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Abstract Samples of cuttings and cores from this well were analysed for potential source rocks and the qualities of shows.
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REGISTRERT
OLJEFORSKNING

Prepared by K. Abrahamsen T. Bartnes E. Berge A. Båtevik E. M. Carlsen L. Sandvik T. Meyer L. Schou (IKU) A. Råheim (IFE)
Textoperator Gunn Berge

Approved by
20/11-85 Trygve Meyer
Trygve Meyer
20/11 Snorre Olaussen
Snorre Olaussen

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TABLE 5 LITHOLOGY OF CANNED CUTTINGS, WELL 6609/5-1

<u>SAMPLE</u>	<u>DEPTH</u>	<u>LITHOLOGY</u>
S914	935-950	100% : SD, qtz, clr, occ. gry and silky wh, fn-crs, mod srted, sub-ang to sub-rnd, tr rock fragm., Tr. : SHELL fragm.
S915	1160-1175	100% : SD, qtz, clr, occ. gry, fn, well srted, sub-ang to sub-rnd, Tr. : ROCK fragm., Tr. : SHELL fragm.
S916	1295-1310	100% : SD, qtz, clr, occ. gry, fn-med, well srted, sub-rnd to rnd, Tr. : ROCK fragm., Tr. : SHELL fragm.
S917	1450-1465	100% : SD, qtz, clr, occ. gry, fn-med, well srted, sub-ang to sub-rnd, Tr. : ROCK fragm., Tr. : SHELL fragm.
S918	1600-1615	80% : SD, qtz, clr, occ. gry, fn-med, well srted, sub-ang to sub-rnd. 10% : SD, rock fragm, blk, fn-med, well srted, sub-ang to sub-rnd. 10% : SLTST, gry, hd, sndy, micromic.
S919	1750-1775	60% : CLYST, lt gry to gry, frm-hd, v slty, occ sndy, non-calc. 40% : CLYST, lt grn, hd, occ slty, non calc. Tr. : ROCK fragm, PYR.
S920	1900-1915	50% : SLTST, gry, non calc, hd, micro-micn. 50% : CLYST, lt gry - gry, non calc, con-v con, slt - v.slt. Tr. : CHT, DOL, PYR.
S921	2050-2065	100% : CLYST, a/a.
S922	2110-2125	50% : CLYST, gry-gnish gry, non calc, hd, 50% : CLYST, slty- v.slty, gry-dk. gry, non calc hd. Tr. : SD, crs qtz, PYR.
S923	2140-2155	60% : CLYST, gry-gnish gry, non calc, hd, 40% : SD, qtz, clr, fn-med, well srted, sph, Tr. : PYR, GLAU.
S924	2170-2185	80% : CLYST gry, occ. lt grn, occ. slty, non calc, hd, 20% : SD, qtz, clr, fn, well srted, Tr. : GLAU, PYR.
S925	2230-2245	60% : CLYST a/a, 40% : SD, fn - crs, else a/a

<u>SAMPLE</u>	<u>DEPTH</u>	<u>LITHOLOGY</u>
S926	2290-2305	80% : CLYST a/a, 20% : SD a/a, Tr. : GLAU, PYR.
S927	2305-2320	90% : CLYST a/a, 10% : SD, fn, else a/a, Tr. : PYR.
S928	2350-2365	100% : CLYST, gy, occ grnish gy, occ slty, non-calc, hd, occ micromic Tr. : PYR, GLAUC, Tr. : DOL, lt brn, argill, hd.
S929	2370-2395	80% : CLYST, a/a 10% : SD, qtz, clr, occ gy and rdish brn, vf, v well srtd, subrnd - subang. 10% : LST, lt brn to brn, argill, hd, grad to dol and sid. Tr. : PYR, GLAUC.
S930	2425-2440	90% : CLYST, a/a, 10% : SD, a/a, Tr. : LST, a/a, GLAUC, PYR.
S931	2470-2485	90% : CLYST, a/a, 10% : DOL, lt brn to brn, occ argill, hd, xln. Tr. : SD, a/a. Tr. : PYR, GLAUC.
S932	2500-2515	70% : CLYST, a/a. 30% : SLTST, gy, hd, non-calc. Tr. : SST, qtz, clr-mlky wh, vf, v well srtd, subang - subrnd, non-calc, occ. mic. Tr. : GLAUC, PYR.
S933	2530-2545	50% : CLYST, a/a, 40% : SLTST, a/a, 10% : SD, a/a occ. sst, glauc, else a/a. Tr. : PYR, GLAUC.
S934	2575-2590	50% : CLYST, gy, occ. slty, non-calc, hd, micromic, 50% : SLTST, lt brn-brn, occ. argill and aren., calc, hd. Tr. : SAND, PYR, GLAUC.
S935	2620-2635	80% : CLYST, a/a, 10% : LST, wh, occ lt brn, hd, occ xln, 10% : SLTST, a/a. Tr. : GLAUC, PYR, SAND (qtz).
S936	2650-2665	100% : CLYST, a/a, Tr. : LST a/a, SAND, GLAUC, PYR.

<u>SAMPLE</u>	<u>DEPTH</u>	<u>LITHOLOGY</u>
S937	2695-2710	100% : CLYST, a/a, Tr. : PYR, GYPS, LST a/a.
S938	2740-2755	60% : CLYST, a/a, 40% : SLTST, lt gy to gy, micromic, argill, hd, non-calc. Tr. : PYR, GYPS, Tr. : SST, lt gy, qtz, vf, hd, calc cmtd.
S939	2770-2785	70% : CLYST, gy, slty, non-calc, hd, micromic. 30% : SLTST, lt gy-gy, micromic, argill, hd, non-calc. Tr. : SST, lt gy, qtz, vf, hd, calc cmtd. Tr. : PYR, GLAUC.
S940	2815-2830	90% : CLYST, a/a 10% : SLTST, a/a. Tr. : SST, lt gy, qtz, vf, hd, sl. calc. Tr. : Pyr, GLAUC.
S941	2860-2875	50% : CLYST, a/a, 40% : SLTST, lt brn - lt gy, micromic, argill, hd, v calc. 10% : SST, gy, qtz, vf - f, hd, calc. Tr. : PYR.
S942	2890-2905	50% : CLYST, a/a. 30% : SLTST, lt gy, argill, aren, sl calc. 10% : SST, a/a, 10% : LST, lt brn, hd, xln. Tr. : PYR.
S943	2950-2965	60% : CLYST, a/a, 30% : SLTST, a/a, 10% : SST, a/a. Tr. : PYR, lst, a/a.
S944	2980-2995	40% : CLYST, a/a, 50% : SSL, a/a, 10% : SLTST, a/a.
S945	3025-3040	90% : SD, qtz, clr - gy, f-crs, mod srtd, sub-ang - sub-round, 10% : CLYST, a/a. Tr. : SLTST, lst.
S946	3055-3070	70% : SD, a/a, f-med. 20% : CLYST, a/a, grad to sltst, a/a 10% : CLYST rdish brn, v calc, hd, micromic occ. slty. Tr. : SST, vf.

<u>SAMPLE</u>	<u>DEPTH</u>	<u>LITHOLOGY</u>
S947	3085-3100	40% : CLYST rdish brn, v calc., hd, micromic occ grad to sltst, 40% : SD, qtz, clr to mlky wh, orng, vf - med, w srted, ang- sub ang. 20% : CLYST, as 2785 m (S939). Tr. : PYR.
S948	3115-3130	50% : CLYST, rdish brn, a/a 50% : CLYST, wh to grnish gy, sndy and slty, hd, micromic, v. calc. Tr. : LIGNOSULF. (1cm).
S949	3145-3160	50% : CLYST, rdish brn a/a, 40% : SST, qtz, wh, vf-f, calc. cem, mic., v.srted. 10% : CLYST, gry, sl, calc. hrd, sl. mic. Tr. : LIGNOS. (1cm).
S950	3175-3190	50% : CLYST, rdish brn, a/a, 40% : SST, qtz, a/a, hrd. 10% : CLYST, gry, sl. calc. hrd, sl. mic.
S951	3205-3220	60% : SST, a/a, 40% : CLYST, rdish brn, a/a, 10% : CLYST, gryish gr.
S952	3235-3250	90% : SST, qtz, wh, med-crs, mod-w srted, sub ang. calc. cem., hd, sl. mica. 10% : CLYST, rdish, brn, non calc, hd, sl. mic. Tr. : CLYST, gry, non calc, micromic, hd.
S953	3265-3280	95% : SST, qtz, wh, vf-f., w srted, sub.ang. calc. cem, hd, mic. 5% : CLYST, rdish, brn, non calc, hd, sl. mic occ grad to sst.
S954	3295-3310	60% : CLYST, rdish brn, non calc., hd, sl. mic. occ. grad to sst. 20% : SST, qtz, wh, vf-f, w srted., sub.ang. v calc. cmted, hd. mic. 10% : SST, qtz, rdish, vf, w srted, sub. round v calc. cem., hd. mic. 10% : CLYST, gry sl. calc. hd, sl. mic.
S955	3325-3340	50% : CLYST, rdish brn, a/a 40% : SST, wh, a/a 10% : CLYST, gry a/a.

<u>SAMPLE</u>	<u>DEPTH</u>	<u>LITHOLOGY</u>
S956	3355-3370	90% : SST, qtz, wh to clr, f to crs sub rnd to sub ang, mod srtd, calc. cmtd, hd, sl mic. 10% : CLYST, rdish brn, calc, hd, v mic. slty, occ sndy. Tr. : CLYST, grnish gry, non calc, hd, v mic, slty, occ sndy.
S957	3385-3400	90% : SST, a/a. 10% : CLYST, rdish, brn. a/a. Tr. : CLYST, grnish gry, a/a.
S958	3415-3430	80% : SST, a/a. 20% : CLYST, rdish brn, a/a. Tr. : CLYST, grnish gry, a/a.
S959	3445-3460	60% : CLYST, rdish brn, a/a, 30% : SST, qtz lt rdish brn, f, w srtd, sub rnd, calc cmtd, hd, mid, 10% : SST, qtz, wh to clr, a/a.
S960	3475-3490	90% : SST, qtz, wh to lt orng, f, w srtd, sub rnd, calc cmtd, hd, mic. 10% : CLYST, rdish brn, a/a. Tr. : CLYST, grnish gry, a/a.
S961	3505-3520	80% : SST, a/a, 20% : CLYST, rdish brn, a/a. Tr. : CLYST, grnish gry, a/a.
S962	3535-3550	70% : SST, a/a 30% : CLYST, rdish brn. a/a. Tr. : CLYST, grnish gry, a/a.
S963	3565-3580	90% : SST, V f to f, else a/a, 10% : CLYST, rdish brn, a/a. Tr. : CLYST, grnish gry, a/a.
S964	3595-3600	50% : CLYST, rdish brn, a/a, 30% : SST, rdish brn, f, w srtd, sub rnd, calc. cmtd, hd, mic. 10% : SST, wh to lt orng, a/a. 10% : CLYST, gry, sl calc, hrd, sl mic.

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TABLE 6 CONCENTRATION (u L GAS/KG ROCK) OF C1-C7 HYDROCARBONS.

DEPTH	C1	C2	C3	IC4	NC4	C5+	IC4/NC4	WETNESS
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950	1005	48	32	24	20	77	1.2	11.0
1175	47273	61	52	16	1	134	16.0	.3
1310	9665	27	35	20	1	95	20.0	.9
1465	6632	33	43	26		194		1.5
1615	26524	92	50	42		204		.7
1775	269	20	39	23		199		23.4
1915	52529	367	27	61	52	2980	1.2	1.0
2065	5759	94	8	6	4	355	1.5	1.9
2125	12230	145	14	33	8	804	4.1	1.6
2155	276	19	13	8		1668		12.7
2185	341	18	20	13	10	1347	1.3	15.2
2245	35114	844	192	336	68	5695	4.9	3.9
2305	72022	4641	1880	1317	612	6598	2.2	10.5
2320	71880	4960	1985	1297	586	1919	2.2	10.9
2365	1004	455	1135	1146	710	8212	1.6	77.4
2395 1)	488	41	38	5	24	2002	.2	18.1
2440	14635	1909	1344	903	518	3369	1.7	24.2
2485 1)	376	61	140	81	115	1978	.7	51.4
2515	4017	700	723	648	401	2447	1.6	38.1
2545	95335	12020	7126	3979	1610	2857	2.5	20.6
2590	4009	859	771	348	179	1363	1.9	35.0
2635	2495	595	1558	1579	558	5026	2.8	63.2
2665	51330	9445	8487	6896	2250	6277	3.1	34.5
2710	20685	5702	8524	8682	3059	11038	2.8	55.7
2755	11923	2699	2285	1554	547	1975	2.8	37.3
2785	41415	13486	13014	8831	3080	6104	2.9	48.1
2830	923	227	924	1064	591	2952	1.8	75.2
2875	6083	2079	2561	1826	944	3289	1.9	54.9
2905	20721	4892	4211	2367	1141	3650	2.1	37.8
2965	6439	2745	3560	1989	1008	2198	2.0	59.1
2995	793	150	274	99	164	887	.6	46.4
3040	29	4	8	1	4	41	.3	37.0
3070	8311	1369	1139	664	330	619	2.0	29.6
3100	3883	1029	1105	1033	411	861	2.5	48.0
3130	33	2	6	7	7	56	1.0	40.0
3160	129	3	2	1	1	50	1.0	5.1
3190	1006	27	44	9	20	804	.4	9.0
3220	406	20	27	15		283		13.2
3250	655	29	39	22	1	247	22.0	12.2
3280	857	140	187	6	87	258	.1	32.9
3310	980	173	232	10	107	743	.1	34.8
3340	463	8	9	5	3	248	1.7	5.1
3370	68					136		
3400	130	3	4	8	3	134	2.7	12.2
3430	492	17	21	13	2	343	6.5	9.7
3460	979	36	32	19		1088		8.2
3490	598	18	26	16	2	457	8.0	9.4
3520	99	1	4	24	1	182	24.0	23.3
3550	305	11	10	7	1	191	7.0	8.7
3580	346	12	11	6	1	336	6.0	8.0
3600	155	3	2	1	2	246	.5	4.9

1) Leakage

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TABLE 7 DATA FROM ROCK EVAL PYROLYSE

DEPTH		S1	S2	S3	TOC	HI	OI	PP	PI	TMAX
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1775	A	.04	.28	.74	.43	65	172	.32	.13	421
1775	B	.01	.28	.66	.49	57	134	.29	.03	431
1915		.08	1.01	.94	1.51	66	62	1.09	.07	414
2065		.21	2.92	1.07	2.26	129	47	3.13	.07	414
2125		.05	.99	.59	1.33	74	44	1.04	.05	423
2155		.08	.83	.80	1.27	65	62	.91	.09	422
2185		.37	2.85	1.08	1.80	158	60	3.22	.11	416
2245		.01	.37	.60	.83	44	72	.38	.03	419
2305		.01	.24	.44	.67	35	65	.25	.04	428
2320		.06	.54	.49	.78	69	62	.60	.10	428
2365		.06	.52	.53	.80	65	66	.58	.10	425
2395		.04	.44	.36	.83	53	43	.48	.08	427
2440		.02	.31	.43	.81	38	53	.33	.06	427
2485		.02	.37	.30	.97	38	30	.39	.05	427
2515		.05	.44	.47	.71	61	66	.49	.10	430
2545		.06	.60	.21	.93	64	22	.66	.09	427
2590		.11	.72	.24	1.03	69	23	.83	.13	428
2635		.04	.32	.32	.75	42	42	.36	.11	428
2665		.02	.28	.12	.76	36	15	.30	.07	429
2710		.06	.53	.31	.93	56	33	.59	.10	429
2755		.04	.42	.15	.88	47	17	.46	.09	431
2785		.05	.48	.17	.98	48	17	.53	.09	431
2830		.03	.43	.14	.93	46	15	.46	.07	433
2875		.10	.79	.18	1.05	75	17	.89	.11	434
2905		.17	.99	.43	1.09	90	39	1.16	.15	432
2965		.10	.75	.18	1.06	70	16	.85	.12	430
2995		.13	1.00	.12	1.11	90	10	1.13	.12	435
3040		.08	.77	.12	1.00	76	11	.85	.09	433
3070		.07	.61	.16	.92	66	17	.68	.10	436
3100	C	.13	.82	.15	1.02	80	14	.95	.14	433
3100	A	.02	.09	.19	.12	75	158	.11	.18	432
3130	B	.07	.41	.40	.53	77	75	.48	.15	431
3130	A	.06	.16	.26	.10	160	260	.22	.27	347
3220			.04	.09	.09	44	100	.04		395
3220			.02	.20	.06	33	333	.02		306
3310	D	.01	.09	.12	.15	59	79	.10	.10	422
3310	A	.04	.09	.29	.11	81	263	.13	.31	347
3430		.09	.17	.22	.12	141	183	.26	.35	346
3600			.02	.09	.07	28	128	.02		382
3600				.15	.05		299			343

TABLE 8 EXTRACTS FROM CORE SAMPLES

STATOIL Int. No.	Depth mKB	EOM ppm	Hydrocarbons			Non Hydrocarbons			Aromat-	Non Hydro-	SAT./	
			Saturates ppm	Aromatics ppm	Total ppm	Total ppm	Asphalthenes ppm	Saturates %	ics %	carbons %	Asphalthenes %	ARO.
S1236	3009,00	197	19	10	29	168	39	9.72	5.08	85.20	20.00	1.9
S1237	3011,17	1423	317	117	434	990	419	22.25	8.21	69.54	29.42	2.7
S1238	3012,20	4138	2315	512	2827	1311	226	55.95	12.37	31.68	5.45	4.5
S1239	3016,52	1924	148	77	225	1700	592	7.69	3.99	88.32	30.75	1.9
S1240	3017,18	853	134	181	315	538	84	15.67	21.25	63.08	9.83	0.7
S1241	3019,51	838	25	13	28	799	98	* 3.03	*1.55	*95.42	11.68	1.9

* Uncertain values

Table 9

HYDROCARBON CHARACTERISTICS

Sample no	Depth (mKB)	Pr/n-C ₁₇	Ph/n-C ₁₈	Pr/Ph	n-C ₁₇ /n-C ₂₇	CPI (1)	CPI (2)
S-1236	3009,00	0.49	0.28	2.36	14.13	1.1	0.9
S-1237	3011,17	0.58	0.19	6.20	-	-	-
S-1238	3012,20	0.68	0.37	1.94	13.63	1.1	0.9
S-1239	3016,52	0.42	0.25	1.75	4.23	1.0	1.0
S-1240	3017,18	0.44	0.32	1.63	18.67	1.1	1.0
S-1241	3019,51	0.57	0.40	1.76	29.25	1.2	1.0

Table 10 Molecular ratios calculated from terpane and sterane mass chromatograms. Maturity ratios.

IKU No.	Code	$\alpha\beta / \alpha\beta + \beta\alpha^{1)}$	%22S ²⁾	% $\beta\beta$ ³⁾	%20S ⁴⁾
C-2888	S-1236	0.83	60.9	55.6	18.8*
C-2889	S-1237	0.78	56.1	66.0	22.9*
C-2890	S-1238	0.91	60.4	80.6	48.0*
C-2891	S-1239	0.90	59.1	69.9	34.3*
C-2892	S-1240	0.85	57.4	72.1	22.4*
C-2893	S-1241	0.89	58.7	68.3	23.0*

- 1) E/E+F in m/z 191
- 2) % distribution between first and second eluting isomers of doublet G and H (m/z 191)
- 3) $2(r+s)/(q+t+2(r+s))$ in m/z 217
- 4) $q/q+t$ in m/z 217

Values assigned with an asterix are suspected to be uncertain, due to a possible coelution of interfering components in the samples.

See Appendix for peak assignments.

Table 11 Molecular ratios calculated from terpane and sterane mass chromatograms. Source characteristic and maturity ratios.

IKU no.	Code	Q/E ¹⁾	Tm/Ts ²⁾	X/E ³⁾	a/a+j ⁴⁾	Z/E ⁵⁾
C-2888	S-1236	0.27	3.00	0.02	-	0.40
C-2889	S-1237	0.21	2.50	0.00	-	0.72
C-2890	S-1238	0.18	0.87	0.15	0.91	0.07
C-2891	S-1239	0.02	1.57	0.16	0.57	0.08
C-2892	S-1240	0.19	1.59	0.05	1.00	0.37
C-2893	S-1241	0.14	1.65	0.03	0.61	0.19

- 1) Relative abundance of tricyclic terpanes (Q/E in m/z 191)
- 2) B/A in m/z 191
- 3) Relative abundance of unknown (X/E in m/z 191)
- 4) Relative abundance of C₂₇ rearranged steranes (a/a+j in m/z 217)
- 5) Relative abundance of bisnorhopane (Z/E in m/z 191)

See Appendix for peak assignments.

TABLE 12 CARBON ISOTOP ANALYSIS

Carbon isotope results

STATOIL Int. No.	Depth in mKB	Saturates	Aromates
S1236	3009.00	-28.2	-27.4
S1237	3011.17	-28.7	-27.5
S1238	3012.20	-28.3	-28.4
S1239	3016.52	-29.1	-28.7
S1240	3017.18	-30.6	-28.1
S1241	3019.51	-28.6	-26.9

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