80868	96
nC29	201029	3320	34abR	442	8	3MBP	166962	199
nC30	149629	2470	35abS	373	7	4MBP	50232	60
nC31	131157	2170	35abR	251	4	23XDMBP	3213	6
nC32	87034	1440	21aa	391	10	25DMBP	1770	3
nC33	65180	1080	21bb	398	10	2424XDMBP	2999	5
nC34	41888	690	22aa	290	7	23DMBP	11864	21
nC35	39655	650	22bb	174	4	3EBP	14734	25
			27dbS	1397	36	35DMBP	26086	45
			27dbR	853	22	33XDMBP	78817	136
			27bbR	764	20	4EBP	5739	10
			27bbS	426	11	34XDMBP	53308	92
			27aaR	201	5	44XDMBP	9584	17
			28bbR	276	7	34DMBP	27163	47
			28bbS	384	10	DBF	36705	44
			29aaS	263	7	DBF1	47140	81
			29bbR	628	16	MDBF2	36203	63
			29bbS	633	16	MDBF3	32881	57
			29aaR	276	7	F	197099	285
			30bbR	89	2	C1F1	55700	80
			30bbS	79	2	C1F2	157930	228
						1MF	31056	45
						DBT	17478	7
						4MDBT	23306	9
						3MDBT	0	0
						1MDBT	3199	1
						P	512575	564
						3MP	188321	243
Saturated HC biomarkers, GC/MS								
	Height	ng/mg						
19/3	412	7						
20/3	355	6						
21/3	325	6						
23/3	369	7						
24/3	205	4						
25/3	0	0						
25/3R	84	1						
25/3S	104	2						
26/3R	107	2						
26/3S	133	2						
28/3R	113	2						
28/3S	67	1						
29/3R	292	5						
29/3S	116	2						
24/4	544	10						
27Ts	1582	28						
27Tm	1617	29						

Country, well/location: NOR 35/8-5 S
Sample type, depth (m): COCH, 3876.8-3876.8m
Stratigraphy (Gr./Fm.): NESS
Remarks:

**Sediment
sample**



E&P Research Centre,
Bergen, Norway

OrgID: , PlanID:

Aromatic HC's, GC/MS cont...

	Height	ng/mg
2MP	239151	309
9MP	285755	369
1MP	216136	279
2EP9EP36DMP	47677	59
1EP	48588	60
262735DMP	26957	33
13210393DMP	161860	200
162529DMP	82894	102
17DMP	86390	107
23DMP	31808	39
194941DMP	50060	62
18DMP	17084	21
RETENE	21079	23
20TA	3546	1
21TA	3918	1
S26TA	404	0
R26TAS27TA	1128	0
S28TA	1257	0
R27TA	495	0
R28TA	1106	0

Country, well/location: NOR 35/8-5 S
 Sample type, depth (m): MUD, 3395-3395 m
 Stratigraphy (Gr./Fm.): OXFORDIAN TURBIDITE

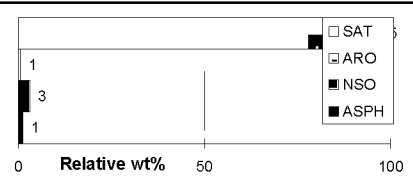
Remarks:

OrgID: 2185664, PlanID: 485856

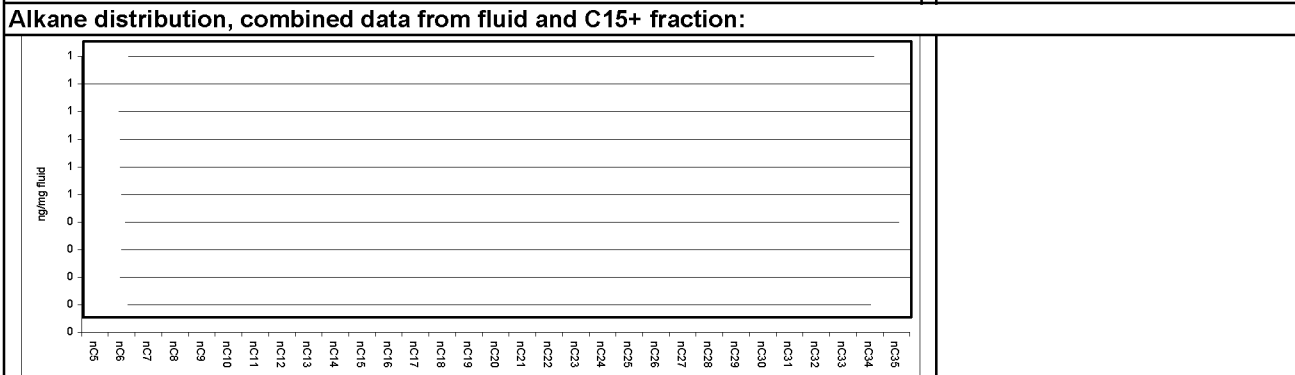
Fluid sample

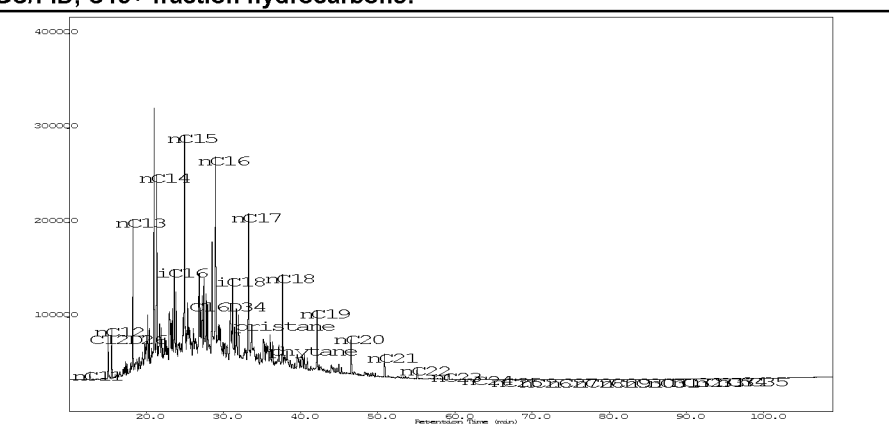


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Bulk data, Iatroscan	Bulk PVT	$\delta^{13}C$ isotope	ISTD-mix.(ng/mg EOM):														
	GOR, Sm ³ /m ³ B ₀ 1/B _g Density, kg/m ³ API ⁰	Sat. F28 Aro. F29 NSO F30 Asph. F31 Total F32 Kerogen F33	<table border="1"> <tr><td>C12D26</td><td>3990</td></tr> <tr><td>C16D34</td><td>3990</td></tr> <tr><td>24$\alpha$$\beta$</td><td>24</td></tr> <tr><td>d8N</td><td>48</td></tr> <tr><td>d10BP</td><td>48</td></tr> <tr><td>d10P</td><td>48</td></tr> <tr><td>d12C</td><td>48</td></tr> </table>	C12D26	3990	C16D34	3990	24 α β	24	d8N	48	d10BP	48	d10P	48	d12C	48
C12D26	3990																
C16D34	3990																
24 α β	24																
d8N	48																
d10BP	48																
d10P	48																
d12C	48																

GC/FID, depressurized fluid, C6-9 hydrocarbons:	GC/FID	Area	Amount
	Hep.value	#####	#DIV/0!
	Isohep.val.	#####	#DIV/0!
	Paraffnicity	#####	#DIV/0!
	Aromaticity	#####	#DIV/0!
	nC ₈ /Benz.	#####	#DIV/0!
	nC ₇ /Tolu.	#####	#DIV/0!



GC/FID, C15+ fraction hydrocarbons:	GC/FID	Area	Amount
	Pr/nC ₁₇	0.19	0.19
	Ph/nC ₁₈	0.23	0.23
	Pr/Ph	1.24	1.24
	nC ₁₇ /(C ₁₇ +C ₂₇)	1.00	1.00
	nC ₁₇		12
	Pristane		2
	Σ C ₁₅₋₃₅		79

Country, well/location: **NOR 35/8-5 S**
 Sample type, depth (m): **MUD, 3395-3395 m**
 Stratigraphy (Gr./Fm.): **OXFORDIAN TURBIDITE**

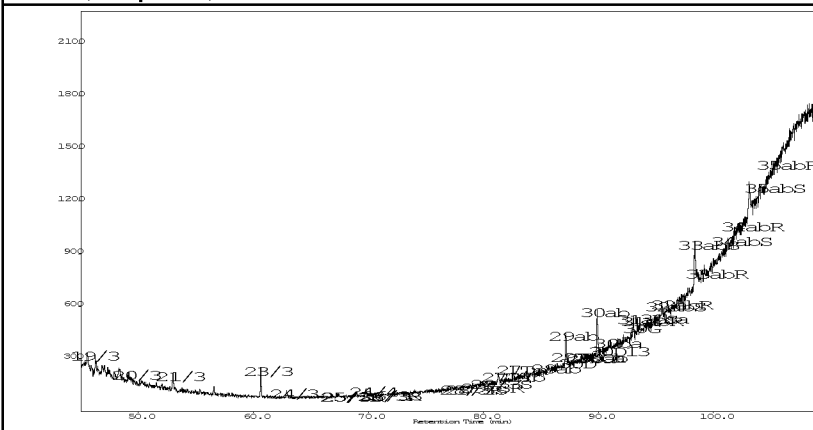
**Fluid
sample**



Remarks:

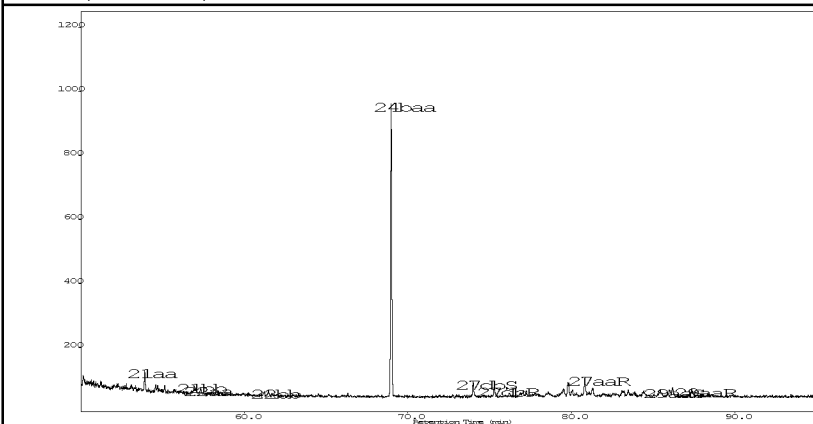
OrgID: 2185664, PlanID: 485856

GC/MS, Terpanes, m/z 191:



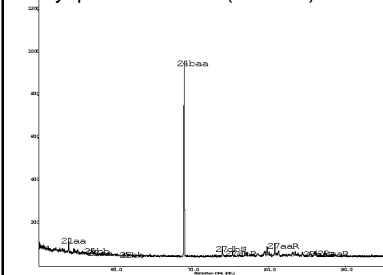
GC/MS	Height	Amount
%Tri	18	19
%20/3	12	12
%23/3	79	79
%24/4	19	19
C26/C25	0.8	0.8
%27Ts	40	40
%28αβ	13	19
%29Ts	27	27
%25nor30αβ	6	8
%29αβ	43	54
%30βα	18	18
%30D	9	14
%30G	18	25
%32αβS	57	57
%35αβ	1	1
30αβ		3
25nor30αβ		0
Σterpanes		52
%Preg.	19	19
%29ααS	44	44
%29ββ	64	64
%27dia	50	50
%27ster.	33	33
%28ster.	25	25
%29ster.	34	34
%30ster.	7	7
29ααS		0
29ααR		1
Σsteranes		14

GC/MS, Steranes, m/z 217:

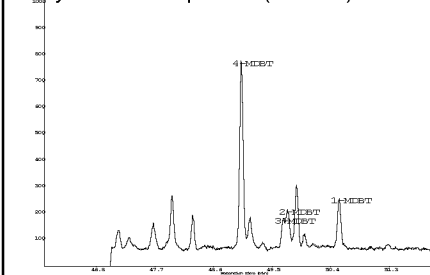


Aromatic hydrocarbons, GC/MS:

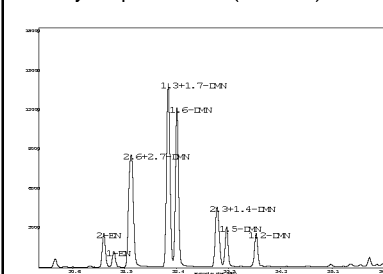
Methyl-phenanthrenes (m/z 192):



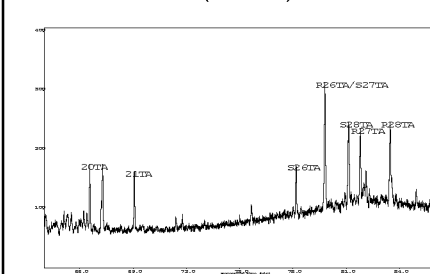
Methyl-dibenzothiophenes (m/z 198):




Dimethyl-naphthalenes (m/z 156):



Triaromatic steroids (m/z 231):



GC/MS	Height	Amount
Naphth	12379	14
C1-naph.	44563	38
C2-naph.	44927	36
C3-naph.	29380	24
DNR	2.8	2.8
2/1MN	1.4	1.4
2/1EN	2.1	2.1
Phen.	7615	5
C1-phen.	11826	9
C2-phen.	7771	6
MPI1	0.65	0.71
F1	0.50	0.50
F2	0.27	0.27
%TAS'n	28	29
DBT/P	0.08	0.03
F/P	0.39	0.41
BP/1.6DMN	0.59	0.42
4/1MDBT	3.65	4.00
3MP/R	2.7	3.2

Country, well/location:	NOR 35/8-5 S	 HYDRQ <small>E&P Research Centre, Bergen, Norway</small>
Sample type, depth (m):	MUD, 3395-3395 m	
Stratigraphy (Gr./Fm.):	OXFORDIAN TURBIDITE	
Remarks:		
OrgID: , PlanID:		

Aromatic HC's, GC/MS cont...			cont...	Area	ng/mg
	Height	ng/mg			
P	7615	5	1C2DMCYC5	F268	0
3MP	2726	2	MCYC6	F269	0
2MP	3153	2	113TMCYC5	F270	0
9MP	3339	3	ECYC5	F271	0
1MP	2608	2	25DMC6	F272	0
2EP9EP36DMP	713	1	223TMC524DMC6	F273	0
1EP	839	1	1C2T4TMCYC5	F274	0
262735DMP	461	0	33DMC6	F275	0
13210393DMP	2217	2	1T2C3TMCYC5	F276	0
162529DMP	1091	1	234TMC5	F277	0
17DMP	1087	1	TOLUENE	F278	0
23DMP	434	0	23DMC6	F279	0
194941DMP	657	0	2MC7	F280	0
18DMP	272	0	4MC7	F281	0
RETENE	1008	1	3MC7	F282	0
20TA	112	0	1C3DMCYC6	F283	0
21TA	97	0	1T4DMCYC6	F284	0
S26TA	89	0	11DMCYC6	F285	0
R26TAS27TA	217	0	1T2DMCYC6	F286	0
S28TA	139	0	NC8	F287	0
R27TA	129	0	ECYC6	F288	0
R28TA	142	0	IC9	F289	0
C5-20 HC's, GC/FID			EBENZENE	F290	0
	Area	ng/mg	MXYLENE	F291	0
IC5	F242	0	PXYLENE	F292	0
NC5	F243	0	4MC8	F293	0
22DMC4	F244	0	2MC8	F294	0
CYC5	F245	0	3MC8	F295	0
23DMC4	F246	0	OXYLENE	F296	0
2MC5	F247	0	NC9	F297	0
3MC5	F248	0	IC10	F298	0
NC6	F249	0	NC10	F299	0
3MCYC5ENE	F250	0	IC11	F300	0
22DMC5	F251	0	NC11	F301	0
MCYC5	F252	0	NC12	F302	0
24DMC5	F253	0	IC13	F303	0
223TMC4	F254	0	PHC6	F304	0
BENZENE	F255	0	IC14	F305	0
33DMC5	F256	0	NC13	F306	0
CYC6	F257	0	IC15	F307	0
2MC6	F258	0	NC14	F308	0
23DMC5	F259	0	IC16	F309	0
11DMCYC5	F260	0	NC15	F310	0
3MC6	F261	0	NC16	F311	0
1C3DMCYC5	F262	0	IC18	F312	0
1T3DMCYC5	F263	0	NC17	F313	0
3EC5	F264	0	PRISTANE	F314	0
1T2DMCYC5	F265	0	NC18	F315	0
IC8	F266	0	PHYTANE	F316	0
NC7	F267	0	NC19	F317	0
			NC20	F318	0

Country, well/location: NOR 35/8-5 S
 Sample type, depth (m): MUD, 3870-3870 m
 Stratigraphy (Gr./Fm.): NESS

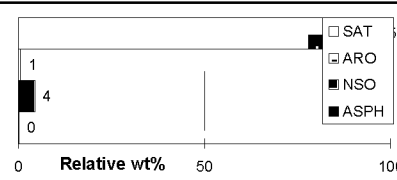
Remarks:

OrgID: 2185517, PlanID: 485858

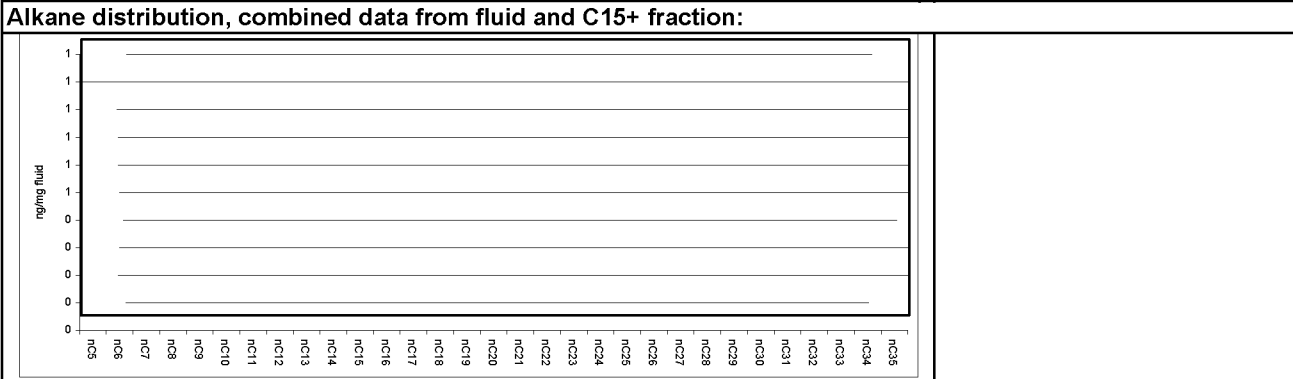
Fluid sample

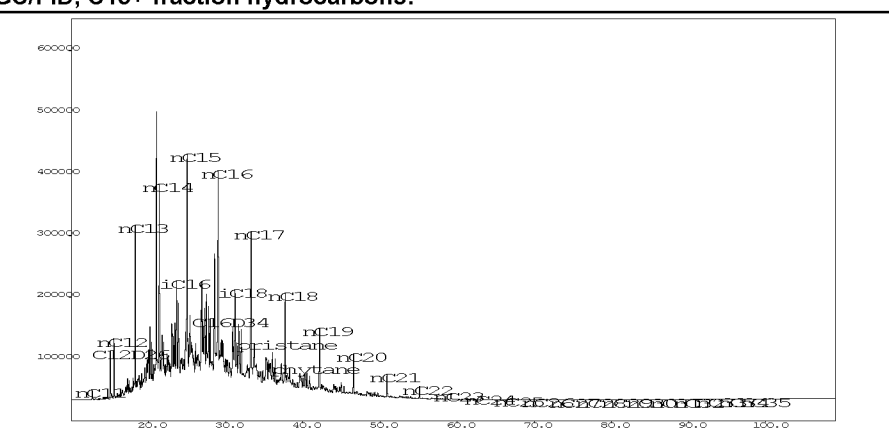


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Bergen, Norway

Bulk data, latroscan	Bulk PVT	$\delta^{13}C$ isotope	ISTD-mix.(ng/mg EOM):														
	GOR, Sm ³ /m ³ B ₀ 1/B _g Density, kg/m ³ API ⁰	Sat. F28 Aro. F29 NSO F30 Asph. F31 Total F32 Kerogen F33	<table border="1"> <tr><td>C12D26</td><td>3750</td></tr> <tr><td>C16D34</td><td>3750</td></tr> <tr><td>24$\alpha$$\beta$</td><td>22</td></tr> <tr><td>d8N</td><td>45</td></tr> <tr><td>d10BP</td><td>45</td></tr> <tr><td>d10P</td><td>45</td></tr> <tr><td>d12C</td><td>45</td></tr> </table>	C12D26	3750	C16D34	3750	24 α β	22	d8N	45	d10BP	45	d10P	45	d12C	45
C12D26	3750																
C16D34	3750																
24 α β	22																
d8N	45																
d10BP	45																
d10P	45																
d12C	45																

GC/FID, depressurized fluid, C6-9 hydrocarbons:	GC/FID	Area	Amount
	Hep.value	#####	#DIV/0!
	Isohep.val.	#####	#DIV/0!
	Paraffinicity	#####	#DIV/0!
	Aromaticity	#####	#DIV/0!
	nC ₆ /Benz.	#####	#DIV/0!
	nC ₇ /Tolu.	#####	#DIV/0!



GC/FID, C15+ fraction hydrocarbons:	GC/FID	Area	Amount
	Pr/nC ₁₇	0.41	0.41
	Ph/nC ₁₈	0.19	0.19
	Pr/Ph	3.27	3.27
	nC ₁₇ /(C ₁₇ +C ₂₇)	1.00	1.00
	nC ₁₇		11
	Pristane		4
	Σ C ₁₅₋₃₅		77

Country, well/location: NOR 35/8-5 S
 Sample type, depth (m): MUD, 3870-3870 m
 Stratigraphy (Gr./Fm.): NESS

Fluid
 sample

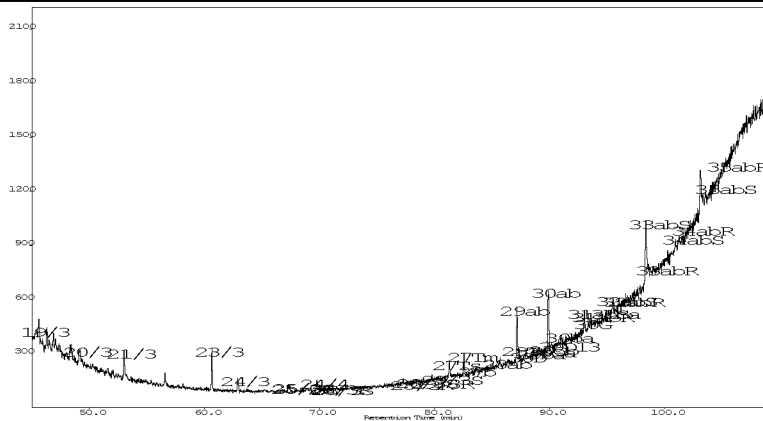


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 Bergen, Norway

Remarks:

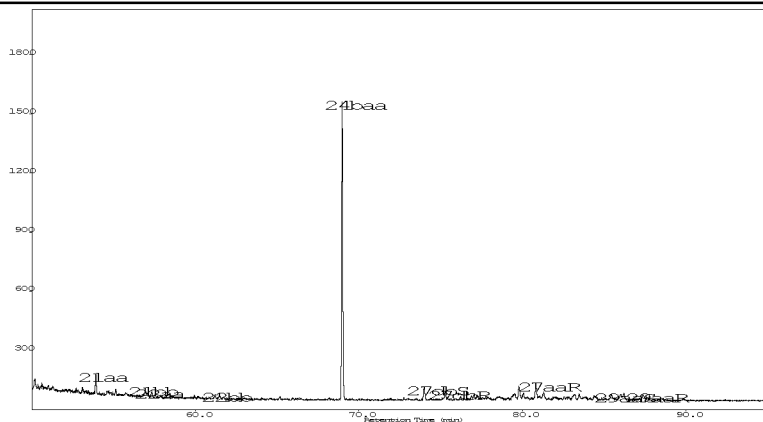
OrgID: 2185517, PlanID: 485858

GC/MS, Terpanes, m/z 191:



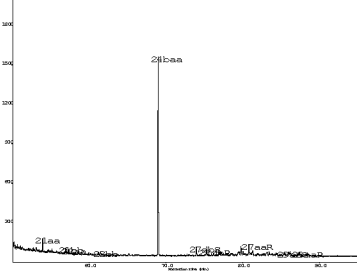
GC/MS	Height	Amount
%Tri	23	24
%20/3	13	13
%23/3	75	75
%24/4	17	17
C26/C25	0.7	0.7
%27Ts	42	42
%28αβ	10	14
%29Ts	17	17
%25nor30αβ	7	10
%29αβ	48	59
%30βα	15	15
%30D	8	12
%30G	11	16
%32αβS	60	60
%35αβ	0	0
30αβ		2
25nor30αβ		0
Σterpanes		34
%Preg.	19	18
%29ααS	51	51
%29ββ	64	64
%27dia	47	47
%27ster.	39	39
%28ster.	24	24
%29ster.	30	30
%30ster.	6	7
29ααS		0
29ααR		0
Σsteranes		12

GC/MS, Steranes, m/z 217:

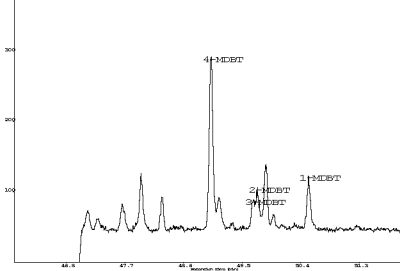


Aromatic hydrocarbons, GC/MS:

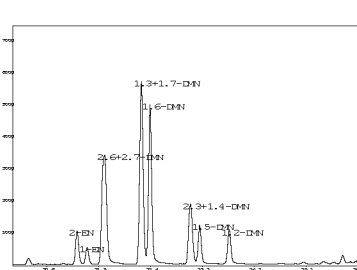
Methyl-phenanthrenes (m/z 192):



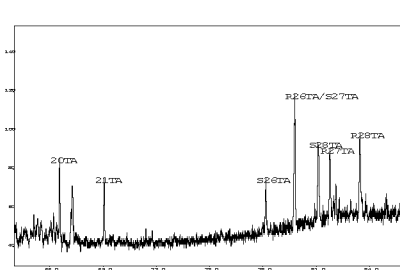
Methyl-dibenzothiophenes (m/z 198):




Dimethyl-naphthalenes (m/z 156):



Triaromatic steroids (m/z 231):



GC/MS	Height	Amount
Naphth	5876	19
C1-naph.	18485	48
C2-naph.	18229	45
C3-naph.	11327	28
DNR	2.8	2.8
2/1MN	1.4	1.4
2/1EN	2.0	2.0
Phen.	2990	6
C1-phen.	4254	11
C2-phen.	2830	7
MPI1	0.57	0.62
F1	0.47	0.47
F2	0.24	0.24
%TAS'n	33	32
DBT/P	0.08	0.03
F/P	0.40	0.39
BP/1.6DMN	0.55	0.39
4/1MDBT	3.15	3.00
3MP/R	2.5	3.0

Country, well/location:	NOR 35/8-5 S	Fluid sample  <small>E&P Research Centre, Bergen, Norway</small>
Sample type, depth (m):	MUD, 3870-3870 m	
Stratigraphy (Gr./Fm.):	NESS	
Remarks:		
OrgID: , PlanID:		

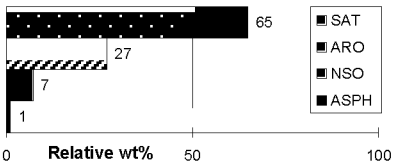
Aromatic HC's, GC/MS cont...			cont...	Area	ng/mg
	Height	ng/mg			
P	2990	6	1C2DMCYC5	F268	0
3MP	959	2	MCYC6	F269	0
2MP	1025	3	113TMCYC5	F270	0
9MP	1277	3	ECYC5	F271	0
1MP	993	2	25DMC6	F272	0
2EP9EP36DMP	278	1	223TMC524DMC6	F273	0
1EP	281	1	1C2T4TMCYC5	F274	0
262735DMP	152	0	33DMC6	F275	0
13210393DMP	795	2	1T2C3TMCYC5	F276	0
162529DMP	416	1	234TMC5	F277	0
17DMP	383	1	TOLUENE	F278	0
23DMP	170	0	23DMC6	F279	0
194941DMP	256	1	2MC7	F280	0
18DMP	99	0	4MC7	F281	0
RETENE	377	1	3MC7	F282	0
20TA	43	0	1C3DMCYC6	F283	0
21TA	34	0	1T4DMCYC6	F284	0
S26TA	30	0	11DMCYC6	F285	0
R26TAS27TA	70	0	1T2DMCYC6	F286	0
S28TA	42	0	NC8	F287	0
R27TA	39	0	ECYC6	F288	0
R28TA	46	0	IC9	F289	0
C5-20 HC's, GC/FID			EBENZENE	F290	0
	Area	ng/mg	MXYLENE	F291	0
IC5	F242	0	PXYLENE	F292	0
NC5	F243	0	4MC8	F293	0
22DMC4	F244	0	2MC8	F294	0
CYC5	F245	0	3MC8	F295	0
23DMC4	F246	0	OXYLENE	F296	0
2MC5	F247	0	NC9	F297	0
3MC5	F248	0	IC10	F298	0
NC6	F249	0	NC10	F299	0
3MCYC5ENE	F250	0	IC11	F300	0
22DMC5	F251	0	NC11	F301	0
MCYC5	F252	0	NC12	F302	0
24DMC5	F253	0	IC13	F303	0
223TMC4	F254	0	PHC6	F304	0
BENZENE	F255	0	IC14	F305	0
33DMC5	F256	0	NC13	F306	0
CYC6	F257	0	IC15	F307	0
2MC6	F258	0	NC14	F308	0
23DMC5	F259	0	IC16	F309	0
11DMCYC5	F260	0	NC15	F310	0
3MC6	F261	0	NC16	F311	0
1C3DMCYC5	F262	0	IC18	F312	0
1T3DMCYC5	F263	0	NC17	F313	0
3EC5	F264	0	PRISTANE	F314	0
1T2DMCYC5	F265	0	NC18	F315	0
IC8	F266	0	PHYTANE	F316	0
NC7	F267	0	NC19	F317	0
			NC20	F318	0

Country, well/location: NOR NSO1
 Sample type, depth (m): OIL, 0.01-1030.03 m
 Stratigraphy (Gr./Fm.):
 Remarks:
 OrgID: 2193054, PlanID: 486037

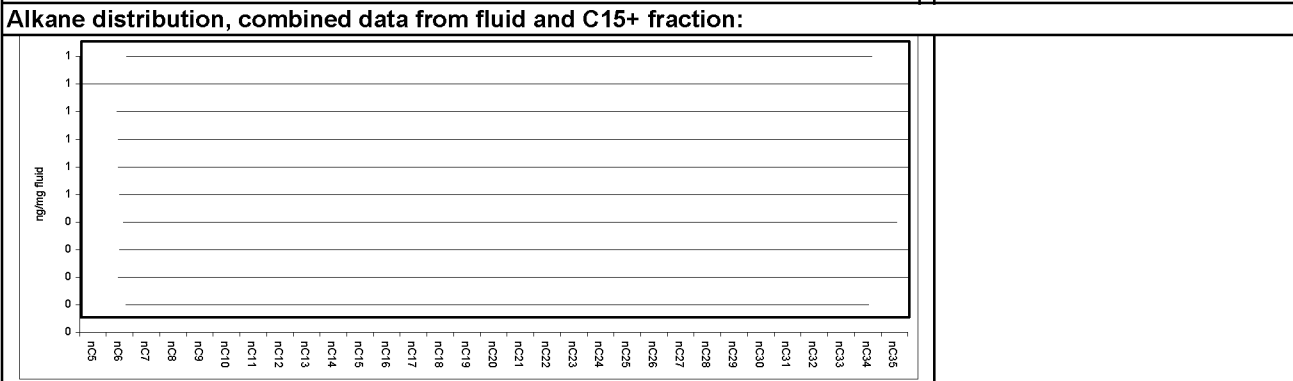
Fluid sample

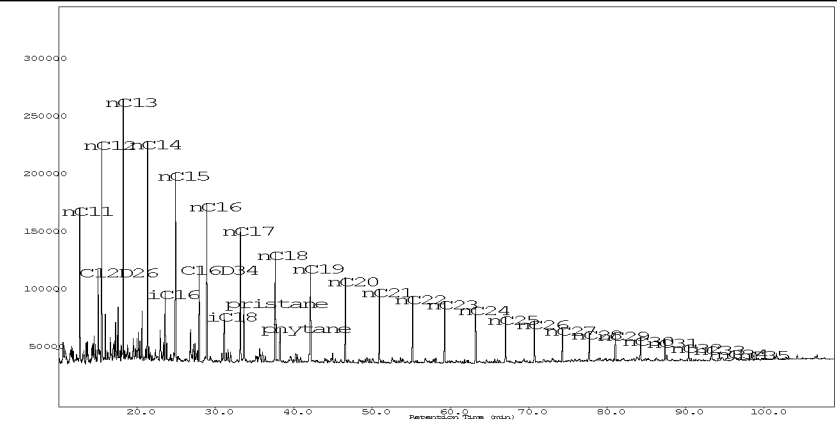


E&P Research Centre,
Bergen, Norway

Bulk data, latroscan	Bulk PVT	$\delta^{13}C$ isotope	ISTD-mix.(ng/mg EOM):
	GOR, Sm ³ /m ³ B ₀ 1/B _g Density, kg/m ³ API ⁰	Sat. F28 Aro. F29 NSO F30 Asph. F31 Total F32 Kerogen F33	C12D26 4000 C16D34 4000 24 α β 24 d8N 48 d10BP 48 d10P 48 d12C 48

GC/FID, depressurized fluid, C6-9 hydrocarbons:	GC/FID	Area	Amount
	Hep.value	#####	#DIV/0!
	Isohep.val.	#####	#DIV/0!
	Paraffnicity	#####	#DIV/0!
	Aromaticity	#####	#DIV/0!
	nC ₈ /Benz.	#####	#DIV/0!
	nC ₇ /Tolu.	#####	#DIV/0!



GC/FID, C15+ fraction hydrocarbons:	GC/FID	Area	Amount	
	Pr/nC ₁₇	0.55	0.55	
	Ph/nC ₁₈	0.44	0.44	
	Pr/Ph	1.52	1.52	
	nC ₁₇ /(C ₁₇ +C ₂₇)	0.78	0.78	
	nC ₁₇		6	
	Pristane		3	
	Σ C ₁₅₋₃₅		66	


Country, well/location: **NOR NSO1**
Sample type, depth (m): **OIL, 0.01-1030.03 m**
Stratigraphy (Gr./Fm.):
Remarks:
OrgID: , PlanID:

**Fluid
sample**



E&P Research Centre,
Bergen, Norway

Saturated HC's, GC/FID			cont...	Height	ng/mg			
	Area	ng/mg						
nC11	604678	0	27b	630	7			
nC12	662024	0	25nor28ab	2384	25			
nC13	655697	0	28ab	6055	64	Aromatic HC's, GC/MS		
nC14	646996	0	25nor29ab	2208	23		Height	ng/mg
iC16	292464	3010	29ab	10388	110	N	534488	1107
nC15	630537	6490	29ba	2050	22	2MN	1018828	1285
nC16	583610	6010	29Ts	4587	49	1MN	843994	1064
iC18	248463	2560	25nor30ab	2064	22	2EN	103419	122
nC17	562726	5790	30ab	28732	197	1EN	50347	60
Prinstane	311818	3210	30ba	3123	21	2627DMN	458299	542
nC18	464202	4780	30D	2595	28	1317DMN	660153	781
Phytane	204771	2110	30G	1336	14	16DMN	631998	748
nC19	411257	4230	30O	0	0	2314DMN	227978	270
nC20	370651	3820	30D13	1359	14	15DMN	177233	210
nC21	324931	3350	31abS	10897	116	12DMN	109983	130
nC22	306205	3150	31abR	7914	84	C3N1	52695	63
nC23	257606	2650	31ba	895	10	C3N2	54491	66
nC24	250503	2580	32abS	8038	85	137TMN	227918	274
nC25	197512	2030	32abR	5480	58	136TMN	373725	450
nC26	178676	1840	33abS	6961	74	135146TMN	309071	372
nC27	159654	1640	33abR	4507	48	236TMN	224126	270
nC28	132165	1360	34abS	4253	45	167127TMN	178138	214
nC29	119385	1230	34abR	2793	30	126TMN	107519	129
nC30	111193	1140	35abS	3917	42	124TMN	40870	49
nC31	102400	1050	35abR	2876	31	125TMN	124153	149
nC32	74779	770	21aa	2334	36	BP	302802	251
nC33	66916	690	21bb	2784	43	3MBP	281408	233
nC34	49008	500	22aa	1513	23	4MBP	94302	78
nC35	45710	470	22bb	1489	23	23XDMBP	11083	13
			27dbS	5020	77	25DMBP	5159	6
			27dbR	3295	51	2424XDMBP	9964	12
			27bbR	3741	57	23DMBP	20890	25
			27bbS	2777	43	3EBP	25700	31
			27aaR	1594	24	35DMBP	39919	48
			28bbR	2230	34	33XDMBP	103647	125
			28bbS	3168	49	4EBP	9632	12
			29aaS	1907	29	34XDMBP	82665	99
			29bbR	3279	50	44XDMBP	14818	18
			29bbS	3293	51	34DMBP	39025	47
			29aaR	1701	26	DBF	59163	49
			30bbR	1377	21	DBF1	75487	91
			30bbS	1126	17	MDBF2	44134	53
						MDBF3	40958	49
						F	99497	100
						C1F1	41127	41
						C1F2	144628	145
						1MF	23280	23
						DBT	57046	14
						4MDBT	73751	18
						3MDBT	0	0
						1MDBT	22810	6
Saturated HC biomarkers, GC/MS								
	Height	ng/mg						
19/3	793	8						
20/3	800	9						
21/3	1096	12						
23/3	1681	18						
24/3	1363	14						
25/3	0	0						
25/3R	637	7						
25/3S	0	7						
26/3R	592	6						
26/3S	599	6						
28/3R	623	7						
28/3S	610	6						
29/3R	581	6						
29/3S	1228	13						
24/4	1451	15						
27Ts	4807	51						
27Tm	4616	49						

Country, well/location:	NOR NSO1	Fluid sample  <small>E&P Research Centre, Bergen, Norway</small>
Sample type, depth (m):	OIL, 0.01-1030.03 m	
Stratigraphy (Gr./Fm.):		
Remarks:		
OrgID: , PlanID:		

Aromatic HC's, GC/MS cont...			cont...		
	Height	ng/mg		Area	ng/mg
P	372032	267	1C2DMCYC5	F268	0
3MP	152422	128	MCYC6	F269	0
2MP	171164	144	113TMCYC5	F270	0
9MP	250050	210	ECYC5	F271	0
1MP	198334	167	25DMC6	F272	0
2EP9EP36DMP	44662	36	223TMC524DMC6	F273	0
1EP	42777	34	1C2T4TMCYC5	F274	0
262735DMP	24163	19	33DMC6	F275	0
13210393DMP	171238	138	1T2C3TMCYC5	F276	0
162529DMP	84314	68	234TMC5	F277	0
17DMP	94770	76	TOLUENE	F278	0
23DMP	28382	23	23DMC6	F279	0
194941DMP	58916	47	2MC7	F280	0
18DMP	23687	19	4MC7	F281	0
RETENE	102101	73	3MC7	F282	0
20TA	17291	4	1C3DMCYC6	F283	0
21TA	19902	5	1T4DMCYC6	F284	0
S26TA	20662	5	11DMCYC6	F285	0
R26TAS27TA	52689	12	1T2DMCYC6	F286	0
S28TA	28738	7	NC8	F287	0
R27TA	27095	6	ECYC6	F288	0
R28TA	27686	7	IC9	F289	0
C5-20 HC's, GC/FID			EBENZENE	F290	0
	Area	ng/mg	MXYLENE	F291	0
IC5	F242	0	PXYLENE	F292	0
NC5	F243	0	4MC8	F293	0
22DMC4	F244	0	2MC8	F294	0
CYC5	F245	0	3MC8	F295	0
23DMC4	F246	0	OXYLENE	F296	0
2MC5	F247	0	NC9	F297	0
3MC5	F248	0	IC10	F298	0
NC6	F249	0	NC10	F299	0
3MCYC5ENE	F250	0	IC11	F300	0
22DMC5	F251	0	NC11	F301	0
MCYC5	F252	0	NC12	F302	0
24DMC5	F253	0	IC13	F303	0
223TMC4	F254	0	PHC6	F304	0
BENZENE	F255	0	IC14	F305	0
33DMC5	F256	0	NC13	F306	0
CYC6	F257	0	IC15	F307	0
2MC6	F258	0	NC14	F308	0
23DMC5	F259	0	IC16	F309	0
11DMCYC5	F260	0	NC15	F310	0
3MC6	F261	0	NC16	F311	0
1C3DMCYC5	F262	0	IC18	F312	0
1T3DMCYC5	F263	0	NC17	F313	0
3EC5	F264	0	PRISTANE	F314	0
1T2DMCYC5	F265	0	NC18	F315	0
IC8	F266	0	PHYTANE	F316	0
NC7	F267	0	NC19	F317	0
			NC20	F318	0



Title: Petroleum Geochemistry in Well 35/8-5 S

No.: NH-00421772

Rev.:

Page : 17 of 15

Date : 2003-12-31

Appendix 2

Vitrinite reflectance R_o data

Vitrinite Reflectance Data Report - NOCS Well 35/8-5 S



Applied Petroleum Technology AS
P. O. Box 123
2027 Kjeller
Norway

Address: Applied Petroleum Technology AS P.O.Box 123 2027 Kjeller Telephone: +47 63 80 60 00 Telefax: +47 63 80 11 38	
Report number APT03-515	Classification Confidential
Report Title Vitrinite Reflectance Data Report - NOCS Well 35/8-5 S	Submitted
Client Norsk Hydro	Service Order 5229296
Client Reference Arne Steen	Number of pages 30
Distribution Norsk Hydro (3) APT (1)	

Authors

Kristine Aasgaard

	Name	Date	Signature
Reviewed by	Nigel Mills	2003-11-26	
Approved by	Tore Haaland	2003-11-26	

Table 1. Number of analyses performed

Analysis	Cuttings	Core	Total
Vitrinite reflectance	19	4	23

Table 2. Vitrinite Reflectance

Well	Sample type	Lower Depth	APT ID	Sample prep.	%Lithology	%Ro	Std. dev.	No. of measurements	Quality rating	Overall quality	Comment
35/8-5 S	DC	2000 m	19127	HF	clyst	0.25	0.02	5	-00-00	P	
35/8-5 S	DC	2100 m	19128	HF	clyst/sst	0.25	0.04	4	-00--0	P	
35/8-5 S	DC	2200 m	19129	HF	clyst	0.26	0.04	9	-00--0	P	
35/8-5 S	DC	2300 m	19130	HF	clyst	0.27	0.03	17	000-0+	M	
35/8-5 S	DC	2400 m	19131	HF	clyst	0.39	0.05	8	-±0-00	P	See data sheet
35/8-5 S	DC	2500 m	19132	HF	clyst	0.45	0.07	11	-±0-00	P	See data sheet
35/8-5 S	DC	2600 m	19133	HF	clyst	0.40	0.04	16	000-00	M	
35/8-5 S	DC	2700 m	19134	HF	clyst	0.36	0.06	2	-00--0	P	
35/8-5 S	DC	2800 m	19135	HF	clyst	0.54	0.04	3	-00--0	P	
35/8-5 S	DC	2900 m	19136	HF	clyst	barren					See data sheet
35/8-5 S	DC	3000 m	19137	HF	clyst	0.57	0.02	2	-00-00	P	
35/8-5 S	DC	3100 m	19138	HF	clyst	0.53	0.01	2	-±0-00	P	
35/8-5 S	DC	3200 m	19139	HF	sst/clyst	0.47	0.02	2	-±0-00	P	
35/8-5 S	DC	3300 m	19140	HF	clyst	0.45	0.04	22	000-00	G	
35/8-5 S	DC	3501 m	19141	HF	clyst/sst	0.54	0.09	14	-00--0	M	
35/8-5 S	DC	3600 m	19142	HF	clyst/sst	0.52	0.05	24	000000	G	
35/8-5 S	DC	3702 m	19143	HF	sst/clyst	0.59	0.06	10	-00-00	M	
35/8-5 S	DC	3801 m	19144	HF	clyst	0.67	0.07	20	000-0+	M	See data sheet
35/8-5 S	DC	3999 m	19145	HF	sst/clyst	barren					
35/8-5 S	COCH	3388.60 m	19146	HF	clyst	0.50	0.04	22	00000+	G	
35/8-5 S	COCH	3442.30 m	19147	HF	clyst	0.53	0.04	21	00000+	G	
35/8-5 S	COCH	3850.50 m	19148	HF	clyst/sst	0.64	0.06	21	000000	G	
35/8-5 S	COCH	3882.70 m	19149	HF	clyst	0.68	0.05	26	000000	G	

Legend to Vitrinite reflectance data

Lithology code		Sample quality		Sample preparation	
sst	Sandstone	G	Good	HF	Sample treatment with hydrofluoric acid prior to analysis
slst	Siltstone	M	Moderate		
clyst	Claystone	P	Poor	Bulk	Sample treated as bulk rock
sh	Shale	st	Hydrocarbon staining		
lst	Limestone				
coal	Coal				

Sample description and measurement evaluation (perfect sample characterised as: 000000)			
Sign order	Parameter	Sign	Sign legend:
1	Abundance of vitrinite	-o	- May give too low vitrinite reflectance sample value
2	Identification of vitrinite	-o+	o Reliable vitrinite reflectance sample value
3	Type of vitrinite	-o+	+ May give too high vitrinite reflectance sample value
4	Vitrinite fragment size	-o	
5	Vitrinite surface quality	-o	
6	Abundance of pyrite	o+	

Experimental Procedures

All procedures follow NIGOGA, 4th Edition. Below are brief descriptions of procedures/analytical conditions.

Sample preparation

Cuttings samples are washed in water to remove mud. When oil based mud is used, soap (Zalo) is added to the sample and the sample is washed thoroughly in warm water to remove mud and soap.

Vitrinite reflectance analysis

The samples are prepared either as “whole rock” or are treated with hydrochloric and hydrofluoric acid prior to further preparation. The aim of the acid treatment is to avoid soft and expanding mineral phases in order to ensure good polishing quality. The whole rock or the kerogen resulting from the acid treatment is 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.

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

For each sample at least 20 points are 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.



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Appendix 3

Analysis of headspace and occluded gas in
canned DC-samples, SINTEF 2003

		REPORT	
SINTEF Petroleumsforskning AS SINTEF Petroleum Research NO-7465 Trondheim Telephone: (+47)73 59 11 00 Fax: (+47)73 59 11 02 (aut.) Enterprise No.: NO 936 882 331		TITLE Analysis of headspace and occluded gas (C1 – C9) from well 35/8-5 S	
		AUTHOR(S) Torun Vinge, Hermann Michael Weiss	
CLASSIFICATION Confidential		CLIENT(S) Norsk Hydro Produksjon a.s	
REPORT NO. 24.4558.00/01/03			
REG. NO. 2003.063	DATE 5 December 2003	PROJECT MANAGER Torun Vinge	SIGN.
NO. OF PAGES 39	NO. OF APPENDICES	LINE MANAGER May Britt Myhr	SIGN.
SUMMARY This report contains tables and figures with data from gas chromatographic analyses of headspace and occluded gas from 7 canned cuttings samples from well 35/8-5 S. Additional analyses have been done to evaluate the potential influence of the oil-based mud used in this well. The yields (in µl/kg dry rock) and relative proportions (in volume %) of 49 hydrocarbon compounds ranging from C1 to C9 are tabulated. Some geochemically relevant peak ratios are also listed and plotted.			
KEYWORDS ENGLISH		KEYWORDS NORWEGIAN	
Well 35/8-5 S Organic geochemistry Gas analysis		Brønn 35/8-5 S Organisk geokjemi Gassanalyse	

1. Introduction

Seven canned cutting samples and two mud samples from the well 35/8-5 S were received from Norsk Hydro, Oil & Energy (Order No.: 5227653) for gas chromatographic analysis of the C1 to C9 hydrocarbons contained in the headspace and occluded gas.

An oil-based mud (OBM) system was used in this well, and in agreement with the client a detergent was used to remove most of the mud during sample preparation. It was also agreed that the gas from the two mud samples should be analysed and that some extra analyses should be done on five samples washed only with water to get an idea of the potential influence of the mud on gas yield and composition.

This report contains the results of the analyses. The hydrocarbon concentrations are expressed as μl gas per kg of dried cuttings (> 0.125 mm). The hydrocarbon composition is expressed in volume percent of all recorded hydrocarbons from the cuttings.

The results are presented in Chapter 5. Results from the additional analyses of the samples washed with water are presented in Chapter 6.

2. Experimental

2.1 Headspace gas

A septum was attached to the can and a sample of headspace gas was taken and injected into a gas chromatograph for analysis of C1 to C9 hydrocarbons.

The can was opened and the volume of the headspace was determined.

2.2 Sample washing

The cuttings were washed with water (ca. 30°C) on 4.0, 1.0 and 0.125 mm sieves in order to remove most of the drilling mud. They were then left in a beaker with 15% detergent (Zalo) in water, decanted a couple of times, then washed with water again (ca. 30°C) on 4.0, 1.0 and 0.125 mm sieves, then weighed and finally dried.

Aliquots of five samples were also analysed for occluded gas before treatment with detergent.

2.3 Occluded gas

Prior to drying, an aliquot of the 1-4 mm fraction was crushed in water for 10 minutes using a gas-tight ball mill. An aliquot of the evolved gas was injected into a gas chromatograph for analysis of C1 to C9 hydrocarbons. This was done on all samples washed with a solution of Zalo in water and on five samples washed with pure water.

Occluded gas from the two mud samples was also analysed. Approximately 2 g of mud, 5 g of clean sea sand and 25 ml water were crushed in the gas-tight ball mill prior to the gas analysis.

2.4 Gas chromatographic analysis

The gas was analysed on a gas chromatograph fitted with a gas injector. The GC temperature program started at 35°C, since separation of alkenes from alkanes was of no interest in this project. The instrument was fitted with a capillary column connected to an FID for hydrocarbon detection. Details of the instrumentation are listed in Table 2.1.

Table 2.1 Analytical equipment

Gas chromatograph	Agilent 6890
Injector	Gas injector connected to a 1.0 ml loop
Columns	HP-PONA column: 50 m x 0.20 mm i.d, 0.5 µm film thickness.
Carrier gas	Helium
Detector	FID (250 °C)
Temperature program	35 °C (5 min.) - 8 °C/min. - 180 °C (10 min.)
Chromatographic data system	HP ChemStation Rev. A.10.01

2.5 Identification

Peaks are identified based on three Supelco Reference Standards, guidelines in “The Norwegian Industry Guide to Organic Geochemical Analyses” (Edition 4.0) and internal procedures. Figure 2.1 shows a gas chromatogram with the annotation used in this project. Identified compounds, retention indices and comments are listed in Table 2.2.

Table 2.2 Identified compounds with retention indices (RI) and comments. For peak labels see explanation below the table.

Peak label	RI (Kováts)	Comments
C1	100	
C2	158 + 200	Includes ethane and ethene
C3	300	Includes propane and propene
iC4	354	
C4ene	385	
nC4	400	
2,2-DMC3	410	
RI=431	431	Unknown
iC5	467	
nC5	500	
2,2-DMC4	531	
CyC5 + 2,3-DMC4	560	Separated in some analyses, but summed up in the tables
2-MC5	565	
3-MC5	581	
nC6	600	
2,2-DMC5	624	
MCyC5	627	
2,4-DMC5	630	
Benzene	651	
CyC6	661	
2-MC6	668	
2,3-DMC5	670	
1,1-DMCyC5	674	
3-MC6	676	
c-1,3-DMCyC5	684	
t-1,3-DMCyC5	687	
t-1,2-DMCyC5 + 3-EC5 + 2,2,4-TMC5	690	
nC7	700	
MCyC6 + c-1,2-DMCyC5	725	
1,1,3-TMCyC5 + 2,2-DMC6	727	
2,5-DMC6 + 2,2,3-TMC5	734	May include E-CyC5
2,4-DMC6	736	
3,3-DMC6 + t-1,c-2,4-TMCyC5	744	May include c-1,t-2,4-TMCyC5
t-1,c-2,3-TMCyC5	751	
Toluene + 2,3,3-TMC5	758	
2-MC7	768	
4-MC7 + 3,4-DMC6* + 3M-3EC5	769	*isomer
3-MC7 + c-1,t-2,3-TMCyC5	775	May also include c-1,3-DMCyC6
DMCyC6	781	
DMCyC6	783	
nC8	800	
RI=808	808	Unknown
RI=832	831	
RI=838	838	Possibly ECyC6
E-Benzene	855	
RI=860	860	Unknown, minimum 2 compounds
m+p-Xylene	863	
RI=867	867	Unknown
RI=874	874	4-MC8 + 2-MC8
o-Xylene	886	
RI=893	893	Unknown
nC9	900	

Explanations:

Structural groups	Parent structures	Numbers of functional groups	Names of functional groups	Steric configurations
n = normal	C1 = methane	D = di	M = methyl	c = cis
i = iso	C2 = ethane	T = tri	E = ethyl	t = trans
Cy = cyclo	etc.		P = propyl	o = ortho
				m = meta
				p = para

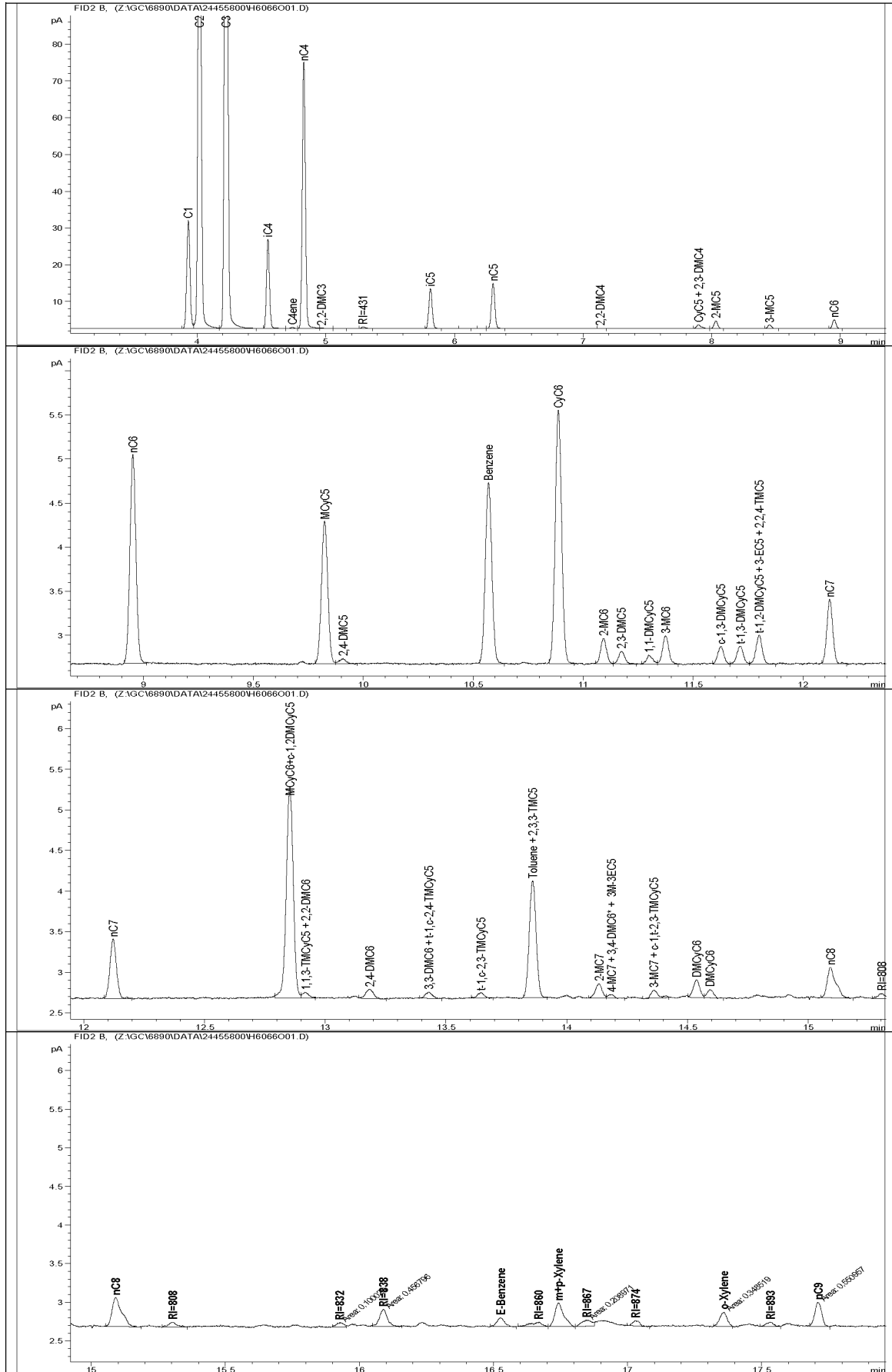


Figure 2.1 Gas chromatogram with annotation. Expanded views of C1 to n-C6, n-C6 to n-C7, n-C7 to n-C8 and n-C8 to n-C9 ranges.

2.6 Quantification

A 1000 ppm ($\mu\text{l/l}$) standard gas sample containing methane, ethane, propane, i-butane, n-butane, n-pentane and n-hexane was used for quantification. The variation between all standard analyses was small (Table 2.3), and the average response factors were used for quantification of all samples. The response factor for n-C5 was used for all compounds eluting between n-C4 and n-C5 and so on. For the C6-C7, C7-C8 and C8-C9 component groups the response factors were extrapolated based on molecular mass.

A 100 ppm ($\mu\text{l/l}$) standard gas sample containing methane, ethane, propane, n-butane, n-pentane and n-hexane was used for control of linearity.

Rock-related concentrations (in $\mu\text{l/kg}$) for compounds having a concentration of less than 0.2 ppm ($\mu\text{l/l}$) in the analysed gas are not reported, as this corresponds to an area of about 0.08 area units, which is the lowest reliable area in the gas chromatograms.

Table 2.3 Results from analyses of 1000 ppm standard (based on peak area)

	C1	C2	C3	iC4	nC4	nC5	nC6
Average peak area	69.1	135.0	196.3	275.3	281.0	320.9	363.9
Stdev.	0.7	1.2	2.0	3.0	3.6	6.2	12.2
Stdev. (% of average)	1.0	0.9	1.0	1.1	1.3	1.9	3.4
n	26	26	26	26	26	26	26

2.7 Concentrations and peak ratios

The yields of hydrocarbons ($\mu\text{l/kg}$ dry rock) in headspace (H) and occluded (O) gas and the sum of H + O are listed in Table 5.1 (Zalo-washed) and 6.1 (water-washed). Hydrocarbon composition (volume %) and selected summary data and peak ratios are given in Tables 5.2 and 5.3 (6.2 and 6.3 for water-washed samples). Figures 5.1 to 5.5 show relevant parameters plotted vs. depth. Abbreviations are explained in Table 2.4.

As coelution of 3-EC5 and 2,2,4-TMC5 with t-1,2-DMCyC5 and of c-1,2-DMCyC5 with MCyC6 cannot be avoided at the chosen experimental conditions, only some of the Mango ratios can be calculated (see tables).

Table 2.4 Explanations of the variables listed in Table 4.5.

Abbreviation	Explanation
Hydrocarbon yields for selected C-number ranges	
CncC1	Concentration of C1 ($\mu\text{l/kg}$ dry rock)
CncC2C4	Concentration of C2 through n-C4 ($\mu\text{l/kg}$ dry rock)
CncC5C9	Concentration of C5 through n-C9, i.e. all peaks eluting after n-C4 ($\mu\text{l/kg}$ dry rock)
CncC1C9	Sum of these concentrations
Hydrocarbon composition for selected C-number ranges	
PctC1	Fraction of C1 (% volume of all C1-C9 HC)
PctC2C4	Fraction of C2 through n-C4 (% volume of all C1-C9 HC)
PctC5C9	Fraction of C5 through n-C9, i.e. all peaks eluting after n-C4 (% volume of all C1-C9 HC).
PctC1C9	Sum of these fractions (= 100 vol %)

Table 2.4 Continued

Abbreviation	Explanation
Wetness and i-C4/n-C4 ratio	
Wetness	100* (Sum C2 to n-C4) / (Sum C1 to n-C4) (volume %)
Ratic4nc4	Volume ratio i-C4 / n-C4
Composition of C7 hydrocarbons by compound class	
PctnC7	Fraction of n-alkanes in n-C7 range (volume % of all C7 compounds)
PctIsoC7	Fraction of iso-alkanes in n-C7 range (volume % of all C7 compounds)
PctCycC7	Fraction of cycloalkanes in n-C7 range (volume % of all C7 compounds)
PctAroC7	Fraction of aromatics in n-C7 range (volume % of all C7 compounds)
PctSumC7	Sum of these fractions (= 100 vol %)
Thompson ratios (mass ratios), assessed property in brackets	
Thompson_A	A = Benzene / n-Hexane [Aromaticity (fractionation)]
Thompson_B	B = Toluene / n-Heptane [Aromaticity (fractionation)]
Thompson_X	X = Xylene (m & p) / n-Octane [Aromaticity (fractionation)]
Thompson_C	C = (n-Hexane + n-Heptane) / (Cyclohexane + Methylcyclohexane) [Paraffinicity (maturity)]
Thompson_I	I = Isoheptane value = (Methylhexanes (2- & 3-)) / (Dimethylcyclopentanes (1c3-, 1t3-, & 1t2-)) [Paraffinicity (maturity)]
Thompson_F	F = n-Heptane / Methylcyclohexane [Paraffinicity (maturity)]
Thompson_H	H = Heptane Value = 100 * n-Heptane / (Sum Cyclohexane through Methylcyclohexane, excluding 1,cis-2-Dimethylcyclopentane) [Paraffinicity (maturity)]
Thompson_R	R = n-Heptane / 2-Methylhexane [Normality (branching)]
Thompson_U	U = Cyclohexane / 2-Methylhexane [Normality (branching)]
Mango ratios (mass ratios)	
Mango_P1	P1 = n-C7 (mass% of sum C7 HC) [first parents in SS kinetic scheme], Mango 1994
Mango_P2	P2 = 2-MC6 + 3-MC6 (mass% of sum C7 HC) [second parent in SS kinetic scheme], Mango 1994
Mango_P3	P3 = 3-EC5 + 3,3-DMC5 + 2,3-DMC5 + 2,4-DMC5 + 2,2-DMC5 + 2,2,3-TMC4 (mass% of sum C7 HC) [daughter isoalkane product of P2], Mango 1994 [Remark 1]
Mango_N15	N15 = ECyC5 + c-1,2-DMCyC5 + t-1,2-DMCyC5 (mass% of sum C7 HC) [Daughter cyclopentane products of P2], Mango 1994 [Remark 2]
Mango_N16	N16 = MCyC6 + TOLUENE (mass% of sum C7 HC) [Daughter cyclohexane products of P1], Mango 1994
Mango_N2	N2 = 1,1-DMCyC5 + c-1,3-DMCyC5 + t-1,3-DMCyC5 (mass% of sum C7 HC) [Daughter cyclopentane products of P2], Mango 1994 [Remark 3]
Mango_K1	K1 = (2-MC6 + 2,3-DMC5) / (3-MC6 + 2,4-DMC5), Mango 1987 in Mango 1994
Mango_K2	K2 = P3 / (P2 + N2) = (3-EC5 + 2,3-DMC5 + 2,4-DMC5 + 2,2-DMC5 + 2,2,3-TMC4) / (2-MC6 + 3-MC6 + 1,1-DMCyC5 + c-1,3-DMCyC5 + t-1,3-DMCyC5) (Mango 1990 in Mango 1994)
Mango_N15N16	N15/N16 = k15/k16 [a ratio of P1 daughters], Mango 1994
Mango_P3N2	P3/N2 = k23/k25 [a ratio of P2 daughters], Mango 1994

Remarks on Mango ratios

- Remark 1 The 2,2,3-TMC4 peak is consistently called "2,3,3-TMC4" in the Mango papers, but this is probably a mistyping, as 2,3,3-TMC4 is normally not identified.
- Remark 2 Actually N_1^5 , where 1 means the first daughter generation and 5 stands for the parent cyclopentane.
- Remark 3 Analog to N15.

Coelution of compounds

- 'CyC5' contains coeluting 2,3-DMC4.
- 't-1,2-DMCyC5' contains coeluting 3-EC5 and 2,2,4-TMC5. The Mango ratios P3 and N15 can therefore not be calculated.
- 'MCyC6' contains coeluting c-1,2-DMCyC5. The Mango ratios N15 and N16 can therefore not be calculated.
- 'Toluene' contains coeluting 2,3,3-TMC5.

References

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2.8 Water content

The water content of the cuttings was determined by weighing the fractions before and after drying at 35 °C for at least 24 hours. This was done on both the Zalo-washed and water-washed samples. The dry weight of the rock used for occluded gas analysis was determined using the wet weight of this rock and the water content of the remaining 1-4 mm fraction. Water contents for the three individual grain size fractions are listed in Table 3.2.

3. Sample description, water content and comments

The wet cutting samples and the mud samples were received in pressure-lid cans at ambient temperature. Six of the samples were in 1-litre cans and one (3990 m) was in a 5-litre can. One of the mud samples was in 1-litre can and one (3470 m) was in a 5-litre can. A secondary modification of the gas composition by microbial activity cannot be completely ruled out.

Some of the samples could be superficially cleaned from the mud by washing the cuttings with a lot of water (3310 m, 3350 m, and 3610 m). The remaining samples contained a more viscous mud, and the mud from the deepest samples (3890 m, 3910 m and 3990 m), could not be removed by using water alone. All samples looked clean after having been washed with Zalo detergent.

Sample descriptions and comments are listed in Table 3.1 and water contents are listed in Table 3.2

Table 3.1 *Sample description and comments*

Sample ID	Btm Depth (m)	Lithology	Sample Comment	Gas volume headspace (ml)	Gas volume occluded (ml)	Total weight dry (g) ¹⁾	Weight occluded dry (g) ¹⁾
H6062	3310	100 % sh, dkgy; tr slst/carb., ltgy-wh	Zalo-washed for OC	334	26.9	343.9	17.7
H6072	3310		Same sample as H6062, but water-washed for OC	334	31.0	344.1	17.9
H6063	3350	99 % shdkgy; 1 % carb/?evap, wh	Zalo-washed for OC	425	28.8	344.8	19.1
H6073	3350		Same sample as H6063, but water-washed for OC	425	30.5	345.1	19.4
H6069	3470	drilling mud		1630	30.6	6208	5.5
H6064	3610	50 % sh, dkgy; 50 % carb/?evap, wh	Zalo-washed for OC	370	29.0	153.2	15.3
H6074	3610		Same sample as H6064, but water-washed for OC	370	26.7	154.5	16.6
H6065	3770	100 % sh, m-dkgy	Zalo-washed for OC	330	27.6	251.2	18.3
H6075	3770		Same sample as H6065, but water-washed for OC	330	27.4	252.4	19.5
H6066	3890	70 % sh, m-dkgy; 30 % carb/?evap, wh	Zalo-washed for OC	405	29.1	250.1	15.4
H6076	3890		Same sample as H6066, but water-washed for OC	405	28.5	252.1	17.4
H6070	3845	drilling mud		259	31.0	1305	6.0
H6067	3910	90 % sh, mgy; 10 % carb/?evap, wh	Zalo-washed for OC	220	28.2	383.1	19.8
H6068	3990	75 % sh, mgy; 25 % carb/?evap, wh	Zalo-washed for OC	3650	29.1	680.7	18.1

1) Wet weight from the mud samples

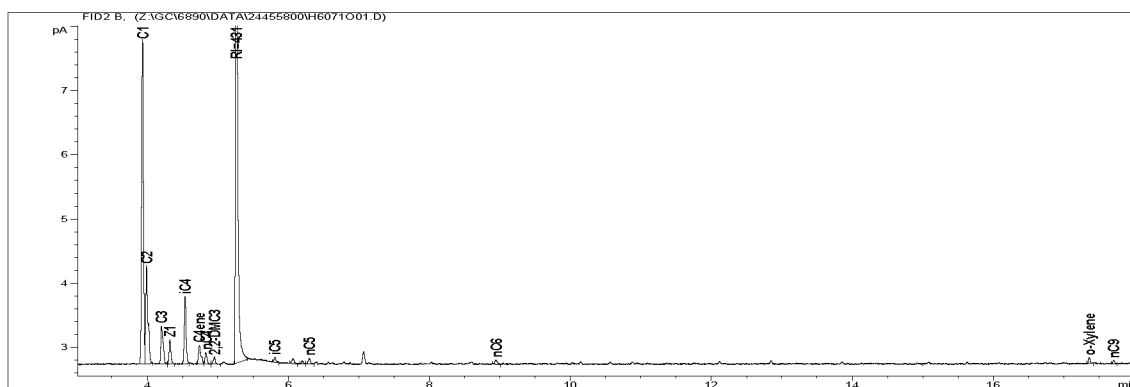
Table 3.2 Water contents of different grain size fractions

Sample ID	Btm depth (m)	Sample Comment	Water content >4 mm fraction (wt%)	Water content 4-1 mm fraction (wt%)	Water content 1-0.125 mm fraction (wt%)	Water content >0.125 mm (wt %)
H6062	3310	Zalo-washed for OC	13.4	15.0	29.0	17.7
H6072	3310	Same sample as H6062, but water-washed for OC	13.4	15.0	29.0	17.7
H6063	3350	Zalo-washed for OC	12.4	13.2	27.1	16.6
H6073	3350	Same sample as H6063, but water-washed for OC	12.4	13.2	27.1	16.6
H6064	3610	Zalo-washed for OC	18.6	22.2	30.6	24.9
H6074	3610	Same sample as H6064, but water-washed for OC	18.6	22.2	30.6	24.9
H6065	3770	Zalo-washed for OC	18.6	18.3	29.9	21.4
H6075	3770	Same sample as H6065, but water-washed for OC	18.6	18.3	29.9	21.4
H6066	3890	Zalo-washed for OC	16.4	19.2	28.0	20.4
H6076	3890	Same sample as H6066, but water-washed for OC	16.4	19.2	28.0	20.4
H6067	3910	Zalo-washed for OC	14.8	13.0	26.7	17.3
H6068	3990	Zalo-washed for OC	16.8	11.4	21.6	13.8

4. GC analyses of gas from mud and detergent

4.1 Detergent (“Zalo”)

An aqueous solution of the detergent Zalo (2.2 g) was crushed in a ball mill together with clean sea sand to obtain background concentrations for possible “occluded” gas generated from this process. The gas chromatogram (Figure 4.1) is dominated by one peak that elutes between n-C4 and i-C5 (RI = 431). The compound was not identified. Zalo also produces a series of peaks in the C1-C5 region.



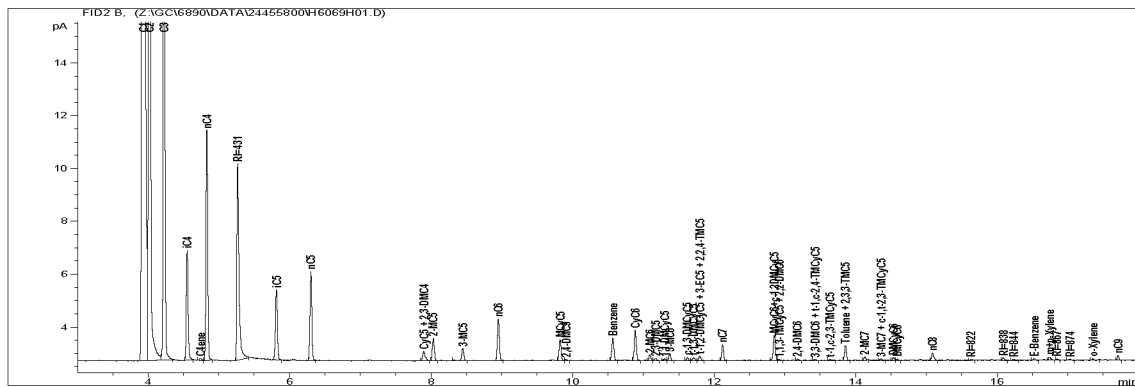
Zalo + purified sand + water, 10 min. ball mill

Figure 4.1 GC-FID chromatogram of the gas released from Zalo after shaking in a ball mill.

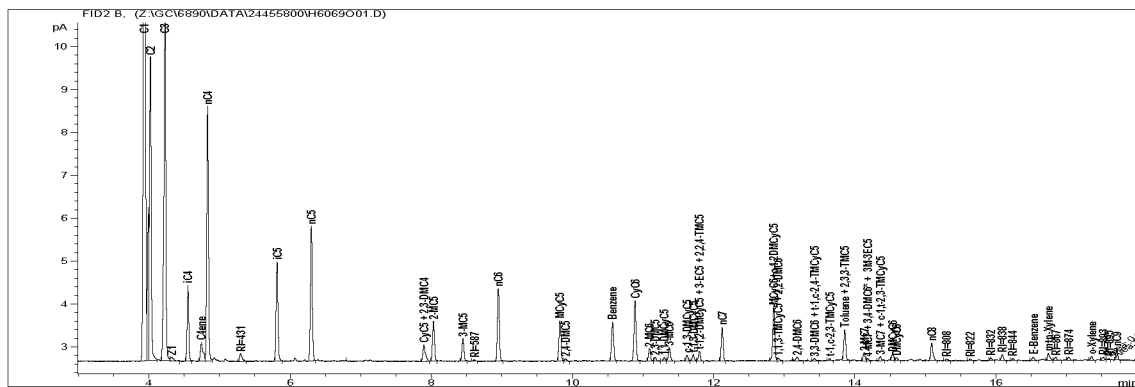
4.2 Mud samples

Headspace gas analyses and occluded gas analyses were carried out on the two mud samples. Five to six grams of the mud was crushed in a ball mill together with clean sea sand and water to obtain background concentrations for possible “occluded” gas generated from this process. The unidentified compound RI=431 is also present in these gas chromatograms and particularly prominent in the headspace gas GC (Figure 4.2 and 4.3).

Yields of hydrocarbons in headspace and occluded gas from the mud samples are presented in Table 4.1 (µl/kg wet mud) and in Table 4.2 (µl/l gas). Some ratios are calculated and presented in Table 4.3.

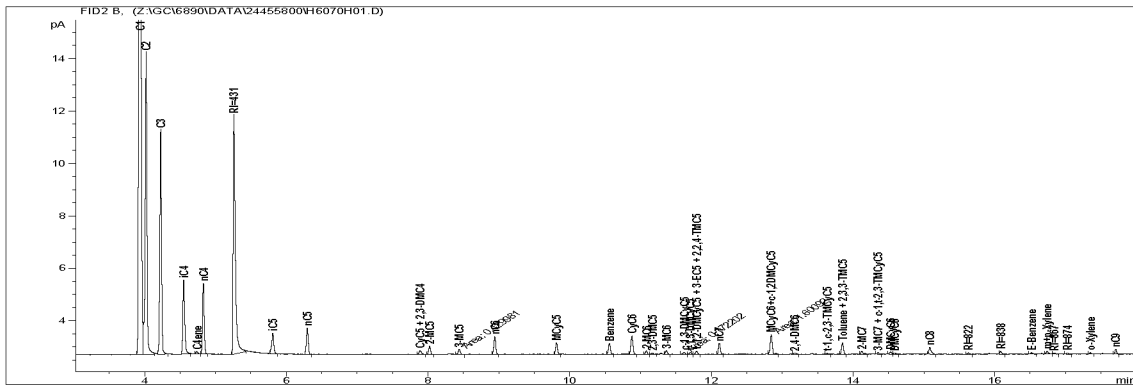


Headspace, mud sample, 3470 m

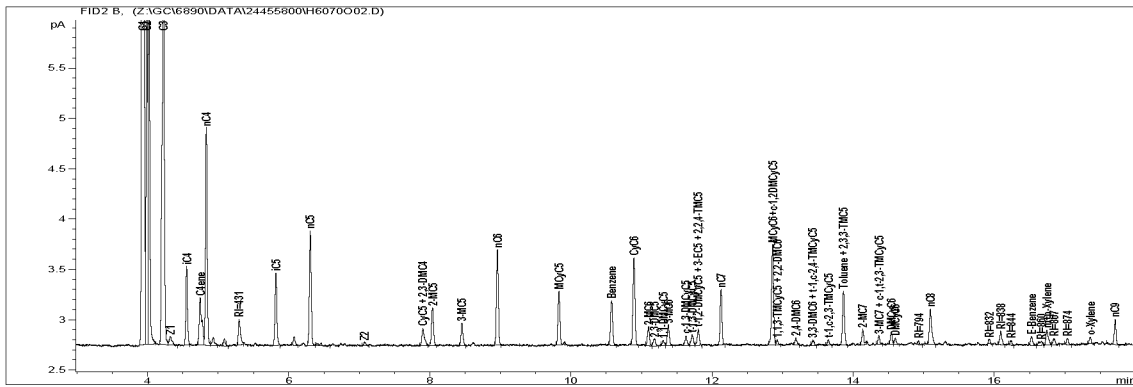


Occluded gas, mud sample, 3470 m

Figure 4.2 GC-FID chromatogram of the mud sample at 3470 m.



Headspace, mud sample, 3845 m



Occluded gas, mud sample, 3845 m

Figure 4.3 GC-FID chromatogram of the mud sample at 3845 m.

Table 4.1 Yields of hydrocarbons in headspace and occluded gas from the mud samples ($\mu\text{l}/\text{kg}$ wet mud)

Sample-ID Gas fraction Depth (m)	H6069	H6069	H6069	H6070	H6070	H6070
	H	O	H+O	H	O	H+O
	3470	3470	3470	3845	3845	3845
Compound						
C1	2556	3705	6261	282	2512	2794
C2	143	527	669	30	223	253
C3	51	487	538	14	228	242
iC4	7	61	68	4	24	28
C4ene	0	23	23	0	22	23
nC4	14	211	225	3	67	70
RI=431	13	8	21	12	9	21
iC5	4	79	83	1	22	23
nC5	5	105	110	1	34	35
CyC5 + 2,3-DMC4	1	16	16	0	6	6
2-MC5	1	29	30	0	10	11
3-MC5	1	17	18	0	6	7
nC6	2	52	55	1	26	26
MCyC5	1	28	29	0	14	14
2,4-DMC5	0	2	2	0	0	0
Benzene	1	27	28	0	12	12
CyC6	2	42	44	1	23	23
2-MC6	0	8	9	0	5	5
2,3-DMC5	0	3	3	0	2	2
1,1-DMCyC5	0	2	2	0	1	1
3-MC6	0	9	10	0	5	5
c-1,3-DMCyC5	0	4	4	0	3	3
t-1,3-DMCyC5	0	4	5	0	3	3
t-1,2-DMCyC5 + 3-EC5 + 2,2,4-TMC5	0	7	7	0	4	4
nC7	1	21	22	0	13	13
MCyC6 + c-1,2-DMCyC5	1	33	34	1	22	23
1,1,3-TMCyC5 + 2,2-DMC6	0	2	2	0	0	0
2,4-DMC6	0	3	3	0	2	2
3,3-DMC6 + t-1,c-2,4-TMCyC5	0	2	2	0	1	1
t-1,c-2,3-TMCyC5	0	0	0	0	1	1
Toluene + 2,3,3-TMC5	1	18	19	0	12	12
2-MC7	0	5	5	0	4	4
4-MC7 + 3,4-DMC6 + 3M-3EC5	0	0	0	0	0	0
3-MC7 + c-1,t-2,3-TMCyC5	0	3	3	0	2	2
DMCyC6	0	4	4	0	2	3
DMCyC6	0	2	2	0	1	1
nC8	0	11	11	0	9	9
RI=808	0	1	1	0	0	0
RI=822	0	0	0	0	0	0
RI=838	0	3	3	0	3	3
E-Benzene	0	2	2	0	2	2
RI=860	0	0	0	0	1	1
m+p-Xylene	0	4	4	0	4	4
RI=867	0	2	2	0	1	1
RI=874	0	2	2	0	1	1
o-Xylene	0	2	2	0	1	1
RI=893	0	2	2	0	0	0
nC9	0	5	5	0	5	5
Sum FID	2805	5588	8394	353	3350	3703

Table 4.2 Yields of hydrocarbons in headspace and occluded gas from the mud samples ($\mu\text{l/l}$)

Sample-ID	H6069	H6069	H6070	H6070
Gas fraction	H	O	H	O
Depth (m)	3470	3470	3845	3845
Compound				
C1	9746.6	629.5	1422.6	486.2
C2	543.8	89.5	150.4	43.2
C3	192.6	82.8	71.4	44.1
iC4	26.2	10.4	19.3	4.6
C4ene	0.4	3.9	0.5	4.4
nC4	51.9	35.9	16.0	13.0
RI=431	48.8	1.4	60.2	1.7
iC5	15.6	13.3	5.1	4.2
nC5	19.4	17.9	5.7	6.6
CyC5 + 2,3-DMC4	2.4	2.7	1.1	1.2
2-MC5	4.5	4.9	1.7	2.0
3-MC5	2.7	2.9	1.2	1.2
nC6	8.3	8.9	3.6	5.0
MCyC5	3.9	4.7	2.1	2.7
2,4-DMC5	0.0	0.3	0.0	0.0
Benzene	4.3	4.6	2.1	2.3
CyC6	5.8	7.2	3.6	4.4
2-MC6	1.0	1.4	0.6	0.9
2,3-DMC5	0.4	0.5	0.3	0.4
1,1-DMCyC5	0.3	0.4	0.0	0.3
3-MC6	1.2	1.6	0.7	1.0
c-1,3-DMCyC5	0.5	0.6	0.4	0.5
t-1,3-DMCyC5	0.6	0.7	0.5	0.6
t-1,2-DMCyC5 + 3-EC5 + 2,2,4-TMC5	0.9	1.1	0.7	0.8
nC7	2.7	3.6	1.9	2.5
MCyC6 + c-1,2-DMCyC5	4.2	5.6	3.5	4.4
1,1,3-TMCyC5 + 2,2-DMC6	0.0	0.3	0.0	0.0
2,4-DMC6	0.2	0.6	0.3	0.3
3,3-DMC6 + t-1,c-2,4-TMCyC5	0.0	0.3	0.0	0.2
t-1,c-2,3-TMCyC5	0.2	0.0	0.0	0.2
Toluene + 2,3,3-TMC5	2.4	3.1	1.9	2.3
2-MC7	0.6	0.8	0.6	0.7
4-MC7 + 3,4-DMC6 + 3M-3EC5	0.0	0.0	0.0	0.0
3-MC7 + c-1,t-2,3-TMCyC5	0.3	0.5	0.2	0.3
DMCyC6	0.4	0.6	0.4	0.5
DMCyC6	0.2	0.3	0.0	0.2
nC8	1.3	1.9	1.2	1.7
RI=808	0.0	0.2	0.0	0.0
RI=822	0.0	0.0	0.2	0.0
RI=838	0.4	0.6	0.4	0.5
E-Benzene	0.0	0.3	0.0	0.4
RI=860	0.0	0.0	0.0	0.3
m+p-Xylene	0.5	0.7	0.5	0.7
RI=867	0.0	0.4	0.0	0.3
RI=874	0.0	0.3	0.3	0.2
o-Xylene	0.0	0.4	0.0	0.2
RI=893	0.0	0.3	0.0	0.0
nC9	0.6	0.9	0.6	0.9

Table 4.3 Peak ratios and summary data, mud samples

Sample-ID	H6069	H6069	H6069	H6070	H6070	H6070
Gas fraction	H	O	H+O	H	O	H+O
Depth (m)	3470	3470	3470	3845	3845	3845
Compound						
CncC1	2556	3705	6261	282	2512	2794
CncC2C4	214	1315	1529	51	569	620
CncC5C9	35	569	604	20	270	290
CncC1C9	2805	5588	8394	353	3350	3703
PctC1	91.1	66.3	74.6	79.8	75.0	75.4
PctC2C4	7.6	23.5	18.2	14.5	17.0	16.7
PctC5C9	1.3	10.2	7.2	5.7	8.0	7.8
PctC1C9	100.0	100.0	100.0	100.0	100.0	100.0
Wetness	7.7	26.2	19.6	15.3	18.5	18.2
RatiC4nC4	0.5	0.3	0.3	1.2	0.4	0.4
PctnC7	18.9	18.9	18.9	18.4	18.4	18.4
PctIsoC7	18.6	19.8	19.8	15.6	16.8	16.8
PctCycC7	46.1	44.7	44.8	48.1	47.9	47.9
PctAroC7	16.4	16.5	16.5	17.9	16.9	16.9
PctSumC7	100.0	100.0	100.0	100.0	100.0	100.0
Thompson_A	0.6	0.6	0.6	0.7	0.5	0.5
Thompson_B	1.0	1.0	1.0	1.1	1.0	1.0
Thompson_X	0.4	0.4	0.4	0.4	0.5	0.5
Thompson_C	1.0	0.9	0.9	0.7	0.8	0.8
Thompson_I	1.1	1.2	1.2	0.8	1.0	1.0
Thompson_F	0.6	0.6	0.6	0.5	0.5	0.5
Thompson_H	14.8	15.3	15.3	15.2	15.3	15.3
Thompson_R	2.6	2.6	2.6	3.0	2.8	2.8
Thompson_U	5.5	5.1	5.1	5.6	4.9	4.9
Mango_P1	18.95	18.95	18.95	18.42	18.40	18.40
Mango_P2	15.75	15.70	15.70	12.47	14.07	14.02
Mango_N2	10.16	9.29	9.31	8.45	9.78	9.74
Mango_K1	1.19	0.99	1.00	1.48	1.24	1.25

5. Results from samples washed with Zalo

Table 5.1 Yield of hydrocarbons in headspace and occluded gas, sediment washed with Zalo ($\mu\text{l}/\text{kg}$ dry rock)

Sample-ID	H6062	H6062	H6062	H6063	H6063	H6063	H6064	H6064	H6064
Gas fraction	H	O	H+O	H	O	H+O	H	O	H+O
Depth (m)	3310	3310	3310	3350	3350	3350	3610	3610	3610
Compound									
C1	1631	201	1832	6405	332	6737	2904	342	3246
C2	204	33	238	921	70	991	971	59	1030
C3	255	70	326	626	82	707	1256	123	1380
iC4	61	27	87	73	16	89	151	33	184
C4ene	0	2	2	0	2	2	1	3	4
nC4	100	70	170	154	37	192	369	95	464
2,2-DMC3	0	0	0	0	0	0	0	0	0
RI=431	2	5	7	3	9	12	6	8	13
iC5	32	32	64	29	11	40	88	38	126
nC5	24	28	52	31	13	43	82	40	122
2,2-DMC4	0	0	0	0	0	0	0	0	0
CyC5 + 2,3-DMC4	4	5	9	4	2	7	13	8	21
2-MC5	4	6	10	4	2	6	15	9	24
3-MC5	2	4	7	2	1	4	9	6	15
nC6	5	8	12	6	5	11	19	14	33
2,2-DMC5	0	0	0	0	0	0	0	0	0
MCyC5	5	9	13	4	3	7	16	12	29
2,4-DMC5	0	0	0	0	0	0	0	0	0
Benzene	6	9	15	9	6	15	11	6	17
CyC6	3	7	10	5	4	9	19	15	34
2-MC6	0	1	2	1	1	1	3	2	5
2,3-DMC5	0	0	0	0	0	0	1	1	2
1,1-DMCyC5	0	0	0	0	0	0	1	1	1
3-MC6	1	2	2	1	1	1	3	3	6
c-1,3-DMCyC5	0	1	1	0	0	1	2	2	3
t-1,3-DMCyC5	0	1	2	0	0	1	2	2	4
t-1,2-DMCyC5 + 3-EC5 + 2,2,4-TMC5	1	2	3	1	1	1	3	3	6
nC7	1	2	3	1	1	3	6	6	12
MCyC6 + c-1,2-DMCyC5	2	6	7	3	3	6	13	13	26
1,1,3-TMCyC5 + 2,2-DMC6	0	0	0	0	0	0	1	1	1
2,5-DMC6 + 2,2,3-TMC5	0	0	0	0	0	0	0	0	0
2,4-DMC6	0	1	1	0	0	0	1	1	2
3,3-DMC6 + t-1,c-2,4-TMCyC5	0	0	0	0	0	0	1	1	1
t-1,c-2,3-TMCyC5	0	0	0	0	0	0	1	1	1
Toluene + 2,3,3-TMC5	2	4	6	3	3	7	6	5	10
2-MC7	0	1	1	0	0	1	1	1	3
4-MC7 + 3,4-DMC6 + 3M-3EC5	0	0	0	0	0	0	0	0	0
3-MC7 + c-1,t-2,3-TMCyC5	0	0	0	0	0	0	1	1	2
DMCyC6	0	1	1	0	0	0	1	1	3
DMCyC6	0	0	0	0	0	0	0	1	1
nC8	0	1	2	1	1	2	3	4	7
RI=808	0	0	0	0	0	0	0	0	0
RI=832	0	0	0	0	0	0	0	0	0
RI=838	0	1	1	0	0	0	1	1	2
E-Benzene	0	1	1	0	0	1	1	1	2
RI=860	0	0	0	0	0	0	0	0	0
m+p-Xylene	0	1	1	1	1	1	1	2	3
RI=867	0	0	0	0	0	0	0	1	1
RI=874	0	0	0	0	0	0	0	1	1
o-Xylene	0	1	1	0	0	0	1	1	1
RI=893	0	0	0	0	0	0	0	0	0
nC9	0	1	1	0	1	1	1	2	4
Sum FID	2347	544	2890	8291	611	8902	5985	867	6852

Table 5.1 Continued

Sample-ID	H6065	H6065	H6065	H6066	H6066	H6066	H6067	H6067	H6067
Gas fraction	H	O	H+O	H	O	H+O	H	O	H+O
Depth (m)	3770	3770	3770	3890	3890	3890	3910	3910	3910
Compound									
C1	5045	417	5462	63225	1431	64656	5579	156	5734
C2	1540	78	1618	13424	3827	17251	1203	122	1325
C3	1386	170	1556	5371	3792	9163	648	192	840
iC4	121	27	148	325	269	594	56	26	82
C4ene	1	3	4	1	3	5	0	2	2
nC4	322	93	415	688	828	1516	106	62	168
2,2-DMC3	0	0	0	0	2	2	0	0	0
RI=431	2	6	8	4	6	10	2	2	4
iC5	55	25	80	91	118	208	16	14	30
nC5	66	34	100	85	135	220	16	14	30
2,2-DMC4	0	0	0	0	1	1	0	0	0
CyC5 + 2,3-DMC4	7	5	11	8	13	21	1	1	3
2-MC5	10	7	16	11	21	32	2	3	5
3-MC5	5	4	9	5	10	15	1	1	3
nC6	16	11	26	12	23	35	3	4	7
2,2-DMC5	0	0	0	0	0	0	0	0	0
MCyC5	9	7	16	8	15	24	1	2	3
2,4-DMC5	0	0	0	0	1	1	0	0	0
Benzene	5	4	10	8	20	28	2	3	4
CyC6	13	12	25	13	28	41	2	4	6
2-MC6	2	2	3	1	3	4	0	1	1
2,3-DMC5	1	1	1	1	1	2	0	0	0
1,1-DMCyC5	1	1	1	0	1	1	0	0	0
3-MC6	2	2	4	1	3	4	0	1	1
c-1,3-DMCyC5	1	1	2	1	2	3	0	0	1
t-1,3-DMCyC5	1	1	2	1	2	3	0	0	1
t-1,2-DMCyC5 + 3-EC5 + 2,2,4-TMC5	2	2	3	1	3	4	0	1	1
nC7	4	5	9	3	6	9	1	2	3
McyC6 + c-1,2-DMCyC5	9	10	19	8	22	30	2	4	6
1,1,3-TMCyC5 + 2,2-DMC6	0	0	1	0	1	1	0	0	0
2,5-DMC6 + 2,2,3-TMC5	0	0	0	0	0	0	0	0	0
2,4-DMC6	0	1	1	0	1	1	0	0	0
3,3-DMC6 + t-1,c-2,4-TMCyC5	0	0	1	0	1	1	0	0	0
t-1,c-2,3-TMCyC5	0	0	0	0	0	0	0	0	0
Toluene + 2,3,3-TMC5	3	4	7	4	12	16	1	2	3
2-MC7	1	1	2	1	1	2	0	0	1
4-MC7 + 3,4-DMC6 + 3M-3EC5	0	0	0	0	0	0	0	0	0
3-MC7 + c-1,t-2,3-TMCyC5	0	1	1	0	1	1	0	0	0
DMCyC6	1	1	2	1	2	2	0	1	1
DMCyC6	0	0	1	0	1	1	0	0	0
nC8	2	3	5	2	4	5	1	1	2
RI=808	0	0	0	0	0	0	0	0	0
RI=832	0	0	0	0	0	0	0	0	0
RI=838	1	1	2	1	2	2	0	1	1
E-Benzene	0	1	1	0	1	1	0	0	0
RI=860	0	0	0	0	1	1	0	0	0
m+p-Xylene	1	1	2	1	3	3	0	1	1
RI=867	0	0	1	0	2	2	0	0	0
RI=874	0	0	0	0	0	1	0	0	0
o-Xylene	0	1	1	0	1	2	0	0	0
RI=893	0	0	0	0	0	0	0	0	0
nC9	1	2	3	1	2	3	0	1	1
Sum FID	8637	943	9580	83310	10620	93930	7647	624	8271

Table 5.1 Continued

Sample-ID	H6068	H6068	H6068
Gas fraction	H	O	H+O
Depth (m)	3990	3990	3990
Compound			
C1	878	133	1011
C2	537	43	580
C3	566	58	624
iC4	45	7	52
C4ene	6	1	8
nC4	129	17	146
2,2-DMC3	0	0	0
RI=431	14	2	16
iC5	18	4	21
nC5	25	5	30
2,2-DMC4	0	0	0
CyC5 + 2,3-DMC4	3	1	3
2-MC5	4	1	5
3-MC5	2	0	3
nC6	7	3	9
2,2-DMC5	0	0	0
MCyC5	4	1	5
2,4-DMC5	0	0	0
Benzene	5	1	6
CyC6	7	1	9
2-MC6	1	0	1
2,3-DMC5	0	0	0
1,1-DMCyC5	0	0	0
3-MC6	2	0	2
c-1,3-DMCyC5	0	0	0
t-1,3-DMCyC5	1	0	1
t-1,2-DMCyC5 + 3-EC5 + 2,2,4-TMC5	2	0	2
nC7	4	1	5
MCyC6 + c-1,2-DMCyC5	8	2	10
1,1,3-TMCyC5 + 2,2-DMC6	0	0	0
2,5-DMC6 + 2,2,3-TMC5	0	0	0
2,4-DMC6	0	0	0
3,3-DMC6 + t-1,c-2,4-TMCyC5	0	0	0
t-1,c-2,3-TMCyC5	0	0	0
Toluene + 2,3,3-TMC5	6	1	6
2-MC7	1	0	2
4-MC7 + 3,4-DMC6 + 3M-3EC5	0	0	0
3-MC7 + c-1,t-2,3-TMCyC5	0	0	0
DMCyC6	2	0	2
DMCyC6	0	0	0
nC8	4	1	5
RI=808	0	0	0
RI=832	0	0	0
RI=838	1	0	2
E-Benzene	0	0	0
RI=860	0	0	0
m+p-Xylene	2	1	3
RI=867	0	0	0
RI=874	0	0	0
o-Xylene	0	0	0
RI=893	0	0	0
nC9	2	1	3
Sum FID	2286	286	2573

Table 5.2 Composition of hydrocarbons in headspace and occluded gas, sediment washed with Zalo (volume %).

Sample-ID	H6062	H6062	H6062	H6063	H6063	H6063	H6064	H6064	H6064
Gas fraction	H	O	H+O	H	O	H+O	H	O	H+O
Depth (m)	3310.0	3310.0	3310.0	3350.0	3350.0	3350.0	3610.0	3610.0	3610.0
Compound									
C1	69.5	37.0	63.4	77.3	54.4	75.7	48.5	39.4	47.4
C2	8.7	6.1	8.2	11.1	11.4	11.1	16.2	6.8	15.0
C3	10.9	12.9	11.3	7.5	13.4	7.9	21.0	14.2	20.1
iC4	2.6	4.9	3.0	0.9	2.6	1.0	2.5	3.8	2.7
C4ene	0.0	0.3	0.1	0.0	0.3	0.0	0.0	0.4	0.1
nC4	4.3	12.9	5.9	1.9	6.1	2.2	6.2	11.0	6.8
2,2-DMC3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RI=431	0.1	0.9	0.2	0.0	1.5	0.1	0.1	0.9	0.2
iC5	1.3	5.9	2.2	0.3	1.8	0.4	1.5	4.4	1.8
nC5	1.0	5.1	1.8	0.4	2.1	0.5	1.4	4.6	1.8
2,2-DMC4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CyC5 + 2,3-DMC4	0.2	1.0	0.3	0.1	0.4	0.1	0.2	0.9	0.3
2-MC5	0.2	1.2	0.4	0.0	0.4	0.1	0.2	1.1	0.3
3-MC5	0.1	0.8	0.2	0.0	0.2	0.0	0.1	0.7	0.2
nC6	0.2	1.4	0.4	0.1	0.8	0.1	0.3	1.6	0.5
2,2-DMC5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MCyC5	0.2	1.6	0.5	0.1	0.5	0.1	0.3	1.4	0.4
2,4-DMC5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Benzene	0.3	1.6	0.5	0.1	1.0	0.2	0.2	0.7	0.2
CyC6	0.1	1.3	0.3	0.1	0.7	0.1	0.3	1.8	0.5
2-MC6	0.0	0.2	0.1	0.0	0.1	0.0	0.0	0.3	0.1
2,3-DMC5	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0
1,1-DMCyC5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
3-MC6	0.0	0.3	0.1	0.0	0.1	0.0	0.1	0.3	0.1
c-1,3-DMCyC5	0.0	0.2	0.0	0.0	0.1	0.0	0.0	0.2	0.1
t-1,3-DMCyC5	0.0	0.2	0.1	0.0	0.1	0.0	0.0	0.2	0.1
t-1,2-DMCyC5 + 3-EC5 + 2,2,4-TMC5	0.0	0.3	0.1	0.0	0.1	0.0	0.0	0.3	0.1
nC7	0.0	0.4	0.1	0.0	0.2	0.0	0.1	0.7	0.2
MCyC6 + c-1,2-DMCyC5	0.1	1.0	0.3	0.0	0.5	0.1	0.2	1.5	0.4
1,1,3-TMCyC5 + 2,2-DMC6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
2,5-DMC6 + 2,2,3-TMC5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2,4-DMC6	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0
3,3-DMC6 + t-1,c-2,4-TMCyC5	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0
t-1,c-2,3-TMCyC5	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Toluene + 2,3,3-TMC5	0.1	0.8	0.2	0.0	0.6	0.1	0.1	0.5	0.1
2-MC7	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.0
4-MC7 + 3,4-DMC6 + 3M-3EC5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3-MC7 + c-1,t-2,3-TMCyC5	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.0
DMCyC6	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.2	0.0
DMCyC6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
nC8	0.0	0.2	0.1	0.0	0.2	0.0	0.1	0.4	0.1
RI=808	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RI=832	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RI=838	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.0
E-Benzene	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.0
RI=860	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
m+p-Xylene	0.0	0.2	0.0	0.0	0.2	0.0	0.0	0.2	0.0
RI=867	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
RI=874	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0
o-Xylene	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.0
RI=893	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
nC9	0.0	0.2	0.0	0.0	0.2	0.0	0.0	0.2	0.1
Sum FID	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table 5.2 Continued

Sample-ID	H6065	H6065	H6065	H6066	H6066	H6066	H6067	H6067	H6067
Gas fraction	H	O	H+O	H	O	H+O	H	O	H+O
Depth (m)	3770.0	3770.0	3770.0	3890.0	3890.0	3890.0	3910.0	3910.0	3910.0
Compound									
C1	58.4	44.2	57.0	75.9	13.5	68.8	73.0	24.9	69.3
C2	17.8	8.3	16.9	16.1	36.0	18.4	15.7	19.5	16.0
C3	16.0	18.0	16.2	6.4	35.7	9.8	8.5	30.8	10.2
iC4	1.4	2.9	1.5	0.4	2.5	0.6	0.7	4.1	1.0
C4ene	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.3	0.0
nC4	3.7	9.9	4.3	0.8	7.8	1.6	1.4	10.0	2.0
2,2-DMC3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RI=431	0.0	0.6	0.1	0.0	0.1	0.0	0.0	0.3	0.1
iC5	0.6	2.6	0.8	0.1	1.1	0.2	0.2	2.3	0.4
nC5	0.8	3.6	1.0	0.1	1.3	0.2	0.2	2.3	0.4
2,2-DMC4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CyC5 + 2,3-DMC4	0.1	0.5	0.1	0.0	0.1	0.0	0.0	0.2	0.0
2-MC5	0.1	0.7	0.2	0.0	0.2	0.0	0.0	0.4	0.1
3-MC5	0.1	0.4	0.1	0.0	0.1	0.0	0.0	0.2	0.0
nC6	0.2	1.1	0.3	0.0	0.2	0.0	0.0	0.6	0.1
2,2-DMC5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MCyC5	0.1	0.7	0.2	0.0	0.1	0.0	0.0	0.3	0.0
2,4-DMC5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Benzene	0.1	0.4	0.1	0.0	0.2	0.0	0.0	0.4	0.1
CyC6	0.2	1.2	0.3	0.0	0.3	0.0	0.0	0.6	0.1
2-MC6	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.0
2,3-DMC5	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1,1-DMCyC5	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3-MC6	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.0
c-1,3-DMCyC5	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0
t-1,3-DMCyC5	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0
t-1,2-DMCyC5 + 3-EC5 + 2,2,4-TMC5	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.0
nC7	0.1	0.5	0.1	0.0	0.1	0.0	0.0	0.3	0.0
MCyC6 + c-1,2-DMCyC5	0.1	1.0	0.2	0.0	0.2	0.0	0.0	0.7	0.1
1,1,3-TMCyC5 + 2,2-DMC6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2,5-DMC6 + 2,2,3-TMC5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2,4-DMC6	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3,3-DMC6 + t-1,c-2,4-TMCyC5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
t-1,c-2,3-TMCyC5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Toluene + 2,3,3-TMC5	0.0	0.4	0.1	0.0	0.1	0.0	0.0	0.4	0.0
2-MC7	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.0
4-MC7 + 3,4-DMC6 + 3M-3EC5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3-MC7 + c-1,t-2,3-TMCyC5	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DMCyC6	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0
DMCyC6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
nC8	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.2	0.0
RI=808	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RI=832	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RI=838	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0
E-Benzene	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RI=860	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
m+p-Xylene	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0
RI=867	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RI=874	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
o-Xylene	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0
RI=893	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
nC9	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Sum FID	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table 5.2 Continued

Sample-ID	H6068	H6068	H6068
Gas fraction	H	O	H+O
Depth (m)	3990.0	3990.0	3990.0
Compound			
C1	38.4	46.5	39.3
C2	23.5	15.2	22.5
C3	24.8	20.3	24.3
iC4	2.0	2.4	2.0
C4ene	0.3	0.5	0.3
nC4	5.6	6.0	5.7
2,2-DMC3	0.0	0.0	0.0
RI=431	0.6	0.7	0.6
iC5	0.8	1.3	0.8
nC5	1.1	1.6	1.2
2,2-DMC4	0.0	0.0	0.0
CyC5 + 2,3-DMC4	0.1	0.2	0.1
2-MC5	0.2	0.3	0.2
3-MC5	0.1	0.2	0.1
nC6	0.3	1.0	0.4
2,2-DMC5	0.0	0.0	0.0
MCyC5	0.2	0.3	0.2
2,4-DMC5	0.0	0.0	0.0
Benzene	0.2	0.2	0.2
CyC6	0.3	0.5	0.3
2-MC6	0.1	0.0	0.1
2,3-DMC5	0.0	0.0	0.0
1,1-DMCyC5	0.0	0.0	0.0
3-MC6	0.1	0.0	0.1
c-1,3-DMCyC5	0.0	0.0	0.0
t-1,3-DMCyC5	0.1	0.0	0.1
t-1,2-DMCyC5 + 3-EC5 + 2,2,4-TMC5	0.1	0.0	0.1
nC7	0.2	0.3	0.2
MCyC6 + c-1,2-DMCyC5	0.4	0.7	0.4
1,1,3-TMCyC5 + 2,2-DMC6	0.0	0.0	0.0
2,5-DMC6 + 2,2,3-TMC5	0.0	0.0	0.0
2,4-DMC6	0.0	0.0	0.0
3,3-DMC6 + t-1,c-2,4-TMCyC5	0.0	0.0	0.0
t-1,c-2,3-TMCyC5	0.0	0.0	0.0
Toluene + 2,3,3-TMC5	0.2	0.3	0.2
2-MC7	0.1	0.1	0.1
4-MC7 + 3,4-DMC6 + 3M-3EC5	0.0	0.0	0.0
3-MC7 + c-1,t-2,3-TMCyC5	0.0	0.0	0.0
DMCyC6	0.1	0.0	0.1
DMCyC6	0.0	0.0	0.0
nC8	0.2	0.4	0.2
RI=808	0.0	0.0	0.0
RI=832	0.0	0.0	0.0
RI=838	0.1	0.1	0.1
E-Benzene	0.0	0.0	0.0
RI=860	0.0	0.0	0.0
m+p-Xylene	0.1	0.2	0.1
RI=867	0.0	0.1	0.0
RI=874	0.0	0.1	0.0
o-Xylene	0.0	0.1	0.0
RI=893	0.0	0.0	0.0
nC9	0.1	0.4	0.1
Sum FID	100.0	100.0	100.0

Table 5.3 Ratios and summary data, sediments washed with Zalo. See Table 2.4 for explanations and comments; -1 = ratio cannot be calculated.

Sample-ID	H6062	H6062	H6062	H6063	H6063	H6063	H6064	H6064	H6064
Gas fraction	H	O	H+O	H	O	H+O	H	O	H+O
Depth (m)	3310	3310	3310	3350	3350	3350	3610	3610	3610
CncC1	1631	201	1832	6405	332	6737	2904	342	3246
CncC2C4	621	202	823	1775	206	1981	2748	314	3062
CncC5C9	94	141	236	110	72	183	333	211	544
CncC1C9	2347	544	2890	8291	611	8902	5985	867	6852
PctC1	69.5	37.0	63.4	77.3	54.4	75.7	48.5	39.4	47.4
PctC2C4	26.5	37.1	28.5	21.4	33.8	22.3	45.9	36.2	44.7
PctC5C9	4.0	26.0	8.2	1.3	11.9	2.1	5.6	24.3	7.9
PctC1C9	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Wetness	27.6	50.1	31.0	21.7	38.3	22.7	48.6	47.9	48.5
RatiC4nC4	0.6	0.4	0.5	0.5	0.4	0.5	0.4	0.3	0.4
PctnC7	11.1	11.8	11.6	13.4	13.9	13.7	16.5	16.4	16.4
PctIsoC7	15.3	16.0	15.8	14.6	11.4	13.0	16.9	17.1	17.0
PctCycC7	47.2	49.6	49.0	40.8	42.0	41.4	52.2	54.1	53.1
PctAroC7	26.4	22.7	23.6	31.2	32.6	31.9	14.5	12.4	13.5
PctSumC7	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Thompson_A	1.5	1.4	1.4	1.7	1.5	1.6	0.7	0.5	0.6
Thompson_B	2.7	2.2	2.3	2.7	2.7	2.7	1.0	0.9	0.9
Thompson_X	0.7	0.9	0.8	0.8	1.0	0.9	0.5	0.5	0.5
Thompson_C	1.1	0.7	0.8	0.9	0.8	0.9	0.8	0.7	0.7
Thompson_I	0.7	0.6	0.7	0.7	0.8	0.8	0.8	0.8	0.8
Thompson_F	0.4	0.4	0.4	0.5	0.4	0.5	0.4	0.4	0.4
Thompson_H	9.0	10.0	9.8	11.2	12.2	11.7	12.0	12.2	12.1
Thompson_R	1.7	2.1	2.0	2.5	2.8	2.7	2.5	2.6	2.6
Thompson_U	7.1	6.4	6.6	8.9	8.6	8.7	7.2	6.7	7.0
Mango_P1	11.13	11.76	11.60	13.41	13.91	13.66	16.48	16.37	16.43
Mango_P2	15.30	13.38	13.88	12.01	11.42	11.72	14.23	13.84	14.04
Mango_N2	11.19	11.32	11.28	9.02	8.08	8.55	11.09	10.95	11.03
Mango_K1	0.74	1.05	0.96	1.19	0.76	0.98	1.20	1.24	1.22

Sample-ID	H6065	H6065	H6065	H6066	H6066	H6066	H6067	H6067	H6067
Gas fraction	H	O	H+O	H	O	H+O	H	O	H+O
Depth (m)	3770	3770	3770	3890	3890	3890	3910	3910	3910
CncC1	5045	417	5462	63225	1431	64656	5579	156	5734
CncC2C4	3370	371	3741	19809	8720	28529	2014	403	2417
CncC5C9	222	155	377	276	470	746	55	65	119
CncC1C9	8637	943	9580	83310	10620	93930	7647	624	8271
PctC1	58.4	44.2	57.0	75.9	13.5	68.8	73.0	24.9	69.3
PctC2C4	39.0	39.4	39.1	23.8	82.1	30.4	26.3	64.7	29.2
PctC5C9	2.6	16.4	3.9	0.3	4.4	0.8	0.7	10.4	1.4
PctC1C9	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Wetness	40.0	47.1	40.6	23.9	85.9	30.6	26.5	72.2	29.7
RatiC4nC4	0.4	0.3	0.4	0.5	0.3	0.4	0.5	0.4	0.5
PctnC7	17.4	18.2	17.8	13.2	11.7	12.1	17.1	15.4	16.0
PctIsoC7	17.2	15.5	16.4	14.6	13.7	14.0	14.7	13.4	13.8
PctCycC7	52.8	52.7	52.7	53.9	53.3	53.5	47.8	50.8	49.8
PctAroC7	12.6	13.5	13.1	18.2	21.3	20.4	20.4	20.4	20.4
PctSumC7	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Thompson_A	0.4	0.5	0.4	0.8	1.0	0.9	0.7	0.8	0.7
Thompson_B	0.8	0.8	0.8	1.6	2.1	1.9	1.4	1.5	1.5
Thompson_X	0.5	0.4	0.4	0.5	0.8	0.7	0.6	0.6	0.6
Thompson_C	0.9	0.7	0.8	0.7	0.6	0.6	0.8	0.6	0.7
Thompson_I	0.9	0.9	0.9	0.8	0.8	0.8	1.0	0.9	0.9
Thompson_F	0.4	0.4	0.4	0.3	0.3	0.3	0.4	0.3	0.4
Thompson_H	12.1	13.5	12.8	9.1	8.8	8.9	13.5	12.8	13.0
Thompson_R	2.7	3.1	2.9	2.3	2.5	2.4	2.7	2.7	2.7
Thompson_U	8.3	7.3	7.8	9.8	10.8	10.5	6.6	6.2	6.3
Mango_P1	17.43	18.22	17.84	13.19	11.70	12.13	17.10	15.44	15.99
Mango_P2	13.48	13.03	13.25	11.83	10.16	10.64	12.51	10.71	11.30
Mango_N2	10.98	9.88	10.41	10.03	8.64	9.04	6.53	7.40	7.11
Mango_K1	1.10	1.19	1.14	1.44	1.10	1.19	1.40	1.71	1.59

Table 5.3 Continued

Sample-ID Gas fraction Depth (m)	H6068 H 3990	H6068 O 3990	H6068 H+O 3990
	CncC1	878	133
CncC2C4	1283	127	1410
CncC5C9	126	26	152
CncC1C9	2286	286	2573
PctC1	38.4	46.5	39.3
PctC2C4	56.1	44.4	54.8
PctC5C9	5.5	9.1	5.9
PctC1C9	100.0	100.0	100.0
Wetness	59.4	48.8	58.2
RatiC4nC4	0.4	0.4	0.4
PctnC7	18.0	23.8	18.8
PctIsoC7	12.5	0.0	10.8
PctCycC7	46.7	52.7	47.5
PctAroC7	22.8	23.5	22.9
PctSumC7	100.0	100.0	100.0
Thompson_A	0.9	0.3	0.7
Thompson_B	1.4	1.1	1.4
Thompson_X	0.6	0.7	0.6
Thompson_C	0.7	1.0	0.7
Thompson_I	1.0	-1.0	1.0
Thompson_F	0.5	0.4	0.4
Thompson_H	16.1	19.5	16.6
Thompson_R	3.0	-1.0	3.6
Thompson_U	4.9	-1.0	5.9
Mango_P1	18.01	23.84	18.79
Mango_P2	12.49	0.00	10.81
Mango_N2	5.85	0.00	5.06
Mango_K1	0.95	-1.00	0.95

6. Results from samples washed with pure water

Table 6.1 Yield of hydrocarbons in headspace and occluded gas, sediment washed with pure water (µl/kg dry rock)

Sample-ID	H6072	H6072	H6072	H6073	H6073	H6073	H6074	H6074	H6074
Gas fraction	H	O	H+O	H	O	H+O	H	O	H+O
Depth (m)	3310	3310	3310	3350	3350	3350	3610	3610	3610
Compound									
C1	1630	170	1800	6400	449	6850	2879	188	3067
C2	204	43	247	920	138	1059	963	59	1022
C3	255	83	338	625	174	799	1246	174	1420
iC4	61	36	96	73	35	108	150	40	189
C4ene	0	1	1	0	2	3	1	1	2
nC4	100	61	161	154	81	235	365	106	471
2,2-DMC3	0	0	0	0	0	0	0	0	0
RI=431	2	31	33	3	1	4	6	1	6
iC5	32	28	59	29	23	52	87	37	124
nC5	24	23	46	31	25	56	81	36	117
2,2-DMC4	0	0	0	0	0	0	0	0	0
CyC5 + 2,3-DMC4	4	5	8	4	4	9	13	7	20
2-MC5	4	5	9	4	4	8	14	8	22
3-MC5	2	3	6	2	3	5	9	5	13
nC6	5	8	13	6	7	13	19	11	30
2,2-DMC5	0	0	0	0	0	0	0	0	0
MCyC5	5	7	11	4	6	10	16	10	26
2,4-DMC5	0	0	0	0	0	0	0	0	0
Benzene	6	9	16	9	12	20	11	6	17
CyC6	3	6	9	5	7	12	19	12	31
2-MC6	0	1	1	1	1	1	3	2	4
2,3-DMC5	0	0	0	0	0	0	1	1	2
1,1-DMCyC5	0	0	0	0	0	0	1	1	1
3-MC6	1	1	2	1	1	2	3	2	5
c-1,3-DMCyC5	0	1	1	0	1	1	2	1	3
t-1,3-DMCyC5	0	1	1	0	1	1	2	1	3
t-1,2-DMCyC5 + 3-EC5 + 2,2,4-TMC5	1	1	2	1	1	2	3	2	5
nC7	1	2	2	1	2	4	6	5	11
MCyC6 + c-1,2-DMCyC5	2	4	5	3	5	7	13	10	23
1,1,3-TMCyC5 + 2,2-DMC6	0	0	0	0	0	0	1	0	1
2,5-DMC6 + 2,2,3-TMC5	0	0	0	0	0	0	0	0	0
2,4-DMC6	0	0	1	0	0	1	1	1	2
3,3-DMC6 + t-1,c-2,4-TMCyC5	0	0	0	0	0	0	1	1	1
t-1,c-2,3-TMCyC5	0	0	0	0	0	0	1	0	1
Toluene + 2,3,3-TMC5	2	4	5	3	6	9	6	4	10
2-MC7	0	0	0	0	1	1	1	1	2
4-MC7 + 3,4-DMC6 + 3M-3EC5	0	0	0	0	0	0	0	0	0
3-MC7 + c-1,t-2,3-TMCyC5	0	0	0	0	0	0	1	1	1
DMCyC6	0	0	0	0	0	0	1	1	2
DMCyC6	0	0	0	0	0	0	0	0	1
nC8	0	1	1	1	1	2	3	3	6
RI=808	0	0	0	0	0	0	0	0	0
RI=832	0	0	0	0	0	0	0	0	0
RI=838	0	0	0	0	1	1	1	1	2
E-Benzene	0	1	1	0	1	1	1	0	1
RI=860	0	0	0	0	0	0	0	0	0
m+p-Xylene	0	1	1	1	1	2	1	1	3
RI=867	0	0	0	0	0	0	0	0	1
RI=874	0	0	0	0	0	0	0	0	0
o-Xylene	0	0	0	0	1	1	1	1	1
RI=893	0	0	0	0	0	0	0	0	0
nC9	0	1	1	0	1	2	1	2	3
Sum FID	2345	534	2879	8284	998	9282	5933	744	6677

Table 6.1 Continued

Sample-ID	H6075	H6075	H6075	H6076	H6076	H6076
Gas fraction	H	O	H+O	H	O	H+O
Depth (m)	3770	3770	3770	3890	3890	3890
Compound						
C1	5022	551	5573	62718	2123	64841
C2	1533	190	1723	13317	4487	17804
C3	1380	372	1752	5328	4245	9573
iC4	120	55	175	322	329	652
C4ene	1	3	4	1	3	4
nC4	321	173	493	682	914	1596
2,2-DMC3	0	0	0	0	2	2
RI=431	2	0	2	4	1	6
iC5	55	42	97	90	135	225
nC5	65	54	120	84	147	231
2,2-DMC4	0	0	0	0	1	1
CyC5 + 2,3-DMC4	7	7	14	8	14	22
2-MC5	10	10	20	11	22	34
3-MC5	5	6	11	5	11	16
nC6	16	16	31	12	24	36
2,2-DMC5	0	0	0	0	0	0
MCyC5	9	10	19	8	16	25
2,4-DMC5	0	0	1	0	1	1
Benzene	5	6	12	8	19	27
CyC6	13	17	30	13	28	40
2-MC6	2	2	4	1	3	4
2,3-DMC5	1	1	1	1	1	2
1,1-DMCyC5	1	1	1	0	1	1
3-MC6	2	2	4	1	3	4
c-1,3-DMCyC5	1	1	2	1	2	3
t-1,3-DMCyC5	1	2	3	1	2	3
t-1,2-DMCyC5 + 3-EC5 + 2,2,4-TMC5	2	2	4	1	3	4
nC7	4	6	11	3	7	9
MCyC6 + c-1,2-DMCyC5	9	13	22	8	21	29
1,1,3-TMCyC5 + 2,2-DMC6	0	1	1	0	1	1
2,5-DMC6 + 2,2,3-TMC5	0	0	0	0	0	0
2,4-DMC6	0	1	1	0	1	2
3,3-DMC6 + t-1,c-2,4-TMCyC5	0	1	1	0	1	1
t-1,c-2,3-TMCyC5	0	0	0	0	1	1
Toluene + 2,3,3-TMC5	3	4	8	4	11	15
2-MC7	1	1	2	1	2	2
4-MC7 + 3,4-DMC6 + 3M-3EC5	0	0	0	0	0	0
3-MC7 + c-1,t-2,3-TMCyC5	0	1	1	0	1	1
DMCyC6	1	1	2	1	2	2
DMCyC6	0	1	1	0	1	1
nC8	2	3	6	2	4	5
RI=808	0	0	0	0	0	0
RI=832	0	0	0	0	0	0
RI=838	1	1	2	1	1	2
E-Benzene	0	1	1	0	1	1
RI=860	0	0	0	0	0	0
m+p-Xylene	1	1	2	1	2	3
RI=867	0	0	1	0	1	1
RI=874	0	0	0	0	1	1
o-Xylene	0	1	1	0	1	1
RI=893	0	0	0	0	0	0
nC9	1	2	3	1	2	3
Sum FID	8597	1567	10164	82642	12596	95238

Table 6.2 Composition of hydrocarbons in headspace and occluded gas, sediment washed with water (volume %)

Sample-ID	H6072	H6072	H6072	H6073	H6073	H6073	H6074	H6074	H6074
Gas fraction	H	O	H+O	H	O	H+O	H	O	H+O
Depth (m)	3310.0	3310.0	3310.0	3350.0	3350.0	3350.0	3610.0	3610.0	3610.0
Compound									
C1	69.5	31.8	62.5	77.3	45.1	73.8	48.5	25.3	45.9
C2	8.7	8.0	8.6	11.1	13.9	11.4	16.2	8.0	15.3
C3	10.9	15.5	11.7	7.5	17.4	8.6	21.0	23.4	21.3
iC4	2.6	6.7	3.3	0.9	3.5	1.2	2.5	5.3	2.8
C4ene	0.0	0.2	0.0	0.0	0.2	0.0	0.0	0.2	0.0
nC4	4.3	11.4	5.6	1.9	8.1	2.5	6.2	14.2	7.1
2,2-DMC3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RI=431	0.1	5.9	1.2	0.0	0.1	0.0	0.1	0.1	0.1
iC5	1.3	5.2	2.1	0.3	2.3	0.6	1.5	4.9	1.9
nC5	1.0	4.2	1.6	0.4	2.5	0.6	1.4	4.8	1.8
2,2-DMC4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CyC5 + 2,3-DMC4	0.2	0.9	0.3	0.1	0.4	0.1	0.2	0.9	0.3
2-MC5	0.2	0.9	0.3	0.0	0.4	0.1	0.2	1.1	0.3
3-MC5	0.1	0.6	0.2	0.0	0.3	0.1	0.1	0.7	0.2
nC6	0.2	1.4	0.4	0.1	0.7	0.1	0.3	1.5	0.4
2,2-DMC5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MCyC5	0.2	1.2	0.4	0.1	0.6	0.1	0.3	1.3	0.4
2,4-DMC5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Benzene	0.3	1.7	0.5	0.1	1.2	0.2	0.2	0.8	0.3
CyC6	0.1	1.0	0.3	0.1	0.7	0.1	0.3	1.7	0.5
2-MC6	0.0	0.2	0.0	0.0	0.1	0.0	0.0	0.2	0.1
2,3-DMC5	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0
1,1-DMCyC5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
3-MC6	0.0	0.2	0.1	0.0	0.1	0.0	0.1	0.3	0.1
c-1,3-DMCyC5	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.2	0.0
t-1,3-DMCyC5	0.0	0.2	0.0	0.0	0.1	0.0	0.0	0.2	0.0
t-1,2-DMCyC5 + 3-EC5 + 2,2,4-TMC5	0.0	0.2	0.1	0.0	0.1	0.0	0.0	0.3	0.1
nC7	0.0	0.3	0.1	0.0	0.2	0.0	0.1	0.6	0.2
MCyC6 + c-1,2-DMCyC5	0.1	0.7	0.2	0.0	0.5	0.1	0.2	1.3	0.3
1,1,3-TMCyC5 + 2,2-DMC6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
2,5-DMC6 + 2,2,3-TMC5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2,4-DMC6	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0
3,3-DMC6 + t-1,c-2,4-TMCyC5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
t-1,c-2,3-TMCyC5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Toluene + 2,3,3-TMC5	0.1	0.7	0.2	0.0	0.6	0.1	0.1	0.5	0.1
2-MC7	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.0
4-MC7 + 3,4-DMC6 + 3M-3EC5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3-MC7 + c-1,t-2,3-TMCyC5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
DMCyC6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
DMCyC6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
nC8	0.0	0.2	0.1	0.0	0.1	0.0	0.1	0.4	0.1
RI=808	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RI=832	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RI=838	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.0
E-Benzene	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.0
RI=860	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
m+p-Xylene	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.2	0.0
RI=867	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
RI=874	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
o-Xylene	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0
RI=893	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
nC9	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.2	0.0
Sum FID	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table 6.2 Continued

Sample-ID	H6075	H6075	H6075	H6076	H6076	H6076
Gas fraction	H	O	H+O	H	O	H+O
Depth (m)	3770.0	3770.0	3770.0	3890.0	3890.0	3890.0
Compound						
C1	58.4	35.1	54.8	75.9	16.9	68.1
C2	17.8	12.1	16.9	16.1	35.6	18.7
C3	16.0	23.8	17.2	6.4	33.7	10.1
iC4	1.4	3.5	1.7	0.4	2.6	0.7
C4ene	0.0	0.2	0.0	0.0	0.0	0.0
nC4	3.7	11.0	4.9	0.8	7.3	1.7
2,2-DMC3	0.0	0.0	0.0	0.0	0.0	0.0
RI=431	0.0	0.0	0.0	0.0	0.0	0.0
iC5	0.6	2.7	1.0	0.1	1.1	0.2
nC5	0.8	3.5	1.2	0.1	1.2	0.2
2,2-DMC4	0.0	0.0	0.0	0.0	0.0	0.0
CyC5 + 2,3-DMC4	0.1	0.5	0.1	0.0	0.1	0.0
2-MC5	0.1	0.7	0.2	0.0	0.2	0.0
3-MC5	0.1	0.4	0.1	0.0	0.1	0.0
nC6	0.2	1.0	0.3	0.0	0.2	0.0
2,2-DMC5	0.0	0.0	0.0	0.0	0.0	0.0
MCyC5	0.1	0.7	0.2	0.0	0.1	0.0
2,4-DMC5	0.0	0.0	0.0	0.0	0.0	0.0
Benzene	0.1	0.4	0.1	0.0	0.2	0.0
CyC6	0.2	1.1	0.3	0.0	0.2	0.0
2-MC6	0.0	0.1	0.0	0.0	0.0	0.0
2,3-DMC5	0.0	0.1	0.0	0.0	0.0	0.0
1,1-DMCyC5	0.0	0.0	0.0	0.0	0.0	0.0
3-MC6	0.0	0.2	0.0	0.0	0.0	0.0
c-1,3-DMCyC5	0.0	0.1	0.0	0.0	0.0	0.0
t-1,3-DMCyC5	0.0	0.1	0.0	0.0	0.0	0.0
t-1,2-DMCyC5 + 3-EC5 + 2,2,4-TMC5	0.0	0.1	0.0	0.0	0.0	0.0
nC7	0.1	0.4	0.1	0.0	0.1	0.0
MCyC6 + c-1,2-DMCyC5	0.1	0.8	0.2	0.0	0.2	0.0
1,1,3-TMCyC5 + 2,2-DMC6	0.0	0.0	0.0	0.0	0.0	0.0
2,5-DMC6 + 2,2,3-TMC5	0.0	0.0	0.0	0.0	0.0	0.0
2,4-DMC6	0.0	0.0	0.0	0.0	0.0	0.0
3,3-DMC6 + t-1,c-2,4-TMCyC5	0.0	0.0	0.0	0.0	0.0	0.0
t-1,c-2,3-TMCyC5	0.0	0.0	0.0	0.0	0.0	0.0
Toluene + 2,3,3-TMC5	0.0	0.3	0.1	0.0	0.1	0.0
2-MC7	0.0	0.1	0.0	0.0	0.0	0.0
4-MC7 + 3,4-DMC6 + 3M-3EC5	0.0	0.0	0.0	0.0	0.0	0.0
3-MC7 + c-1,t-2,3-TMCyC5	0.0	0.0	0.0	0.0	0.0	0.0
DMCyC6	0.0	0.1	0.0	0.0	0.0	0.0
DMCyC6	0.0	0.0	0.0	0.0	0.0	0.0
nC8	0.0	0.2	0.1	0.0	0.0	0.0
RI=808	0.0	0.0	0.0	0.0	0.0	0.0
RI=832	0.0	0.0	0.0	0.0	0.0	0.0
RI=838	0.0	0.1	0.0	0.0	0.0	0.0
E-Benzene	0.0	0.0	0.0	0.0	0.0	0.0
RI=860	0.0	0.0	0.0	0.0	0.0	0.0
m+p-Xylene	0.0	0.1	0.0	0.0	0.0	0.0
RI=867	0.0	0.0	0.0	0.0	0.0	0.0
RI=874	0.0	0.0	0.0	0.0	0.0	0.0
o-Xylene	0.0	0.0	0.0	0.0	0.0	0.0
RI=893	0.0	0.0	0.0	0.0	0.0	0.0
nC9	0.0	0.1	0.0	0.0	0.0	0.0
Sum FID	100.0	100.0	100.0	100.0	100.0	100.0

Table 6.3 Ratios and summary data vs. depth, samples washed with water.

Sample-ID	H6072	H6072	H6072	H6073	H6073	H6073	H6074	H6074	H6074
Gas fraction	H	O	H+O	H	O	H+O	H	O	H+O
Depth (m)	3310	3310	3310	3350	3350	3350	3610	3610	3610
CncC1	1630	170	1800	6400	449	6850	2879	188	3067
CncC2C4	621	222	843	1774	431	2205	2724	380	3104
CncC5C9	94	142	236	110	117	227	330	176	506
CncC1C9	2345	534	2879	8284	998	9282	5933	744	6677
PctC1	69.5	31.8	62.5	77.3	45.1	73.8	48.5	25.3	45.9
PctC2C4	26.5	41.6	29.3	21.4	43.2	23.8	45.9	51.1	46.5
PctC5C9	4.0	26.5	8.2	1.3	11.7	2.4	5.6	23.6	7.6
PctC1C9	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Wetness	27.6	56.7	31.9	21.7	49.0	24.4	48.6	66.9	50.3
RatiC4nC4	0.6	0.6	0.6	0.5	0.4	0.5	0.4	0.4	0.4
PctnC7	11.1	11.4	11.3	13.4	12.5	12.9	16.5	15.9	16.2
PctIsoC7	15.3	15.7	15.6	14.6	10.6	12.1	16.9	17.3	17.1
PctCycC7	47.2	46.9	47.0	40.8	44.0	42.8	52.2	53.0	52.5
PctAroC7	26.4	26.0	26.1	31.2	32.9	32.2	14.5	13.7	14.2
PctSumC7	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Thompson_A	1.5	1.4	1.4	1.7	1.9	1.8	0.7	0.6	0.7
Thompson_B	2.7	2.6	2.6	2.7	3.0	2.9	1.0	1.0	1.0
Thompson_X	0.7	0.8	0.7	0.8	1.0	0.9	0.5	0.5	0.5
Thompson_C	1.1	1.0	1.0	0.9	0.7	0.8	0.8	0.7	0.7
Thompson_I	0.7	0.6	0.7	0.7	0.6	0.7	0.8	0.8	0.8
Thompson_F	0.4	0.4	0.4	0.5	0.4	0.4	0.4	0.4	0.4
Thompson_H	9.0	9.7	9.5	11.2	11.2	11.2	12.0	12.0	12.0
Thompson_R	1.7	1.9	1.9	2.5	2.9	2.7	2.5	2.7	2.6
Thompson_U	7.1	6.7	6.9	8.9	9.6	9.3	7.2	7.2	7.2
Mango_P1	11.13	11.39	11.31	13.41	12.55	12.87	16.48	15.94	16.25
Mango_P2	15.30	13.15	13.86	12.01	10.57	11.11	14.23	13.55	13.94
Mango_N2	11.19	12.07	11.78	9.02	9.38	9.24	11.09	11.04	11.07
Mango_K1	0.74	1.16	1.00	1.19	0.70	0.89	1.20	0.98	1.10

Sample-ID	H6075	H6075	H6075	H6076	H6076	H6076
Gas fraction	H	O	H+O	H	O	H+O
Depth (m)	3770	3770	3770	3890	3890	3890
CncC1	5022	551	5573	62718	2123	64841
CncC2C4	3355	795	4149	19650	9978	29629
CncC5C9	221	221	442	274	495	769
CncC1C9	8597	1567	10164	82642	12596	95238
PctC1	58.4	35.1	54.8	75.9	16.9	68.1
PctC2C4	39.0	50.7	40.8	23.8	79.2	31.1
PctC5C9	2.6	14.1	4.4	0.3	3.9	0.8
PctC1C9	100.0	100.0	100.0	100.0	100.0	100.0
Wetness	40.0	59.1	42.7	23.9	82.5	31.4
RatiC4nC4	0.4	0.3	0.4	0.5	0.4	0.4
PctnC7	17.4	17.9	17.7	13.2	12.3	12.6
PctIsoC7	17.2	16.4	16.7	14.6	14.5	14.5
PctCycC7	52.8	53.0	52.9	53.9	53.1	53.3
PctAroC7	12.6	12.7	12.7	18.2	20.2	19.6
PctSumC7	100.0	100.0	100.0	100.0	100.0	100.0
Thompson_A	0.4	0.5	0.4	0.8	0.9	0.9
Thompson_B	0.8	0.8	0.8	1.6	1.9	1.8
Thompson_X	0.5	0.5	0.5	0.5	0.7	0.7
Thompson_C	0.9	0.7	0.8	0.7	0.6	0.6
Thompson_I	0.9	0.9	0.9	0.8	0.8	0.8
Thompson_F	0.4	0.4	0.4	0.3	0.3	0.3
Thompson_H	12.1	12.9	12.5	9.1	9.0	9.0
Thompson_R	2.7	2.9	2.9	2.3	2.4	2.3
Thompson_U	8.3	7.9	8.1	9.8	10.1	10.0
Mango_P1	17.43	17.90	17.70	13.19	12.30	12.56
Mango_P2	13.48	12.92	13.16	11.83	10.79	11.09
Mango_N2	10.98	10.31	10.59	10.03	8.65	9.06
Mango_K1	1.10	1.04	1.07	1.44	1.20	1.27



Title: Petroleum Geochemistry in Well 35/8-5 S

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Appendix 4

Analysis of headspace gas in canned DC-
samples,
gas volumes and carbon isotope values,
APT 2003

Kunde: Hydro, Arne Steen

Referanse:

Annen info:

Arbeid: Vol og C13

Frist:

Rapportering: Arne Steen, Per Erling

APT ID	Well	Sample type	Lower Depth	IFE no.	C1 δ13C	C1 δD	C2 δ13C	C3 δ13C	iC4 δ13C	nC4 δ13C	iC5 δ13C	nC5 δ13C	CO2 δ13C	CO2 δ18O	Date	Sign	Instrument	Comment
18868	35/8-5 S	Canned cut	3290.00	2003.1800	-40.7		-28.1	-29.3		-30.3					18-12-2003	IJO	113	
18869	35/8-5 S	Canned cut	3330.00	2003.1801	-40.2		-27.6	-27.4		-27.2					19-12-2003	IJO	113	
18870	35/8-5 S	Canned cut	3370.00	2003.1802	-40.4		-27.7	-26.3		-26.5					19-12-2003	IJO	113	
18871	35/8-5 S	Canned mud	3370.00	2003.1803	-43.3		-30.4								19-12-2003	IJO	113	
18872	35/8-5 S	Canned cut	3445.00	2003.1804			-27.7	-26.7							19-12-2003	IJO	113	
18873	35/8-5 S	Canned cut	3530.00	2003.1805	-33.3		-27.3	-28.3	-28.2	-29.1					19-12-2003	IJO	113	
18874	35/8-5 S	Canned cut	3690.00	2003.1806	-34.3		-29.9	-30.2	-30.2	-29.7					19-12-2003	IJO	113	
18875	35/8-5 S	Canned cut	3830.00	2003.1807	-38.5		-27.5	-27.7		-27.3					19-12-2003	IJO	113	
18876	35/8-5 S	Canned mud	3895.00	2003.1808	-44.8		-30.8	-29.6							19-12-2003	IJO	113	