5.1.3 FMT summary

Two FMT runs were performed in this well.

Run no. 1

7 out of 23 attempts to get pressure points were successful. One separate sample (1 gallon) was taken at 3017 m RKB. The chamber was drained offshore:

Opening pressure, KPa	: 0
Mudfiltrate, ml	: 22
Gas, Sm^3	: 0
Oil/condensate, ml	: 0
pH	: 9
Ca^{2+}, mg/l	: 2120
Cl^-, mg/l	: 22400
Mg^{2+}, mg/l	: 340

Due to seal failure it was not possible to get more pressure points after this sample.

Run no. 2

7 out of 15 attempts to get pressure points were successful. One sample was taken at 2652 m RKB and one sample at 2497 m RKB. Both chambers were drained offshore:

	1 gallon chamber	2 3/4 gallon chamber
Depth, m RKB	: 2562	2497
Opening pressure, KPa	: 0	0
Mudfiltrate, ml	: 800	2500
Gas, Sm^3	: 0	0
Oil/condensate, ml	: 0	0
pH	: 8	8.3
Ca^{2+}, mg/l	: 1440	1440
Cl^-, mg/l	: 24500	22200

Temperature corrected pressure readings from both runs are listed below.

Run no.	Depth (mRKB)	Formation pressure (KPa)	Comments
1	3011	-	Lost seal
1	3011.5	-	No seal
1	3013	-	Poor-very poor perm.
1	3015	-	Poor-very poor perm.
1	3017	-	Poor-very poor perm.
1	3019	-	Poor-very poor perm.
1	3020.9	-	Poor-very poor perm.
1	3023	-	Poor-very poor perm.
1	3025	-	Poor-very poor perm.
1	3034	35922	Good perm.
1	3043.5	36011	Good perm.
1	3060	36177	Very good perm.
1	3100	36590	Very good perm.
1	3123.3	36832	Very good perm.
1	3155	37162	Good perm.
1	3228.3	-	No seal due to washouts
1	3231	-	No seal due to washouts
1	3235	-	No seal due to washouts
1	3257.5	-	No seal due to washouts
1	3260	-	No seal due to washouts
1	3263.7	-	No seal due to washouts
1	3260.8	-	No seal due to washouts
1	3028	35818	Good perm.
2	2493	-	No seal
2	2497	32716	Poor-fair perm.
2	2502.5	32529	Poor-fair perm.
2	2530	33598	Poor-fair perm.
2	2562	35577	Good-fair perm.
2	2565	33598	Good-fair perm.
2	2568	35618	Good perm.
2	2580	33536	Fair-poor perm.
2	2594.5	-	Fair perm.
2	2652	-	Poor perm.

2	2676.3	-	Poor perm.
2	2718	-	Poor perm.
2	2757	-	Poor perm.
2	2938.5	-	Poor perm.
2	2965	-	Poor perm.

The pressure points indicate a water gadient of 10.27 KPa/m (SG = 1.047 g/cc).

5.2 Test summary

5.2.1 Salt water depletion test

Objectives

The main objective of this test was to deplete the over-pressured shale/dolomite layer in the Zechstein to be able to continue drilling to prognosed TD. Secondary objective was to determind the formation pressure in this abnormale pressure zone.

Test Performance

This was an open hole DST where the production packer was set just above the 7" liner shoe at 3712 mRKB. A simple 5" drill pipe test string with Halliburton DST tools was used.

The test interval was the open hole section from 3722 to 3776 mRKB. The lithology from 3722 to 3761 was mainly halite. From 3761 to 3772 mRKB the lithology was anhydrite/halite/shale with minor amounts of dolomite. The interval from 3772 to 3776 mRKB consisted of mainly shale interbedded with salt and porous clastic dolomite.

The test consisted of two flow and two shut-in periods. 0.6 Sm^3 seawater cushion were produced back during the initial flow period of 2 minutes. This flow was followed by an initial shut-in of 1 hour to determind the initial resevoir pressure. The second flow period lasted for 12 hours and 39 minutes followed by a shut-in of 12 hours and 47 minutes. The water flow rate decreased gradually from 234 Sm^3/d to 0 Sm^3/d during the second flow period. Cumulative 21.6 Sm^3 salt water was produced during this flow period.

To obtain samples from the produced formation water, the string volume was reversed out prior to kill the well.

Two Baker Panex pressure/temperature gauges was run with the test string in a gauge carrier. Both gauges worked OK.

Test Results

P* from Horner plot, initial build-up, KPa : 75670
Max. recorded temp. during second flow, ^{o}C : 145.6
Depth reference, m RKB : 3710

Formation water analysis results :

Density : 1.46 g/cc at 28 deg C.
Cl^{-} : 445000 mg/l
Mg^{2+} : 98820 mg/l
Ca^{2+} : 63000 mg/l
pH : 2.9

No test analysis has been done at present time.

NORCEM ANCHOR AS

STATOIL WELL NO. 6/3-2

DRILLING MUD PROPERTIES RECORD

AREA NORTH SEA

MUD SYSTEM: SPUD MUD/GYP POLYMER/SAFEMUL RIG ROSS ISLE

DAY No.	DATE 1985	DEPTH metre	M.W. sg	F.V. s/qt	A.V. cps	P.V. cps	Y.P.	Gel 0	Gel 10	API Filt.	Cake 32nds	HPHT Filt.	pH	Chl.ppm *1000	Calc. g/lit	Pf	%Oil	%sol.	%Sand	MBT ppb	GYP ppb
1	21.11	223	1.07	120									10.4								
2	22.11	223	1.1	42	20.5	5	31	15	15				10								
3	23.11	455	1.1	43	24.5	6	37	16	17				10.1						Tr.		
4	24.11	259	1.1	42	22.5	5	35	17	18				10						Tr.		
5	25.11	622	1.11	42	21	5	32	17	18				10.2						Tr.		
6	26.11	622	1.24	42	22	6	32	16	17				10.1								
7	27.11	622	1.1	54	27.5	19	17	2	3	5	1		10	23.00	3	.05					
8	28.11	622	1.1	47	24	16	16	2	3	5	1		10	23.00	3.2	.05					5.7
9	29.11	997	1.17	44	19.5	11	17	5	14	4	1		9.8	21.50	3.3	.05	9	Tr.	15	5.2	
10	30.11	1291	1.17	47	21	12	18	8	23	4	1		9.7	21.00	3.6	.04	9	Tr.	21	5.1	
11	1.12	1316	1.2	47	23	14	18	8	27	4.6	1		9.7	23.00	2.9	.05	10	Tr.	22.5	6.15	
12	2.12	1316	1.2	47	23.5	14	19	10	25	5.2	1		9.9	22.00	2.7	.08	10	Tr.	22.5	6.6	
13	3.12	1316	1.15	48	27	19	16	2	4	4	1		10.1	22.00	3.6	.08	9	Tr.	0	5.5	
14	4.12	1546	1.15	52	24	15	18	3	7	3.6	1		10.1	21.00	3.4	.08	9	Tr.	9	5	
15	5.12	1838	1.15	60	27.5	16	23	4	17	3.3	1		10	21.50	3.2	.1	7	Tr.	12.5	4.2	
16	6.12	2028	1.2	59	28	18	20	4	20	3.5	1	10.5	10	21.50	3	.05	10	Tr.	16	4	
17	7.12	2234	1.2	59	28.5	18	21	5	25	3.5	1	10	9.9	21.00	2.8	.05	10	Tr.	18	4.1	
18	8.12	2394	1.2	56	26.5	17	19	4	28	3.5	1	10	9.8	21.50	2.6	.05	9	Tr.	17	4.1	
19	9.12	2495	1.2	60	28	18	20	5	30	3.8	1	10.5	10.1	21.50	2.3	.1	9	Tr.	17	4.1	
20	10.12	2515	1.2	59	26	17	18	5	30	3.6	1	10	10	21.50	2.4	.05	9	Tr.	17	4.2	
21	11.12	2571	1.2	58	26	17	18	4	28	3.5	1	9.5	10	21.50	2.1	.1	9	Tr.	16	4.1	
22	12.12	2599	1.2	60	28	18	20	4	20	3.5	1	10	10	21.50	2.1	.1	9	Tr.	15	3.9	
23	13.12	2715	1.2	61	30.5	20	21	3	19	3.6	1	10	9.9	23.00	2.04	.05	9	Tr.	16	3.7	
24	14.12	2789	1.2	60	30	20	20	3	15	3.5	1	9.8	10.1	23.00	2.08	.1	9	Tr.	15	3.7	
25	15.12	2789	1.2	69	30.5	20	21	4	21	3.4	1	10.3	9.9	23.10	2.24	.1	10	Tr.	17.5	3.6	
26	16.12	2794	1.25	60	34	23	22	4	25	3.2	1	9.9	10.2	22.70	2.16	.1	10	.25	22	3.4	
27	17.12	2794	1.28	60	33	23	20	4	26	3.5	1	10	10	23.00	2.2	.1	13	.25	21	3.6	
28	18.12	2829	1.28	62	33	23	20	3	19	3.2	1	9.8	10.4	22.20	2	.15	12	.25	20	3.6	
29	19.12	2857	1.28	62	31.5	22	19	3	14	3.4	1	9.9	10	22.70	2.28	.05	12	Tr.	18	3.6	
30	20.12	2905	1.28	60	32	22	20	3	13	3.6	1	10.2	10.3	21.90	2.16	.15	12	.25	17	3.8	
31	21.12	2984	1.28	59	33	23	20	3	10	3.4	1	10.1	10.4	22.80	2.16	.15	13	Tr.	16	3.7	
32	22.12	2984	1.4	62	36.5	28	18	3	8	3.4	1	10.2	10.4	22.22	2.08	.15	16	Tr.	15	3.7	
33	23.12	3030	1.4	57	37.5	28	19	3	8	3.5	1	10.3	10.3	22.50	2.08	.1	16	Tr.	15	3.9	
34	24.12	3049	1.4	65	36.5	27	18	3	8	3.4	1	10.1	10.4	22.50	1.84	.1	16	Tr.	15	4.1	
35	25.12	3078	1.4	65	36	27	18	3	8	3.4	1	10.4	10.3	23.00	1.86	.1	16	Tr.	16	3.9	
36	26.12	3102	1.4	60	34.5	26	17	3	8	3.5	1	10.2	10.2	22.10	2	.1	16	Tr.	16	4	
37	27.12	3155	1.4	60	35.5	26	19	3	10	4.2	1	10.5	10.6	23.10	1.86	.1	18	.25	18	4	
38	28.12	3180	1.4	61	33	25	16	3	10	3.5	1	10.9	10.9	22.80	1.8	.13	16	.25	18	3.75	
39	29.12	3197	1.4	62	36	26	20	3	11	3.6	1	11.6	10.5	22.10	1.92	.1	16	.5	16.5	3.65	
40	30.12	3246	1.4	58	39	28	22	3	15	3.8	1	12.2	10.6	22.50	1.86	.1	17	.5	18.5	3.8	
41	31.12	3300	1.4	50	30	21	18	3	10	4.2	1	12.6	10.4	23.00	2.08	.08	17	.25	17.5	4.5	
42	1.1	3226	1.4	58	36	22	18	3	12	4.3	1	12.8	10.4	22.80	2.12	.08	17.5	.5	16.5	5	
43	2.1	3387	1.4	54	36	25	22	4	17	4.6	1	12.8	10.6	23.00	1.76	.08	16.5	.25	18	5.8	
44	3.1	3387	1.4	58	36	26	20	4	17	4.9	1	12.9	10.4	22.60	1.76	.07	16	.25	18	5.8	
45	4.1	3387	1.4	58	36	26	20	4	17	4.9	1	12.9	10.4	22.60	1.7	.09	16	.25	18	5.8	
46	5.1	3387	1.4	54	34	24	20	3	18	4.8	1	12.8	10.3	24.50	1.4	.05	16	.25	19	5.9	
47	6.1	3387	1.4	54	34	24	20	3	17	4.8	1	12.8	10	24.00	1.6	.05	16	.25	19	5.8	
48	7.1	3387	1.4	62	33	23	20	6	18	5	1	13	10	24.10	1.6	.06	16.5	.25	19	5.9	
49	8.1	3387	1.4	64	34.5	24	21	5	19	5	1	13.1	10.2	24.50	1.6	.08	17	.25	19	5.8	
50	9.1	3407	1.4	50	24	17	14	3	6	6.4	1	13.6	10.4	46.20	1.8	.41	18	.25	18	5.1	
51	10.1	3400	1.4	43	19.5	15	9	2	4	6.4	1	0	11	38.00	1.8	.4	17	.25	18	5	
52	11.1	3400	1.4	52	19	15	8	2	6	7	1	18	10.7	39.50	1.52	.15	17	Tr.	18	4.8	
53	12.1	3400	1.4	50	21	17	7	2	5	6.5	1	0	10.7	36.00	1.44	.1	17	.25	18	4.5	

NORCEM ANCHOR AS

STATOIL WELL NO. 6/3-2 RIG : ROSS ISLE

AREA : NORTH SEA

DRILLING FLUID PROPERTIES RECORD

DATE 1986	DAY NO.	DEPTH (M)	MUD WT. (R.D)	F.VIS (SECS)	600	300	A.V. cps	P.V. cps	Y.P	GEL 0	GEL 10	HTHP mls	OIL mls	H2O mls	SOLIDS mls	OIL %	WATER %	SAND %	CACL2 wt %	MBT ppb	LIME	E.S. v
13.1	54	3417	1.50	58	64	39	32	25	14	7	17	7	65	16	19	80.2:	19.8	tr	26			870
14.1	55	3612	1.50	57	72	43	36	29	14	8	20	6.8	65	15	20	81.3:	18.8	tr	36			1080
15.1	56	3741	1.63	58	78	47	39	31	16	9	18	6.9	62.5	16.5	21	79.1:	20.9	tr	28.3			910
16.1	57	3741	1.63	62	76	46	38	30	16	9	19	7	62.5	16.5	21	79.1:	20.9	tr	28.4			900
17.1	58	3772	1.85	70	114	69	57	45	24	20	35	7	51	16	33	76.1:	23.9	tr	38.1			780
18.1	59	3772	1.97	70	131	78	65.5	53	25	18	35	6.9	49	15	36	76.6:	23.4	tr	37.3			780
19.1	60	3772	1.97	66	116	69	58	47	22	17	33	6.8	47.5	16.5	36	74.2:	25.8	tr	38.1			840
20.1	61	3500	1.97	75	123	71	61.5	52	19	17	33	6.9	48	18	34	72.7:	27.3	tr	36			800
21.1	62	3722	1.99	83	124	72	62	52	20	18	35	6.6	49	15	36	76.6:	23.4	tr	37.5			780
22.1	63	3722	2.00	82	132	78	66	54	24	17	36	6	48	15	37	76.2:	23.8	tr	38			740
23.1	64	2783	2.00	78	116	68	58	48	20	17	36	7	47	15	38	75.8:	24.2	tr	38.2			730
24.1	65	3100	2.00	83	122	72	61	50	22	20	42	7	49	15	36	76.6:	23.4	tr	38.1	.5	.75	680
25.1	66	3218	2.00	80	128	74	64	54	20	18	50	7	52	12	36	81.3:	18.8	8	35	1.9	2.9	600
26.1	67	3616	2.00	81	123	72	61.5	51	21	16	38	8	50	14	36	78.1:	21.9	5	36	1.2	1.8	600
27.1	68	3772	2.05	95	143	84	71.5	59	25	16	42	11	49	15	36	76.6:	23.4	3	36.9	0	0	580
28.1	69	3776	2.05	90	143	83	71.5	60	23	15	35	11	49	14	37	77.8:	22.2	3	38.9	1.5	2.3	550
29.1	70	3776	2.05	89	129	75	64.5	54	21	15	37	11	49	14	37	77.8:	22.2	1	38.9	.75	1.1	600
30.1	71	3776	2.05	95	115	66	57.5	49	17	12	31	8	50	13	37	79.4:	20.6	1	38.5	.4	.6	570
31.1	72	3776	2.05	95	129	75	64.5	54	21	15	37	8	50	13	37	79.4:	20.6	1	38.5	.75	1.1	580
1.2	73	3776	2.05	98	128	75	64	53	22	13	38	8	50	13	37	79.4:	20.6	2	39.6	.5	.75	520
2.2	74	3776	2.05	108	136	82	68	54	28	18	39	10	50	14	36	78.1	21.9	1	37	.3	.45	510
3.2	75	3776	2.05	100	120	71	60	49	22	14	28	9	50	14	36	78.1	21.9	1	37.5	.8	1.2	520
4.2	76	3776	2.06	93	117	68	58.5	49	19	13	30	10	50	13	37	79.4	20.6	1	37.6	.5	.75	500
5.2	77	3776	2.06	103	125	74	62.5	51	23	16	33	9	50	13	37	79.4	20.6	1.5	37.6	.6	.9	470
6.2	78	3776	2.06	110	140	82	70	58	24	18	41	8	50	13	37	79.4	20.6	2	35.1	.3	.45	470
7.2	79	3776	2.06	104	125	72	62.5	53	19	14	32	9.5	49	13	38	79.0	21.0	2	38.5	.1	.15	480
8.2	80	3776	2.06	79	102	57	51	45	12	11	26	9.1	51	13	36	79.7	20.3	2	34.1	.6	.9	480
9.2	81	3776	2.06	74	98	55	49	43	12	10	24	9.5	49	13	38	79.0	21.0	2	33.6	.2	.3	480
10.2	82	3777	2.06	78	96	54	48	42	12	13	31	9.6	50	13	37	79.4	20.6	2	37.1	.5	.75	520
11.2	83	3809	2.06	75	91	52	45.5	39	13	12	27	9.8	49	13	38	79.0	21.0	2	36.1	.6	.9	580
12.2	84	3950	2.06	70	93	53	46.5	40	13	12	25	9	51	12	37	81.0	19.0	2	35.4	.2	.3	600
13.2	85	4037	2.06	64	100	57	50	43	14	13	27	8.5	51	12	37	81.0	19.0	2	38.9	.5	.75	600
14.2	86	4040	2.06	69	97	55	48.5	42	13	12	25	8.5	51	12	37	81.0	19.0	1.5	35	0	0	660
15.2	87	4040	2.06	70	99	56	49.5	43	13	12	25	8	51	12	37	81.0	19.0	1.5	36	.1	.15	720
16.2	88	4040	2.06	72	99	56	49.5	43	13	12	26	8	51	12	37	81.0	19.0	1.5	35.7	.1	.15	740
17.2	89	4040	2.06	79	109	62	54.5	47	15	13	29	8	51	13	36	79.7	20.3	1.5	37.8	.9	1.4	650
18.2	90	4040	2.06	74	115	66	57.5	49	17	13	33	7.5	51	13	36	79.7	20.3	1.5	35.7	.3	.45	600
19.2	91	4040	2.06	75	112	64	56	48	16	13	30	7.5	51	13	36	79.7	20.3	1.5	35.5	.3	.45	620
20.2	92	4040	2.06	80	106	60	53	46	14	11	28	7.9	52	12	36	81.3	18.8	1.5	37.5	.6	.9	650
21.2	93	4040	2.06	90	129	72	64.5	57	15	13	30	8	51	13	36	79.7	20.3	2	35.8	.5	.75	600
22.2	94	4040	1.80	55	90	51	45	39	12	10	21	8	61	13	26	82.4	17.6	1	32	.5	.75	580
23.2	95	4040	1.80	74	86	51	43	35	16	12	27	7	62	12	26	83.8	16.2	.5	33.1	0	0	620
24.2	96	4040	1.80	60	70	40	35	30	10	8	21	10	60	12	28	83.3	16.7	1	37	0	0	500
25.2	97	4040	1.80	66	77	44	38.5	33	11	10	25	8	59	13	28	81.9	18.1	.5	37	.2	.3	540
26.2	98	4040	1.80	65	77	44	38.5	33	11	10	25	8	58	14	28	80.6	19.4	2	37	.2	.3	540
27.2	99	4041	1.80	70	80	47	40	33	14	12	26	9	58	14	28	80.6	19.4	.5	37	.5	.75	510
28.2	100	4048	1.80	71	82	48	41	34	14	13	29	9	58	14	28	80.6	19.4	.25	36.5	.3	.45	620
1.3	101	4088	1.80	70	80	47	40	33	14	12	27	9	58	14	28	80.6	19.4	.25	36	.2	.3	600
2.3	102	4091	1.80	69	80	47	40	33	14	12	26	9	58	14	28	80.6	19.4	.25	36	.1	.15	600
3.3	103	4091	1.80	69	82	48	41	34	14	12	26	9	58	14	28	80.6	19.4	.25	36.7	.2	.3	580
4.3	104	3130	1.80	69	90	53	45	37	16	14	31	10	58	14	28	80.6	19.4	.25	37	.3	.45	540
5.3	105	1300	1.80	72	90	53	45	37	16	14	30	10	58	14	28	80.6	19.4	.25	37	.4	.6	560
6.3	106	1300	1.80	75	90	53	45	37	16	14	31	10	58	14	28	80.6	19.4	.25	37	.4	.6	540

STATOIL WELL NO. 6/3-2

MATERIAL COST AND CONSUMPTION ANALYSIS RIGG: ROSS ISLE

WATERBASED SECTIONS

PRODUCT	UNIT SIZE	UNIT PRICE $	36" SECTION	COST $	26" SECTION	COST $	17.5" SECTION	COST $	12.25" SECTION	COST $	8.5" SECTION	COST $	TOTAL USED	TOTAL COST $
BARITE	M.T.	148.00		.00	228	33744.00	40	5920.00	416	61568.00		.00	684	101232.00
BENTONITE	M.T.	380.00	20	7600.00	30	11400.00	9	3420.00		.00		.00	59	22420.00
CAUSTIC SODA	25 KG	20.00	14	280.00	98	1960.00	79	1580.00	514	10280.00	1	20.00	706	14120.00
BICARBONATE	50 KG	24.00		.00		.00	7	168.00	8	192.00	5	120.00	20	480.00
SODA ASH	50 KG	21.00	8	168.00	10	210.00	4	84.00		.00		.00	22	462.00
GYPSUM	40 KG	13.20		.00		.00	558	7365.60	1325	17490.00		.00	1883	24855.60
ANCOMEL	25 KG	52.00		.00		.00	407	21164.00	717	37284.00		.00	1124	58448.00
BENTONITE	50 KG.	20.00	66	1320.00	73	1460.00		.00		.00		.00	139	2780.00
XC-POLYMER	50 LBS.	480.00		.00		.00	46	22080.00	68	32640.00	5	2400.00	119	57120.00
DRISPAC REG	50 LBS.	154.00		.00		.00	26	4004.00	242	37268.00	2	308.00	270	41580.00
DRISPAC SL	50 LBS.	165.00		.00		.00	102	16830.00	615	101475.00		.00	717	118305.00
MICA F	25 KG.	22.00		.00	22	484.00		.00		.00		.00	22	484.00
MICA C	25 KG	22.00		.00	22	484.00		.00		.00		.00	22	484.00
NUT PLUG F	25 KG	22.00		.00	22	484.00		.00		.00		.00	22	484.00
NUT PLUG C	25 KG.	22.00		.00	22	484.00		.00		.00		.00	22	484.00
DETERGENT	200 LIT	495.00		.00		.00	4	1980.00		.00		.00	4	1980.00
AL.STEARATE	25 KG	89.00		.00		.00	1	89.00	6	534.00		.00	7	623.00
DEFOAMER	25 LIT	118.00		.00		.00	14	1652.00	1	118.00		.00	15	1770.00
ZINKCARBONAT	25 KG	90.00		.00		.00	6	540.00		.00		.00	6	540.00
SOLTEX	50 LBS.	100.00		.00		.00		.00	890	89000.00		.00	890	89000.00
ANCOCIDE	25 KG.	108.00		.00		.00		.00	20	2160.00		.00	20	2160.00
TOTALS				9368.00		50710.00		86876.60		390009.00		2848.00		539811.60
HOLE DRILLED				112		399		694		2071				
COST PR. METRE				83.64		127.09		125.18		188.32				
TOTAL DAYS				2		6		6		36				
COST PR. DAY				4684.00		8451.67		14479.43		10833.58				

STATOIL WELL NO. 6/3-2

MATERIAL COST AND CONSUMPTION ANALYSIS RIGG: ROSS ISLE

OILBASED SECTIONS

PRODUCT	UNIT SIZE	UNIT PRICE $	8 1/2" SECTION	COST $	6 1/2" SECTION	COST $	4 1/8" SECTION	COST $	TOTAL USED	TOTAL COST $
BARITE	M.T.	148.00	656.00	97088.00	448.00	66304.00	189.00	27972.00	1293.00	191364.00
BASE OIL	CU.M	505.00	104	52520.00	116	58580.00	42	21210.00	262	132310.00
OILBASED MUD	CU.M	651.00	265	172515.00		.00		.00	265	172515.00
SAFEMUL VB	200 LIT	1140.00	26	29848.00	16	18368.00	4	4592.00	46	52808.00
SAFEMUL FL	200 LIT	550.00	16	8800.00	21	11550.00	6	3300.00	43	23650.00
SAFEMUL OW	200 LIT	1032.00	1	1032.00	15	15480.00	7	7224.00	23	23736.00
SAFEMUL OW	50 LIT	258.00	45	11610.00		.00		.00	45	11610.00
SAFEMUL VIS	25 KG.	97.00	28	2716.00	45	4365.00	69	6693.00	142	13774.00
SAFEM.PO.VIS	50 LIT	110.00	5	550.00	2	220.00		.00	7	770.00
SAFETONE L	200 LIT	705.00	16	11280.00	17	11985.00	10	7050.00	43	30315.00
CA.CHLORIDE	50 KG.	38.00	172	6536.00		.00	2	76.00	174	6612.00
CA.CHLORIDE	25 KG.	19.00	2	38.00		.00		.00	2	38.00
MICA C	25 KG	22.00				.00		.00	0	.00
NUT PLUG F	25 KG	22.00				.00		.00	0	.00
NUT PLUG C	25 KG.	22.00				.00		.00	0	.00
DEGREASER	25 LIT	49.00			1	49.00	1	49.00	2	98.00
						.00			0	.00
						.00			0	.00
						.00			0	.00
						.00				.00
						.00				.00
						.00				.00

TOTALS	394533.00	186901.00	78166.00	659600.00
HOLE DRILLED	385	268	51	
COST PR. METRE	1024.76	697.39	1532.67	
TOTAL DAYS	15	24	17	
COST PR. DAY	26302.20	7787.54	4598.00	

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REPORT

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REPORT TITLE:

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CHARACTERISATION OF HYDROCARBON STAININGS AND SOURCE ROCK EVALUATION OF WELL 6/3-2 (STATOIL). BRIEF COMPARISON BETWEEN GEOCHEMICAL DATA FROM THE WELLS 6/3-2 AND 6/3-1

REPORT NO.: 22.1826.00/01/86

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SUMMARY:

See next pages.

KEY WORDS:	
Organic geochemistry	Hydrocarbon stainings
Well 6/3-2	Oil-source rock correlation
Well 6/3-1	Source rocks

Skipnes

1. INTRODUCTION

The aim of this report is to give an organic geochemical characterisation and interpretation of possible source rocks and hydrocarbon stainings in well 6/3-2, and furthermore to give a brief comparison between the most important source rock units and hydrocarbon stainings in the wells 6/3-2 and 6/3-1.

58 canned samples from the 1250-3550 m interval, 11 sidewall cores and 14 core chips from well 6/3-2, were submitted for analysis. In addition, a copy of a GR-ISF-BHC log from the interval 1298.5-3383 m was supplied.

The following analyses were carried out on cutting samples, sidewall cores (swc) and core chips:

	Cuttings	swc	Core chips
- C_1-C_7 light hydrocarbon analyses of headspace and occluded gas from canned samples	58		
- Preparation, washing, handpicking and lithological description	58		
- Lithological description		11	14
- TOC determination	53	11	14
- Rock-Eval pyrolysis	53	11	14
- Vitrinite reflectance and fluorescence determination	15	2	
- Kerogen description and TAI determination	15	7	2
- Extraction, Soxtech (3 extractions prior to Py-GC or due to mounting problems of polished samples).	7	5	6

	Cuttings	swc	Core chips
- Precipitation of asphaltenes	7	2	6
- MPLC separation	6	2	6
- TLC separation	1		
- Iatroscan quantification	6	2	6
- GC of saturated and aromatic hydrocarbons (FID)	7	2	6
- GC-MS of saturates, m/z 177, 191, 205, 217, 218, 231, 259	2	1	2
- Pyrolysis-GC on kerogen concentrates (preextracted)	3	2	
- $\delta^{13}C$ isotope analysis, EOM	1	1	3
- $\delta^{13}C$ isotope analysis, aromatics	1	2	3
- $\delta^{13}C$ isotope analysis, saturates	1	2	3
- $\delta^{13}C$ isotope analysis, polar compounds	1	2	3
- $\delta^{13}C$ isotope analysis, kerogens	1		
- $\delta^{13}C$ isotope analysis, asphaltenes	1	2	3

A detailed analysis program for the follow-up analyses is given in table 1.

Small amounts of material occasionally reduced the data quality and the resolution of the data significantly. This especially concerns the GC of the aromatics and to some extent the isotope measurements. Iatroscan has been applied in the cases of little extract to determine the proportions of saturates, aromatics, polar compounds and asphaltenes in the EOM.

Paraffin based drilling mud has been used from 3400 m to T.D. This has affected the Rock-Eval pyrolysis data from the Zechstein Group, especially the production index. A similar contamination may have had some

impact on the extract from 2620 m although little material is a more reasonable cause for the peculiar C_{15+} aromatic hydrocarbon distribution.

6. EXPERIMENTAL METHODS AND INTERPRETATION LEVELS

Gas analyses

Headspace gas:

A septum was attached to the can, a sample of the headspace gas was taken and analysed for C_1, C_2, C_3, i-C_4, nC_4 and C_{5+} (conditions: see below). If any C_{5+} was detected a second sample was taken and analysed for C_1-C_{10} compounds (conditions: see below).

The can was then opened and headspace volume, water volume, and sample weight were measured. The canned samples were washed with temperated water on 4.0, 2.0 and 0.125 mm sieves to remove drilling mud and thereafter dried at 35°C.

Occluded gas:

Prior to drying, an aliquot of the 1-4 mm fraction of each sample was crushed for 10 min. in water using a gastight ball mill. The evolved gas was analysed as described for headspace gas.

GC conditions:

C_1-C_{5+} analysis

This analysis was performed on Carlo Erba Fractovap 2150 and 2350 gas chromatographs equipped with 2 m x 1/8" stainless steel columns filled with Porapack Q on Chromosorb using nitrogen as carrier gas. The oven temperature was 150°C. After elution of n-butane the column was backflushed and C_{5+} compounds were recorded as one peak. A standard gas containing methane, ethane, propane, n-butane, n-pentane and n-hexane (each 100 ppm) was used for quantitation.

Lithological descriptions

Lithological examinations were carried out using a binocular microscope (maximum 50x magnification). Colours were described on dry samples according to the "Rock Colour Chart" published in 1979 by the Geological Society of America, Boulder, Colorado. Handpicking of the cuttings for organic

geochemical analyses was based on the lithological descriptions.

Total Organic Carbon

Bulk samples were crushed in a mortar. Aliquots of the samples were then weighed into Leco crucibles, treated three times with hot 10% HCl to remove carbonate, and washed 4 times with distilled water to remove traces of HCl. The crucibles were then placed on a hot plate (60^{o}C) and dried for 24 hours. The total organic carbon (TOC) content of the dried samples was determined using a Leco CR12 carbon analyser.

The instrument was calibrated using a Triassic shale (4.96% TOC) as standard. Calibration and blank runs were repeated after each 15th measurement.

Rock-Eval pyrolysis

Powdered sample (100 mg shale, 5-10 mg coal) was weighed into a platinum crucible (the base and cover of which are made of sintered steel), and analysed on a Rock-Eval II pyrolyser (Girdel/IFP) under standard conditions (100 ml He/min., 300^{o}C for 3 min. - 25^{o}C/min. - 550^{o}C).

Preparation of kerogen concentrates

The powdered and preextracted rock sample was treated overnight with concentrated HCl (200 ml) and then with hot 40% HF (100 ml, 50^{o}C). The acids were removed by decanting and repeated washing with hot water (2 hours), 10% ammoniumcarbonate solution (> 2 hours) and cold water (2x2 hours).

The kerogen was further purified by extraction with methanol, methanol/DCM (1:1) and hexane/DCM (1:1). The dried kerogen sample was then analysed for its TC content.

Extractable Organic Matter

Powdered rock was extracted by Soxhlet technique with boiling dichloromethane (DCM) containing 7% methanol (v/v) as solvent in a Soxtech apparatus for 3 hours (1 hour boiling, 2 hours rinsing).

The DCM used was of organic geochemical grade and blank analyses showed the occurrence of negligible amounts of contaminating hydrocarbons.

Activated copper fillings were used to remove any free sulphur from the samples.

After extraction the solvent was removed on a Büchi Rotavapor and the amount of extractable organic matter (EOM) was determined.

Iatroscan

The extractable organic material was dissolved in DCM and ca. 30-40 µg were applied to a precleaned and activated Chromarod (type SII). Three replicates were analysed for each sample. The rods were fully developed with n-hexane, then dried and redeveloped to half-rod height in toluene, again and finally developed in DCM+MeOh (93:7V/V).

The rods were scanned by passing through the flame-ionisation detector (FID) of an Iatroscan TH-10 (H_2 = 160 ml/min, air = 2 l/min., scan speed = 0.38 cm/sec. (gear no. 30)). The FID response was recorded and integrated using a Hewlett Packard 3390A integrator. The retention factors of the aliphatic and aromatic hydrocarbons were determined by comparison with standards (nC_{20} and fluorene).

Separation of extractable organic matter (EOM) into subfractions

Medium-pressure liquid chromatography (MPLC)

The EOM was dissolved in DCM (1:3 mg/µl) and the asphaltenes were precipitated with n-pentane in large excess (40:1 pentane:(DCM+EOM)).

The maltenes were separated into saturated, aromatic and non-hydrocarbon fractions using a MPLC system with n-hexane as eluant (Radke et al.,

1980). The various fractions were concentrated on a Büchi Rotavapor, transferred to glass vials, and the remaining solvent was removed. The asphaltene fraction was weighed after drying at 50°C for 12 hours.

The same separation procedure was applied to the fractions of oil/condensate samples boiling above 210°C.

Thin layer chromatography (TLC)

The aliphatic hydrocarbon and aromatic hydrocarbon fractions were separated from the EOM by thin-layer chromatography (TLC) on silica gel, using n-hexane as eluant. Naphthalene, anthracene and nC_{20} were used as standards.

The fractions were located on the TLC plate after spraying with 0.1% solution of Rhodamine in methanol and viewing in UV light. Bands with Rf values corresponding to the aliphatic (nC_{20}) and aromatic (naphthalene/anthracene) hydrocarbons were scraped from the plate and transferred to a short column of DCM-washed, deactivated alumina. The fractions were eluted from the column with ca. 30 ml DCM. Solvent was reduced to ca. 1 ml using a Büchi rotary evaporator and the hydrocarbon fractions were transferred to a weight glass vial. The remaining solvent was evaporated under nitrogen and the weight of each fraction was determined.

Programmed pyrolysis-Gas Chromatography (S2)

The pyrolysis-GC was performed at Geolab Nor, Trondheim.

The thermoextracted sample was pyrolysed in helium atmosphere (340°C to 550°C at 50°C/min.) using a furnace type pyrolyzer as described by Solli et al. (1984). The outlet of the furnace is directly connected to a splitter (30:1) which enables the pyrolysis products to be simultaneously detected as a bulk "S2" peak by an FID and separated in a gas chromatograph, respectively. The pyrolysis products were trapped by cooling the front part of the column with liquid nitrogen. After completion of the pyrolysis, they were injected by removing the nitrogen batch and analysed under the GC conditions given below.

GC conditions

Column: 25 m OV-1, I.D. 0.32 mm, fused silica capillary column.
Carrier gas: Helium, inlet pressure 14 psi, flow 1.5 ml/min.
Oven programme: -10°C (1 min.) - 5°C/min. - 290°C (30 min.)

Vitrinite reflectance

Vitrinite reflectance measurements were carried out on whole-rock samples using the following method. The rock samples were broken up, if necessary, and mounted in a fast-setting, synthetic resin. Temperatures in excess of about 50°C were avoided as these can result in alteration of the organic material. Once the resin was set, the samples were ground on coarse silicon carbine paper in order to expose an area of sample for polishing. The samples were then ground on 600 and 280 grade silicon carbide paper to remove any coarse scratches. Where clastic sediments were involved, grinding and polishing was carried out using propan-2-ol to avoid swelling of any clay minerals in the sample. If coals were to be measured, water was used. The samples were then polished on Selvyt cloth using 5/20, 3/50 and gamma grade alumina powder. Following polishing, the surface of the samples was carefully cleaned to remove any traces of the polishing powders.

Reflectance measurements were carried out using a Leitz M.P.V. microscope and photomultiplier combination. The measurements were made under oil immersion, using an oil with a refractive index of 1.518, at a wavelength of 546 nm. The surface of the sample was examined for suitable particles of vitrinite and reflectance measurements were taken on these. The reflectance of the vitrinite particle was determined relative to an optical glass standard with a known reflectance of a similar order to that of the sample. If possible, a minimum of twenty reflectance measurements were made on each rock sample. Coals and carbonaceous claystones generally provide the most reliable data, while sandstones and carbonates generally provide the least reliable data.

UV-fluorescence of liptinite

The samples were also examined in ultra-violet light in order to determine the composition and colour of the fluorescent material present in the sample. The colour of certain liptinite macerals in ultra-violet light can be related to the thermal maturity of the sample. A scale com-

paring vitrinite reflectance measurements and spore fluorescence to thermal maturity is shown below.

VITRINITE REFLECTANCE (% Ro)	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00	1.10
% CARBON CONTENT DAF.	57	62	70	73	76	79	80.5	82.5	84	85.5
LIPTINITE FLUOR. (EXC. 400 nm BAR. 530 nm) colour	G	$G/_Y$	Y	$Y/_O$	L.O	M.O.		D.O.	$O/_R$	R
zone	1	2	3	4	5	6		7	8	9

NOTE: The relationship between liptinite fluorescence colour, vitrinite reflectance and carbon content may vary with depositional environment and catagenic history. The above is only a guide.

Evaluation of kerogen type and thermal maturity in transmitted light

The rock samples were crushed and treated with hydrochloric acid and hydrofluoric acid in order to remove the mineral matter and isolate the kerogen. The isolated organic matter/kerogen was mounted in glycerine jelly on microscope slides as a strew mount.

The treatment of the isolated kerogen varied according the requirements and preservation of the samples. This included:

T-slide: represented the total acid residue
O-slide: represented the kerogen debris remaining after flotation in $3nBr_2$ to remove heavy minerals
N-slide: represented a sieved residue (15 µm mesh)
X-slide: represented oxidised residue.

T and/or O slides were necessary in order to evaluate the kerogen composition/palyno-facies of the samples.

N and/or X slides were required if it was necessary to concentrate larger kerogen fragments or spores/pollen for age determination or spore colour (NB: oxidised residue is not used for spore colour determination as oxidation will alter the colour).

The samples were studied using a Leitz Dialux microscope with a white halogen light source. Objective lenses of 10x and 63x magnification were used. The higher magnification allowed a more detailed description of the kerogen, with resolution of particles down to 2 µm diameter. The thermal alteration index (TAI) measurements were obtained from the colour of spores and pollen. The techniques used in visual kerogen study are adapted from Staplin (1969) and Burgess (1974).

Interpretation of maturity from the estimated colour indices is based on a general scheme that is calibrated against vitrinite reflectance values (R_o).

Ro	0.45	0.6	0.9	1.0	1.3
Colour	Yellow				Black
Colour index	2-	2	2+	3-	3

The saturated hydrocarbons were diluted with n-hexane and analysed on a HP 5730A or a HP 5790 GC. Both GCs are equipped with 15 m DB-1 fused silica columns, and hydrogen (ca. 2.5 ml/min.) is used as carrier gas. Injections were performed in split mode (split ratio 1:10). The temperature program applied was 80°C (2 min.) to 280°C at 4°C/min.

The total aromatic fractions were diluted with n-hexane and analysed on an HP 5730A gas chromatograph, fitted with a DB-5 fused silica column (15 x 0.25 mm I.D.) using hydrogen (2.5 ml/min.) as carrier gas. Injection split ratio was 1:10. The temperature program applied was 80°C (2 min.) to 280°C at 4°C/min.

Data processing for all the GC analyses was performed on a VG Multichrom lab data system.

Gas chromatography - mass spectrometry (GC-MS)

GC-MS analyses were performed on a VG Quadrupole 12-250 GC-MS system. The HP 5790A Series GC was fitted with a fused silica DB-5 capillary column (30 m x 0.32 mm i.d.). Helium (0.6 kg/cm^2) was used as carrier gas and the injections were performed in split mode (1.5 µl, split ratio 1:15).

The GC oven was programmed from 120^{o}C (2 min.) to 280^{o}C at 4^{o}C/min.

The saturated hydrocarbons were analysed in multiple ion mode (MID) at a scan cycle time of approximately 2 secs. The mass spectrometer operated at 70eV electron energy and an ion source temperature of 200^{o}C. Data acquisition was done by VG data systems.

Peaks were identified applying knowledge of elution patterns in certain mass chromatograms. Peak ratios were calculated from peak heights in the appropriate mass chromatograms.

δ^{13}C isotope analysis

The δ^{13}C isotope analyses were performed by Geochemische Analysen, Manfred Schmitt (GCA) in Lehrte, F.R.G.

The samples were filled in a glass capillary and transferred into a combustion system filled with copper dioxide, heated to 900^{o}C. A stream of ultrapure helium and oxygen flushed the reaction products through silver wool (450^{o}C) to remove traces of halogens and sulphur.

H_2O and CO_2 were trapped in separate cooltraps. After removal of the carrier gas by high vacuum, CO_2 and H_2O were sealed off separately in 6 mm glass tubes. H_2O was reduced to H_2 by zinc at 460^{o}C.

The $^{13}C/^{12}C$ - isotope ratio was measured with a high precision mass spectrometer Finnigan MAT 251.

Precision of the preparation lines and the mass spectrometer was daily

controlled by measurements of standard substances and by double analyses.

The isotope ratios are given as delta-values (del):

$$del\ (\%) = ((R\ sample - R\ stand.) / (R\ stand.)) * 1000$$

13C/12C- isotope ratios are calculated versus PDB.

The internal laboratory standard was the Ortland oil.

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APPENDIX 1

DESCRIPTION OF ORGANIC MATTER IN REFLECTED AND UV LIGHT. WELL 6/3-2

C-4339: 1300-1316 m. Clayst; light brownish grey - light grey.
Vitrinite Reflectance: 0.37%(6), 0.77%(6), 1.18%(1).
Sporinite Fluorescence: 1-3.
This calcareous claystone has a poor organic matter content consisting mostly of brown exinite wisps/staining. There is very little particulate organic matter present, and this is mostly too small to be measured accurately. There is a fair to good abundance of fluorescent exinite in ultra-violet light, consisting mostly of green sporinite and dinoflagellate fragments. Traces of more yellow sporinite fragments are also seen. The rock chips show a green-orange matrix fluorescence.

C-4372: 1525-1540 m. Bulk sample.
Vitrinite Reflectance: 0.31%(19), 0.82%(1).
Sporinite Fluorescence: 1-3.
The main organic matter type in this claystone sample is brown exinite wisps/staining. Vitrinite particles are quite common, but are mostly small and often stained, making accurate measurements difficult. In ultra-violet light, the sample matrix has a locallised green fluorescence. There is a poor to fair abundance of green to yellow sporinite and dinoflagellate fragments, and a thin sporinite/cutinite rim is often seen about opaque particles.

C-4399: 1795-1810 m. Bulks sample, mostly clayst; brownish grey.
Vitrinite Reflectance: 0.26%(9), 0.85%(3).
Sporinite Fluorescence: 2-4.
The organic matter in this claystone consists mostly of brown wisps/staining and very small vitrinite particles which are often stained and difficult to measure. Very little inertinite is present. In ultra-violet light, there is a poor abundance of very small green-yellow to yellow-orange sporinite fragments. The rock matrix shows a widespread ochre fluorescence and a more locallised green fluorescence.

C-4405: 1885-1900 m. Bulk sample.
Vitrinite Reflectance: 0.30%(11), 0.57%(2).
Sporinite Fluorescence: 2-4.
The organic matter in this claystone consists mostly of brown exinite wisps/staining and vitrinite particles of generally poor preservation. These vitrinite particles are often cracked and stained, making measure-

ment difficult. There is a poor abundance of green-yellow to yellow-orange exinite debris and some ochre amorphous clumps. The rock matrix has a locallised green fluorescence.

C-4411: 1990-2005 m. Bulk sample.
Vitrinite Reflectance: 0.33%(20).
Sporinite Fluorescence: 3-4.
The organic matter in this claystone consists mostly of brown exinite wisps/staining and vitrinite particles of generally poor preservation. These vitrinite particles are often cracked and stained, making measurement difficult. In ultra-violet light, the sample contains a poor abundance of yellow to yellow-orange sporinite and other exinite debris.

C-4417: 2080-2095 m. Bulk sample, predominantly clayst; brownish white.
Vitrinite Reflectance: 0.32%(3).
Sporinite Fluorescence: 2-3.
The organic matter in this claystone consists mostly of brown exinite wisps/ staining and vitrinite particles of generally poor preservation. These vitrinite particles are often cracked and stained, making measurement difficult. The sample contains trace amounts of greenish yellow to yellow flecks and sporinite debris. Locallised green fluorescence was observed in the rock matrix.

C-4431: 2290-2305 m. Bulk sample.
Vitrinite Reflectance: 0.39%(3), 0.77%(2).
Sporinite Fluorescence: 3-4.
This occasionally calcareous claystone lithology is poorly cemented, causing problems in polishing the sample. Organic matter is quite scarce, consisting mostly of brown exinite wisps/staining and less common, mostly reworked, particles of vitrinite. The sample has a generally poor abundance of yellow to yellow-orange sporinite and dinoflagellate fragments, the latter tending to have a more greenish tint. The rock matrix shows a patchy green or greenish-ochre fluorescence.

C-4567: 2402.0 m (swc). Clayst; grey, silty.
Vitrinite Reflectance: 0.43%(2), 0.95%(2), 1.86%(1).
Sporinite Fluorescence: 2-4.
This very sandy lithology is almost barren of organic matter, with the exception of small particles of reworked vitrinite. Fluorescent exinite

is of very restricted occurrence, consisting of greenish-yellow to yellowish-orange debris in one argillaceous rock fragment.

C-4440: 2425-2440 m. Bulk sample.
Vitrinite Reflectance: 0.34%(18), 1.19%(2).
Sporinite Fluorescence: 3-4.
This occasionally calcareous claystone lithology is poorly cemented, causing problems in polishing the sample. Organic matter is quite scarce, consisting mostly of brown exinite wisps/staining and less common, mostly reworked, particles of vitrinite. This sample contains more cuttings chips for measurement than the similar C-4431. The sample has a poor to fair abundance of yellow to yellowish-orange sporinite/cutinite debris, often with a greenish tint. The rock matrix has an orange-ochre fluorescence.

C-4444: 2485-2500 m. Bulk sample.
Vitrinite Reflectance: 0.54%(14), 1.20%(6).
Sporinite Fluorescence: 4?
This claystone sample has a good organic matter content consisting mostly of brown exinite wisps. Vitrinite particles are quite common, but are mostly small. In ultra-violet light, trace amounts of yellowish-orange exinite fragments are visible. The rock matrix has a greenish-ochre fluorescence.

C-4465: 2800-2815 m. Clayst; grey to greenish grey.
Vitrinite Reflectance: 0.34%(11), 0.56%(7), 1.03%(1).
Sporinite Fluorescence: 2-4.
This claystone sample has a good organic matter content consisting mostly of brown exinite wisps. Vitrinite particles are quite common, but are mostly small. The sample contains a fair abundance of fluorescent exinite which consists mostly of greenish to yellowish-orange sporinite. The rock matrix has a greenish-ochre fluorescence.

C-4478: 2995-3010 m. Clayst; grey
Vitrinite Reflectance: 0.47%(5), 1.13%(1).
Sporinite Fluorescence: 3
This claystone sample contains large siliceous areas which resemble infilled organism burrows. In the more disturbed chips, brown wisps/staining are the main organic matter type. In the more argillaceous chips, reworked vitrinite particles are the main organic matter type present.

In ultra-violet light, the sample contains a locally good abundance of bright yellow exinite fragments which tend to occur in the less disturbed rock chips.

C-4572: 3009.5 m (swc). Clayst; very dark grey with plant fragments.
Vitrinite Reflectance: 0.34%(6), 0.22%(4), 0.69%(7).
Sporinite Fluorescence: 2-3.
Problems were encountered with this sample during preparation of the resin mounting blocks which required that the sample be washed with an organic solvent. This may affect the fluorescent material in the sample. Organic matter is quite scarce in this sample, consisting of brown wisps/staining and occasional vitrinite and inertinite particles. The reflectance data from this sample are considered to have a poor reliability. In ultra- violet light, the sample was observed to contain greenish-yellow resinite globules and greenish-yellow to yellow sporinite fragments. The rock matrix shows locallised green fluorescence.

C-4479: 3010-3025 m. Bulk sample, predominantly clayst; dark grey to black.
Vitrinite Reflectance: 0.31%(19), 0.66%(1).
Sporinite Fluorescence: 3-5.
This mixed claystone/siltstone lithology has a generally fair organic matter content consisting mostly of exinite in the form of discrete particles and brown wisps. Vitrinite particles are quite common, but are of variable preservation. Inertinite is scarce. The sample has a poor to fair abundance of yellow to light orange sporinite and cutinite particles. The rock matrix has a greenish fluorescence.

C-4481: 3040-3055 m. Bulk sample.
Vitrinite Reflectance: 0.38%(12), 0.77%(7), 1.07%(1).
Sporinite FLuorescence: 2-4.
The organic matter in this occasionally calcareous claystone consists mainly of brown exinite wisps/staining. Vitrinite is present, but appears to be mostly reworked or stained. In ultra-violet light, the sample has a fair abundance of yellowish-orange exinite flecks and greenish-yellow to yellowish-orange sporinite particles. The rock matrix has a greenish fluorescence.

C-4485: 3100-3115 m. Bulk sample.
Vitrinite Reflectance: 0.35%(13), 0.83%(4).
Sporinite FLuorescence: 2-4.
The sample consists of a mixed claystone/siltstone lithology. The siltstone lithology is largely barren of organic matter, with the exception of a few brown exinite wisps. The claystone lithology contains common brown wisps/ staining and vitrinite particles which are usually small and difficult to measure. The sample has a poor to fair abundance of fluorescent exinite consisting of greenish-yellow to yellow sporinite particles and yellowish-orange exinitic debris.

C-4490: 3175-3190 m. Bulk sample.
Vitrinite Reflectance: 0.42%(16), 0.72%(3), 1.16%(1).
Sporinite Fluorescence: 2.
Two claystone lithologies were identified in this sample. The lighter lithology contains organic matter which is largely dominated by reworked vitrinite and less common brown wisps. The darker lithology contains abundant brown wisps/staining and small vitrinite particles. In ultraviolet light, the sample lithologies have a poor abundance of greenish-yellow sporinite and ochre exinite debris.

APPENDIX 2

Molecular ratios from terpane and sterane mass chromatograms applied as maturity and source characteristic parameters

Geochemical fossil/biological marker compounds are characteristic of the type of organic matter present at the time the sediments were deposited. The biological isomers of these compounds are converted to the geochemical isomers with increasing maturity until a stable mixture of the isomers is attained. Migration and weathering processes also alter the distribution of biomarker compounds in a sample.

Hopanes, moretanes and tricyclic terpanes are the most common compounds in the m/z 191 mass chromatograms of most extracts and oils. Of the hopanes, the C_{27} and C_{29}-C_{35} homologs are ubiquitous, while 28,30-bisnorhopane is believed to be typical of certain types of source rocks. This is also thought to be true for a component, probably gammacerane, which sometimes coelutes with the 22S isomer of the C_{31} 17α(H)-hopanes. The relative distribution of the C_{27} trisnorhopanes is thought to be both source- and maturity-dependant.

In the m/z 217 and 218 sterane mass chromatograms, the molecular weight distribution of the C_{27}-C_{30} regular steranes is thought to be representative of the original organic matter input. The C_{29} steranes are generally indicative of input from higher land plants, but, more recently, similar compounds have been reported from marine micro-organisms. Moldowan (1984) has also recently published data on C_{30} steranes that are thought to be characteristic of input from marine organisms. This is one of the few marine markers reported, and previously the indication of marine origin for mature geolipids was assessed on the basis of absence of nonmarine marker compounds.

The biological hopane isomers, the 17β(H),21β(H)-hopanes, undergo structural changes during maturation. These isomerisation reactions are believed to proceed through the 17β(H),21α(H)-hopane structure (moretanes) to the stable 17α(H),21βα(H)-hopane structure. With thermal maturity, 17α(H)-hopanes account for 90-100% of the hopanes present. The ratio αβ/αβ+βα is used to describe this reaction. In the extended hopanes ($\geq C_{31}$), the thermally stable S configurations at C-22 become increasingly more abundant compared to the biologically preferred R configu-

rations with increased maturity. The ratio of the 22S:22R isomers stabilises at about 60:40 at thermal maturity. The Tm/Ts C_{27} hopane ratio (Seifert et al, 1978) also varies with thermal maturity such that, with increasing maturity, 17α(H)-trisnorhopane (Tm) is reduced in intensity relative to the more stable 18α(H)-trisnorhopane (Ts), causing the Tm/Ts ratio to decrease. However, this ratio is also thought to be source-dependant, and this should be allowed for when using the ratio as a maturation indicator. The tricylic terpanes vary in abundance with maturity (Schou et al., 1984a), as does 28,30-bisnorhopane (Cornford et al.,1983; Schou et al., 1984b).

Two sterane isomerisation reactions are commonly used for maturity determination based on data from the m/z 217 mass chromatogram. The biologically preferred 14α(H),17α(H) regular sterane isomers are gradually replaced by the more thermally stable 14β(H),17β(H)-sterane isomers. At thermal maturity, ββ isomers may account for 75-85% of the αα/ββ mixture. Mackenzie et al (1980) have observed a change from a dominance of the biological sterane epimer in recent sediments to the more stable S-configuration at C_{20}, such that this configuration accounts for 50% of the epimers at thermal maturity. The abundance of rearranged steranes relative to regular steranes has also been reported to increase with thermal maturity.

One of the reactions taking place at an early stage of diagenesis is the aromatisation of steranes, leading to the formation of mono- and triaromatic analogs. This process is measured by the abundance of triaromatic compounds relative to mono-aromatic compounds (% tri/tri+mono) from the m/z 231 and 253 mass chromatograms, respectively. Cracking processes also take place during early diagenesis, and may be used for maturity determination together with the %tri/tri+mono ratio (Mackenzie et al., 1980; 1981; 1982).

The effect of migration and weathering on the distribution of biological markers is less well understood than maturity-induced changes. Migration may be observed to cause an increase in the relative amounts of rearranged and 14β(H),17β(H) regular steranes (Seifert and Moldowan, 1978). Severe biological alteration leads to the formation of desmethyl-hopanes (Seifert and Moldowan, 1979).

Table 1:

FOLLOW-UP ANALYSES, WELL 6/3-2. ANALYSIS PROGRAM

IKU no.	Sample type	Depth (m RKB)	Lithology	HI	TOC	VR	TAI	EXTR.	Py-GC	GC SAT	GC ARO	GC MS	13C/12C ISOTOPE SAT	13C/12C ISOTOPE ARO	13C/12C ISOTOPE POLAR	13C/12C ISOTOPE ASPH	13C/12C ISOTOPE EOM	13C/12C ISOTOPE KER	Remarks
C-4339	Cu	1300 - 1316	Clst; brnsh gy				x												
C-4339	Cu	1300 - 1316	Clst; light brnsh gy			x													
C-4372	Cu	1525 - 1540	Bulk sample			x													
C-4399	Cu	1795 - 1810	Clst; brnsh gyy (bulk)			x													
C-4405	Cu	1885 - 1900	Clst; brnsh gy	153	2.06		x												
C-4405	Cu	1885 - 1900	Bulk sample			x													
C-4411	Cu	1990 - 2005	Clst; dk gy-dk brnsh gy	184	3.17		x												
C-4411	Cu	1990 - 2005	Bulk sample			x													
C-4417	Cu	2080 - 2095	Bulk;Clst, predom. brnsh white			x													
C-4566	swc	2283	Clst;(grnsh) gy	34	0.29		x												
C-4431	Cu	2290 - 2303	Bulk sample			x													
C-4435	Cu	2350 - 2365	Clst; gy	164	1.52		x												
C-4567	swc	2402.0	Clst; gy, slty	62	1.02	x	x												
C-4440	Cu	2425 - 2440	Clst; dk gy	122	1.66		x												
C-4490	Cu	2925 - 2940	Bulk sample			x													
C-4444	Cu	2485 - 2500	Bulk sample			x													
C-4452	Cu	2620	Chlk/Lst; wht, soft	5	0.22			x		x	x								TLC,latro
C-4577	Core	2800.70	Chlk/Lst; wht, hd, lam	38	0.08		x	x		x	x								latro
C-4465	Cu	2800 - 2815	Clst; gy-grn gy	46	0.79	x													
C-4578	Core	2857.90	Chlk/Lst	8	0.12		x												
C-4473	Cu	2920 - 2935	Chlk/Lst; white	10	0.21		x												
C-4569	swc	2956	Lst; lam	75	0.65		x	x		x	x	x	x	x	x	x	x		latro
C-4571	swc	2993	Mrl; rdsh gy	10	0.29		x												
C-4572	swc	3009.5	Clst; v gy w/plant fragments	45	2.74	x	x	x											
C-4478	Cu	2995 - 3010	Clst; blk fissile	274	3.20		x	x	x	x	x								latro
C-4478	Cu	2995 - 3010	Clst; gy, gyish brn			x													
C-4479	Cu	3010 - 3025	Bulk, mostly clst, dk gy blk			x													
C-4479	Cu	3010 - 3025	Clst; v dk gy-blk	338	3.46		x	x		x	x								latro
C-4479	Cu	3010 - 3025	Clst; dk gy	302	2.43		x	x	x	x	x	x							
C-4573	swc	3024	Tuff w/dk clst lam	142	0.99			x	x										
C-4574	swc	3026	Tuff, brnsh gy, lam	62	0.74			x		x	x		x	x	x	x			latro

Table 1 continued:

FOLLOW-UP ANALYSES, WELL 6/3-2. ANALYSIS PROGRAM continued

IKU no.	Sample type	Depth	FM/GR/AGE	Lithology	HI	TOC	VR	TAI	EXTR.	Py-GC	GC SAT	GC ARO	GC MS	13C/12C ISOTOPE SAT	13C/12C ISOTOPE ARO	13C/12C ISOTOPE POLAR	13C/12C ISOTOPE ASPH	EOM	KER	Remarks
C-4600	Core	3042.65		Sst, well cmt (seal peal)	20	0.27			x		x	x	x	x	x	x	x	x		latro
C-4481	Cu	3040 - 3055		Bulk sample			x													
C-4481	Cu	3040 - 3055		Clst; blk	418	3.69			x	x	x	x	x	x	x	x	x	x	x	latro
C-4580	Core	3055.60		Sst; med-poor por	17	0.12			x		x	x		x	x	x	x	x		latro
C-4582	Core	3078.70		Sst	0	0.11			x		x	x	x	x	x	x	x	x		latro
C-4485	Cu	3100 - 3115		Clst; gy	1	2.17		x												
C-4485	Cu	3100 - 3115		Bulk sample			x													
C-4584	Core	3124.50		Sst	12	0.26			x		x	x								latro
C-4486	Cu	3115 - 3130		Clst; dk gy, blocky	24	3.19		x												
C-4488	Cu	3145 - 3160		Clst, med gy, lam				x												
C-4488	Cu	3145 - 3160		Clst; dk gy	250	2.68		x	x		x	x								latro
C-4588	Core	3170		Sst	0	0.10					x	x								latro
C-4490	Cu	3175 - 3190		Clst; brn gy		0.93		x												
C-4490	Cu	3175 - 3190		Bulk sample			x													
C-4491	Cu	3190 - 3205		Clst; dk reddish gy	0	0.02		x												
C-4491	Cu	3190 - 3205		Clst; dk gy	365	3.52			x		x	x								latro
C-4575	swc	4030		Lmst/Mrl; v dk gy				x												
C-4576	swc	4040		Lmst/Mrl; dk, org. rich	102	0.42		x	x	x										

Table 3: Well drilling data. Well 6/3-2.

Casing shoes (m RKB driller's depth):

30"	CSG at 222 m
20"	CSG at 600 m
13 3/8 "	CSG at 1300 m
9 5/8"	CSG at 3375 m
7"	CSG at 3722 m
5"	CSG at 4039 m

Type of drilling fluid (m RKB, driller's depth):

1300.5 m-3400 m	Gypsum polymer
3400 m - T.D.	Paraffin based mud

Cored intervals (m RKB driller's depth):

2794-2858.5 m
3042-3197.5 m
4088-4090 m

Tubrodrilling (m RKB driller's depth):

4040 m T.D.

Project no.: 22.1828.00
Well ident.: 6/3-2
DATE : 9 - 6 - 86.

TABLE 4a.

CONCENTRATION (ul Gas / kg dry Rock) OF C1 - C5+ HYDROCARBONS IN HEADSPACE

IKU no.	DEPTH m	C1	C2	C3	iC4	nC4	C5+	SUM C1-C4	SUM C2-C4	WET-NESS (%)	iC4/nC4
C 4336	1265	103371	549	658	213	92		104882	1511	1.44	2.33
C 4339	1316	47410	419	592	262	88	305	48771	1361	2.79	2.97
C 4372	1540	19378	314	447	111			20250	872	4.31	******
C 4378	1630	177	14	27				218	41	18.90	******
C 4393	1720	23978	732	668	212	92	266	25683	1705	6.64	2.29
C 4399	1810	1273	135	225	77			1710	437	25.55	******
C 4405	1900	827	91	104	36			1058	231	21.82	******
C 4411	2005	31883	1946	937	261	78	223	35106	3223	9.18	3.33
C 4417	2095	4242	820	852	428	99	463	6440	2198	34.13	4.31
C 4424	2200	3367	295	378	222	67	271	4329	962	22.23	3.30
C 4431	2305	30	14	67	26	38	54	175	145	82.84	0.68
C 4435	2365	315	224	804	243	391	382	1977	1662	84.09	0.62
C 4440	2440	2350	1093	4465	1481	2715	2773	12105	9755	80.59	0.55
C 4442	2470	74	30	218	87	191	265	600	526	87.68	0.45
C 4444	2500	446	145	922	374	675	999	2562	2116	82.58	0.55
C 4445	2515	417	229	2449	1310	2286	3939	6690	6273	93.77	0.57
C 4446	2530	668	367	1666	452	841	800	3994	3326	83.27	0.54
C 4447	2545	62	85	614	198	368	445	1327	1264	95.30	0.54
C 4451	2605	1081	251	742	201	314	415	2589	1508	58.23	0.64
C 4452	2620	763	281	1288	389	712	840	3432	2669	77.77	0.55
C 4454	2650	8	4	27	11	20	47	69	61	88.81	0.53
C 4457	2695	113	27	121	41	73	127	375	262	69.80	0.57

Project no.: 22.1828.00
Well ident.: 6/3-2
DATE : 9 - 6 - 86.

TABLE 4a.

CONCENTRATION (ul Gas / kg dry Rock) OF C1 - C5+ HYDROCARBONS IN HEADSPACE

IKU no.	DEPTH m	C1	C2	C3	iC4	nC4	C5+	SUM C1-C4	SUM C2-C4	WET-NESS (%)	iC4/nC4
C 4459	2725	147	26	104	35	64	108	377	229	60.91	0.54
C 4460	2740	383	57	229	77	139	194	885	502	56.71	0.55
C 4461	2755	315	47	190	63	118	185	732	418	57.02	0.53
C 4463	2785	215	48	278	103	180	219	824	610	73.97	0.57
C 4465	2815	179	61	280	118	148	223	786	607	77.27	0.80
C 4467	2845	2235	253	798	241	351	407	3879	1644	42.39	0.69
C 4469	2875	161	41	192	68	103	121	564	403	71.46	0.66
C 4471	2905	28	5	39	16	23		112	84	75.20	0.71
C 4473	2935	137	21	95	36	53	65	343	206	60.04	0.67
C 4474	2950	15		8				23	8	35.32	******
C 4476	2980	82	13	38	12	17		162	80	49.48	0.69
C 4477	2995	120	22	174	69	108		495	374	75.65	0.64
C 4478	3010	75	88	404	115	314	937	996	921	92.49	0.37
C 4479	3025	1978	1350	2986	604	1623	2587	8542	6564	76.84	0.37
C 4480	3040	163	118	600	229	537	1493	1646	1483	90.11	0.43
C 4481	3055	820	520	1516	543	1148	3090	4547	3727	81.97	0.47
C 4482	3070	127	75	503	244	586	2835	1535	1408	91.74	0.42
C 4483	3085	43						43		0.00	******
C 4484	3100	262	46	328	197	364	1424	1196	934	78.09	0.54
C 4485	3115	40	30	266	178	337	1118	851	811	95.30	0.53
C 4486	3130	70	69	433	205	405	1145	1182	1112	94.11	0.51
C 4487	3145	494	332	1257	448	908	1935	3439	2945	85.63	0.49

Project no.: 22.1828.00
Well ident.: 6/3-2
DATE : 9 - 6 - 86.

TABLE 4a.

CONCENTRATION (ul Gas / kg dry Rock) OF C1 - C5+ HYDROCARBONS IN HEADSPACE

IKU no.	DEPTH m	C1	C2	C3	iC4	nC4	C5+	SUM C1-C4	SUM C2-C4	WET-NESS (%)	iC4/nC4
C 4488	3160	675	231	876	380	770	1743	2931	2256	76.97	0.49
C 4489	3175	210	88	417	138	256	281	1109	899	81.09	0.54
C 4490	3190	223	89	353	107	195	209	967	744	76.89	0.55
C 4491	3205	274	238	678	129	324	202	1644	1369	83.31	0.40
C 4492	3220	17		25	13	43	120	98	81	82.89	0.30
C 4493	3235	627	440	1486	326	951	1349	3830	3203	83.62	0.34
C 4494	3250	247	157	668	195	420	529	1687	1440	85.36	0.46
C 4495	3265	236	119	474	134	254	278	1217	982	80.64	0.53
C 4496	3280	249	167	330	45	97	52	888	639	71.96	0.47
C 4499	3325	112	79	242	58	121	133	612	500	81.66	0.48
C 4500	3340	57	8	44	16	29	33	154	98	63.34	0.57
C 4501	3355	48	14	74	29	65	78	230	182	79.29	0.44
C 4503	3385	6		7		6		20	14	68.22	0.00
C 4514	3550	196						196		0.00	******

Project no.: 22.1828.00
Well ident.: 6/3-2
DATE : 9 - 6 - 86.

TABLE 4b.

CONCENTRATION (ul Gas / kg dry Rock) OF C1 - C5+ HYDROCARBONS IN OCLUDED

IKU no.	DEPTH m	C1	C2	C3	iC4	nC4	C5+	SUM C1-C4	SUM C2-C4	WET-NESS (%)	iC4/nC4
C 4336	1265	328	26	46	15	8	95	423	96	22.58	1.87
C 4339	1316	413	41	94	54	30	248	632	219	34.65	1.81
C 4372	1540	621	137	27		8	199	793	172	21.65	0.00
C 4378	1630	238	34	107	68	39	324	486	247	50.95	1.72
C 4393	1720	275	43	117	69	45	362	549	273	49.81	1.54
C 4399	1810	277	51	149	97	62	467	636	360	56.50	1.56
C 4405	1900	372	87	284	169	94	677	1005	634	63.05	1.80
C 4411	2005	529	216	621	322	144	779	1833	1303	71.11	2.24
C 4417	2095	357	142	537	407	155	1094	1599	1242	77.65	2.62
C 4424	2200	192	32	116	114	61	527	515	323	62.66	1.85
C 4431	2305	266	42	455	308	732	2969	1802	1536	85.26	0.42
C 4435	2365	314	187	2625	1319	3497	7844	7942	7628	96.05	0.38
C 4440	2440	276	55	557	309	1047	4720	2244	1968	87.69	0.30
C 4442	2470	124	17	117	55	226	1055	539	416	77.05	0.25
C 4444	2500	150	30	363	197	660	3453	1401	1251	89.28	0.30
C 4445	2515	125	25	404	273	831	9179	1658	1533	92.44	0.33
C 4446	2530	106	32	409	174	573	2533	1294	1188	91.82	0.30
C 4447	2545	226	47	415	263	830	8267	1781	1554	87.28	0.32
C 4451	2605	147	44	527	230	593	2644	1541	1394	90.45	0.39
C 4452	2620	110	22	142	78	259	1811	611	500	81.95	0.30
C 4454	2650	2363	14	110	64	193	1936	2744	381	13.87	0.33
C 4457	2695	78	13	28	15	35	376	168	90	53.52	0.43

Project no.: 22.1828.00
Well ident.: 6/3-2
DATE : 9 - 6 - 86.

TABLE 4b.

CONCENTRATION (ul Gas / kg dry Rock) OF C1 - C5+ HYDROCARBONS IN OCLUDED

IKU no.	DEPTH m	C1	C2	C3	iC4	nC4	C5+	SUM C1-C4	SUM C2-C4	WET-NESS (%)	iC4/nC4
C 4459	2725	83	13	22	4	8	207	130	47	36.39	0.57
C 4460	2740	79	24	74	20	66	811	263	184	70.10	0.30
C 4461	2755	51	8	13	6	11	131	89	39	43.21	0.54
C 4463	2785	59	9	24	15	45	425	152	93	61.33	0.34
C 4465	2815	150	21	232	185	416	2656	1005	855	85.09	0.44
C 4467	2845	136	23	246	156	372	2690	934	797	85.41	0.42
C 4469	2875	71	9	34	23	55	515	192	121	63.20	0.41
C 4471	2905	68	9	15	9	11	117	111	43	39.11	0.87
C 4473	2935	82	11	21	12	20	184	146	64	44.04	0.61
C 4474	2950	27						27		0.00	******
C 4476	2980	20						20		0.00	******
C 4477	2995	128	20	31	23	36	781	238	110	46.30	0.64
C 4478	3010	75	21	147	66	270	4695	580	505	87.14	0.25
C 4479	3025	140	63	573	255	960	5572	1992	1851	92.95	0.27
C 4480	3040	140	39	405	225	885	6784	1694	1555	91.75	0.25
C 4481	3055	169	66	753	429	1339	9679	2756	2586	93.86	0.32
C 4482	3070	280	32	179	182	645	9632	1318	1038	78.74	0.28
C 4483	3085	242	27	93	186	658	10107	1206	964	79.94	0.28
C 4484	3100	159	20	87	83	251	3243	601	442	73.55	0.33
C 4485	3115	26					39	26		0.00	******
C 4486	3130	241	49	486	354	1082	8996	2211	1970	89.09	0.33
C 4487	3145	107	17	275	209	641	4385	1248	1141	91.41	0.33

Project no.: 22.1828.00
Well ident.: 6/3-2
DATE : 9 - 6 - 86.

TABLE 4b.

CONCENTRATION (ul Gas / kg dry Rock) OF C1 - C5+ HYDROCARBONS IN OCLUDED

IKU no.	DEPTH m	C1	C2	C3	iC4	nC4	C5+	SUM C1-C4	SUM C2-C4	WET-NESS (%)	iC4/nC4
C 4488	3160	65	9	71	50	156	1481	352	287	81.48	0.32
C 4489	3175	123	18	271	270	795	9472	1478	1355	91.65	0.34
C 4490	3190	202	33	400	377	1054	13306	2066	1865	90.25	0.36
C 4491	3205	232	31	251	213	789	21552	1515	1283	84.70	0.27
C 4492	3220	335	39	196	306	1202	41836	2078	1743	83.88	0.25
C 4493	3235	388	320	553	322	1323	34674	2907	2519	86.65	0.24
C 4494	3250	235	27	142	151	525	15549	1080	845	78.26	0.29
C 4495	3265	240	29	275	313	929	17413	1786	1546	86.56	0.34
C 4496	3280	255	58	619	359	1228	17683	2520	2265	89.89	0.29
C 4499	3325	224	28	131	98	291	8310	772	548	70.99	0.34
C 4500	3340	129	16	77	61	150	2746	433	304	70.15	0.41
C 4501	3355	64	9	27	20	47	1619	168	104	61.86	0.42
C 4503	3385	88	15	16	3		1180	122	34	28.25	******
C 4514	3550	227	33	118	79		1834	457	230	50.40	******

Project no.: 22.1828.00
Well ident.: 6/3-2
DATE : 9 - 6 - 86.

TABLE 4c.

CONCENTRATION (ul Gas / kg dry Rock) OF C1 - C5+ HYDROCARBONS SUMMATION

IKU no.	DEPTH m	C1	C2	C3	iC4	nC4	C5+	SUM C1-C4	SUM C2-C4	WET-NESS (%)	iC4/nC4
C 4336	1265	103699	575	704	228	100	95	105305	1607	1.53	2.29
C 4339	1316	47823	460	686	316	118	553	49404	1581	3.20	2.67
C 4372	1540	19999	451	474	111	8	199	21042	1044	4.96	14.61
C 4378	1630	415	47	134	68	39	324	704	289	41.02	1.72
C 4393	1720	24253	775	785	281	137	628	26231	1978	7.54	2.05
C 4399	1810	1550	186	374	174	62	467	2347	797	33.94	2.80
C 4405	1900	1199	178	387	205	94	677	2063	865	41.91	2.19
C 4411	2005	32412	2162	1558	583	222	1002	36938	4526	12.25	2.62
C 4417	2095	4599	962	1389	835	254	1556	8039	3440	42.79	3.28
C 4424	2200	3559	327	494	336	129	798	4845	1285	26.53	2.61
C 4431	2305	296	55	522	334	770	3023	1977	1681	85.05	0.43
C 4435	2365	628	411	3429	1562	3889	8226	9919	9291	93.66	0.40
C 4440	2440	2626	1148	5022	1790	3762	7493	14349	11722	81.70	0.48
C 4442	2470	198	47	335	142	417	1320	1139	942	82.65	0.34
C 4444	2500	596	176	1285	571	1335	4452	3963	3367	84.95	0.43
C 4445	2515	542	254	2852	1583	3117	13117	8348	7806	93.50	0.51
C 4446	2530	774	400	2074	625	1415	3333	5288	4514	85.36	0.44
C 4447	2545	289	132	1029	460	1198	8711	3107	2819	90.71	0.38
C 4451	2605	1229	294	1270	431	907	3060	4130	2902	70.25	0.48
C 4452	2620	873	303	1430	467	970	2651	4043	3170	78.40	0.48
C 4454	2650	2371	18	137	75	212	1983	2813	442	15.70	0.35
C 4457	2695	191	39	149	56	107	503	543	352	64.76	0.53

Project no.: 22.1828.00
Well ident.: 6/3-2
DATE : 9 - 6 - 86.

TABLE 4c.

CONCENTRATION (ul Gas / kg dry Rock) OF C1 - C5+ HYDROCARBONS SUMMATION

IKU no.	DEPTH m	C1	C2	C3	iC4	nC4	C5+	SUM C1-C4	SUM C2-C4	WET-NESS (%)	iC4/nC4
C 4459	2725	230	39	127	39	72	315	507	277	54.61	0.55
C 4460	2740	462	81	303	97	206	1005	1148	686	59.77	0.47
C 4461	2755	366	55	204	69	129	315	822	456	55.52	0.53
C 4463	2785	273	57	302	119	225	644	977	703	72.00	0.53
C 4465	2815	328	83	512	303	564	2879	1791	1462	81.66	0.54
C 4467	2845	2371	276	1045	397	723	3097	4812	2441	50.73	0.55
C 4469	2875	231	50	226	90	158	636	755	524	69.36	0.57
C 4471	2905	95	14	54	26	33	117	223	127	57.19	0.76
C 4473	2935	219	32	116	48	74	250	489	270	55.27	0.66
C 4474	2950	42		8				50	8	16.15	******
C 4476	2980	102	13	38	12	17		182	80	44.10	0.69
C 4477	2995	248	42	206	92	144	781	733	484	66.12	0.64
C 4478	3010	149	109	551	181	585	5631	1576	1426	90.52	0.31
C 4479	3025	2118	1413	3559	860	2583	8159	10534	8415	79.89	0.33
C 4480	3040	303	156	1005	455	1422	8277	3340	3038	90.94	0.32
C 4481	3055	989	586	2269	972	2487	12769	7303	6314	86.46	0.39
C 4482	3070	407	108	682	426	1230	12468	2853	2446	85.74	0.35
C 4483	3085	285	27	93	186	658	10107	1249	964	77.20	0.28
C 4484	3100	421	66	415	280	615	4668	1797	1376	76.58	0.46
C 4485	3115	66	30	266	178	337	1158	877	811	92.44	0.53
C 4486	3130	311	118	918	559	1487	10141	3393	3082	90.84	0.38
C 4487	3145	602	349	1532	657	1548	6319	4687	4086	87.17	0.42

Project no.: 22.1828.00
Well ident.: 6/3-2
DATE : 9 - 6 - 86.

TABLE 4c.

CONCENTRATION (ul Gas / kg dry Rock) OF C1 - C5+ HYDROCARBONS SUMMATION

IKU no.	DEPTH m	C1	C2	C3	iC4	nC4	C5+	SUM C1-C4	SUM C2-C4	WET-NESS (%)	iC4/nC4
C 4488	3160	740	240	947	430	926	3224	3283	2543	77.46	0.46
C 4489	3175	333	106	688	408	1051	9753	2587	2254	87.12	0.39
C 4490	3190	425	122	753	484	1249	13515	3034	2609	85.99	0.39
C 4491	3205	506	269	929	342	1113	21755	3159	2652	83.97	0.31
C 4492	3220	352	39	221	319	1245	41957	2176	1824	83.84	0.26
C 4493	3235	1016	760	2039	649	2274	36023	6737	5722	84.93	0.29
C 4494	3250	482	184	809	346	945	16078	2767	2285	82.59	0.37
C 4495	3265	476	149	749	446	1184	17691	3004	2528	84.16	0.38
C 4496	3280	504	226	949	404	1325	17735	3407	2904	85.22	0.31
C 4499	3325	336	107	372	156	412	8443	1384	1048	75.71	0.38
C 4500	3340	186	24	121	77	179	2779	587	401	68.36	0.43
C 4501	3355	112	23	102	49	112	1697	397	286	71.93	0.43
C 4503	3385	94	15	23	3	6	1180	142	48	33.92	0.50
C 4514	3550	423	33	118	79		1834	654	230	35.25	******

CORE CHIPS, SIDEWALL CORES AND CUTTINGS

Lithology and Total Organic Carbon measurements

TABLE NO.: 5.
WELL NO.: 6/3-2

Sample	Depth (m)	TOC	Lithology
C-4336	1250-1265	2.55	50% Claystone, light brownish grey, light grey
			40% Claystone, dark brownish grey
		5.26	10% Claystone, very dark brownish grey, subfissile
			Sm.am. ?Chamosite oolite
C-4339	1300-1316	3.45	50% Claystone, very dark brownish grey, with chamosite oolites, occasionally silty
			40% Claystone, light brownish grey, light grey
			10% Claystone, dark brownish grey
			Sm.am. Chamosite oolites
			Chalk/Limestone, white
C-4372	1525-1540		80% Claystone, dark brownish grey
			10% Claystone, very dark brownish grey
			10% Claystone, brownish white
			Sm.am. Chalk/Limestone, white
C-4378	1615-1630	0.33	80% Claystone, brownish grey, micromicaceous, noncalcareous
		0.90	20% Claystone, very dark brownish grey, micaceous, silty
			Sm.am. Chalk, white; Siderite; Pyrite, occasionally as pyrite filled burrows
C-4393	1705-1720		80% Claystone, brownish grey, grey, micromicaceous, noncalcareous
			10% Claystone, very dark brownish grey
			10% Chalk/Limestone, white
			Sm.am. Siderite; Forams
C-4399	1795-1810	1.91	100% Claystone, brownish grey, micromicaceous
			Sm.am. Siderite; Claystone, brownish white

CORE CHIPS, SIDEWALL CORES AND CUTTINGS

Lithology and Total Organic Carbon measurements

TABLE NO.: 5.
WELL NO.: 6/3-2

Sample	Depth (m)	TOC	Lithology
C-4405	1885-1900	2.06	100% Claystone, brownish grey, micromicaceous, noncalcareous Sm.am. Siderite; Pyrite; Claystone, very dark grey
C-4411	1990-2005	3.17	50% Claystone, dark brownish grey, dark grey 40% Claystone, brownish grey, micromicaceous, noncalcareous 10% Coal Sm.am. Claystone, brownish white; Siderite
C-4417	2080-2095	2.94	80% Claystone, dark brownish grey, dark grey 10% Claystone, brownish grey, micromicaceous, noncalcareous 10% Coal Sm.am. Claystone, brownish white; Siderite
C-4424	2185-2200	0.69	100% Claystone, light greenish grey to greenish grey, noncalcareous Sm.am. Claystone, brownish grey; Chalk/Limestone, white; Coal
C-4566 swc	2283	0.29	Claystone, grey (greenish), subfissile with dispersed pyrite. Local areas rich in cubes and spheres of pyrite. Waxy. Non-calcareous.

CORE CHIPS, SIDEWALL CORES AND CUTTINGS

IKU

Lithology and Total Organic Carbon measurements

TABLE NO.: 5.
WELL NO.: 6/3-2

Sample	Depth (m)	TOC	Lithology
C-4431	2290-2305		40% Claystone, grey, occasionally brownish grey 40% Claystone, light greenish grey to greenish grey
		0.41	20% Tuff, white to brownish grey, finely laminated, occasionally bluish grey, non-laminated, pyritic Sm.am. Siderite; Pyrite; Claystone, white; Coal; Claystone, green; Claystone, greyish red
C-4435	2350-2365	1.52	90% Claystone, grey, blocky, micromicaceous 10% Claystone, light greenish grey to greenish grey, pyritic Sm.am. Coal; Siderite
C-4567 swc	2402	1.02	Claystone, grey, silty, with 8 mm thick layer of limestone. The limestone has calcite crystals growing vertically from contact towards the claystone.
C-4440	2425-2440		70% Claystone, grey to brownish grey, greyish red
		1.66	20% Claystone, dark grey, micromicaceous 10% Claystone, light greenish grey to greenish grey, pyritic Sm.am. Chalk/Limestone, brownish white; Coal; Pyrite; Siderite; ?Tuff
C-4442	2455-2470		80% Claystone, greyish red to light greyish red, occasionally dark greyish red 20% Claystone, grey to greenish grey Sm.am. Claystone, light grey; Chalk/Limestone, white; Siderite

CORE CHIPS, SIDEWALL CORES AND CUTTINGS

IKU

Lithology and Total Organic Carbon measurements

TABLE NO.: 5.
WELL NO.: 6/3-2

Sample	Depth (m)	TOC	Lithology
C-4568 swc	2490	0.41	Claystone, grey, very calcareous, subfissile with a few pyrite crystals. A calcite shell fragment observed.
C-4444	2485-2500	0.88	70% Claystone, medium to dark grey (bluish) 10% Claystone, grey to greenish grey 10% Claystone, greyish red to light greyish red, occasionally dark greyish red 10% Chalk/Limestone, white, blocky Sm.am. Coal
C-4445	2500-2515	0.79	70% Claystone, dark grey, brownish grey, dark greenish grey 20% Claystone, dark greyish red, subfissile 10% Chalk/Limestone, white, brittle, relatively soft Sm.am. Coal; Claystone, green; Claystone, very dark
C-4446	2515-2530	0.24 1.23	60% Chalk/Limestone, white, brittle, moderately soft 10% Claystone, very dark grey 10% Claystone, grey to brownish grey 10% Claystone, dark reddish grey 10% Claystone, greenish grey Sm.am. Pyrite; Coal
C-4447	2530-2545	0.23	70% Chalk/Limestone, white, blocky, brittle, moderately soft 20% Claystone, dark grey, dark brownish grey, dark greenish grey 10% Claystone, dark reddish brown, subfissile Sm.am. Coal

CORE CHIPS, SIDEWALL CORES AND CUTTINGS

Lithology and Total Organic Carbon measurements

TABLE NO.: 5.
WELL NO.: 6/3-2

Sample	Depth (m)	TOC	Lithology
C-4451	2590-2605		70% Chalk/Limestone, white, brittle, moderately soft 10% Claystone, grey to brownish grey, dark grey 10% Claystone, greenish grey 10% Claystone, dark reddish grey Sm.am. Coal
C-4452	2605-2620	0.22	80% Chalk/Limestone, white, brittle, relatively soft 20% Claystone, dark grey, dark greenish grey, noncalcareous Sm.am. Claystone, light greenish grey, light grey
C-4454	2635-2650	0.26	90% Chalk/Limestone, white, brittle, moderately soft 10% Claystone, various colours, but mainly dark grey
C-4457	2680-2695	0.08	100% Chalk/Limestone, white, brittle, moderately hard Sm.am. Claystone, various colours
C-4459	2710-2725	0.02	100% Chalk/Limestone, brittle, moderately soft, occasionally subfissile Sm.am. Claystone, dark grey; Coal
C-4460	2725-2740	0.16	100% Chalk/Limestone, white, brittle, relatively soft Sm.am. Claystone, various colours

CORE CHIPS, SIDEWALL CORES AND CUTTINGS

Lithology and Total Organic Carbon measurements

TABLE NO.: 5.
WELL NO.: 6/3-2

Sample	Depth (m)	TOC	Lithology
C-4461	2740-2755	0.15	100% Chalk/Limestone, white, brittle, moderately soft, blocky, occasionally subfissile Sm.am. Claystone, dark grey, dark greenish grey; Claystone, dark greenish grey; Coal
C-4463	2770-2785	0.09	100% Chalk/Limestone, white, brittle, moderately soft, blocky to subfissile, occasionally greyish white Sm.am. Claystone, dark grey; Claystone, dark reddish brown
C-4577 Core	2800.7	0.08	Chalk/Limestone, white hard, brittle, with numerous thin laminae rich in organic material. These laminae probably represents algal mats. A foraminifer and tubes after burrowing organisms occur. Calcite present within the laminae.
C-4465	2800-2815	0.79	40% Claystone, dark grey, dark brownish grey 40% Claystone, grey, greenish grey, brownish grey 20% Chalk/Limestone, white, brittle, moderately soft Sm.am. Coal; Siderite, yellowish brown
C-4467	2830-2845	1.71	60% Chalk/Limestone, white, brittle, moderately soft to soft 30% Claystone, dark grey, dark brownish grey 10% Claystone, grey, greenish grey Sm.am. Coal

CORE CHIPS, SIDEWALL CORES AND CUTTINGS

IKU

Lithology and Total Organic Carbon measurements

TABLE NO.: 5.
WELL NO.: 6/3-2

Sample	Depth (m)	TOC	Lithology
C-4578 Core	2857.90	0.12	Limestone/Chalk, white to grey, somewhat silty. Laminated with thin black laminae, pyritic and organic rich, defining a fine rippling. Some burrowing also evident.
C-4469	2860-2875	0.30	90% Chalk/Limestone, white, greyish white, brittle, blocky, moderately soft 10% Claystone, grey, greenish grey Sm.am. Coal
C-4471	2890-2905	0.29	100% Chalk/Limestone, white, greyish white, brittle, moderately soft, blocky Sm.am. Claystone, dark greenish grey; Coal
C-4473	2920-2935	0.21	100% Chalk/Limestone, white, greyish white, brittle, moderately soft, blocky Sm.am. Claystone, dark greenish grey, dark brownish grey; Coal
C-4474	2935-2950	0.07	100% Chalk/Limestone, white, greyish white, occasionally yellowish white grading to Marl, grey, subfissile Sm.am. Claystone, dark grey, dark brownish grey; Coal
C-4569 swc	2956	0.65	Chalk/Limestone, white to light grey. Relatively soft, brittle. Laminated.
C-4570 swc	2966	0.26	Chalk/Limestone, white. Relatively soft. Brittle. Laminated. Contaminated by red drilling mud.

CORE CHIPS, SIDEWALL CORES AND CUTTINGS

Lithology and Total Organic Carbon measurements

TABLE NO.: 5.
WELL NO.: 6/3-2

Sample	Depth (m)	TOC	Lithology
C-4476	2965-2980	0.30	100% Chalk/Limestone, white light grey, pinkish white, soft Sm.am. Claystone, brownish grey, greenish grey; Coal
C-4571 swc	2993	0.29	Marl, weak red, soft, with local green, more silty areas. Blocky.
C-4477	2980-2995		80% Chalk/Limestone, pinkish white 10% Chalk/Limestone, white, soft 10% Claystone, grey, brownish Sm.am. Claystone, black, stringy; Glauconite
C-4478	2995-3010	0.26	50% Claystone, dark reddish brown, dark greyish red 30% Chalk/Limestone, white, light grey, soft 10% Claystone, grey, greyish brown
		3.20	10% Claystone, black, fissile, subfissile, organic rich Sm.am. Coal; Glauconite; Siderite; Sandstone with Glauconite
C-4572 swc	3009.5	2.74	Claystone, very dark grey, hard fissile to subfissile, with coalifed ?plant fragments. Noncalcareous.

CORE CHIPS, SIDEWALL CORES AND CUTTINGS

Lithology and Total Organic Carbon measurements

TABLE NO.: 5.
WELL NO.: 6/3-2

Sample	Depth (m)	TOC	Lithology
C-4479	3010-3025	2.43	10% Claystone, dark grey silty, micaceous, blocky to subfissile, noncalcareous 50% Tuff, light grey, mottled 20% Chalk/Limestone, white, light grey
		3.46	20% Claystone, very dark grey to black, fissile Sm.am. Chalk, white, pinkish white; Claystone, dark reddish brown
C-4573 swc	3024	0.99	Tuff, brownish grey, mottled, laminated. Some organic content expected (darker areas). Very calcareous.
C-4574 swc	3026	0.74	Tuff, brownish grey, mottled, laminated, poorly sorted. Noncalcareous.
C-4480	3025-3040	0.65	70% Tuff, light grey, light brownish grey, mottled 20% Claystone, brownish grey, greenish grey, slightly calcareous 10% Chalk/Limestone, white, pinkish white Sm.am. Claystone, black, stringy or fissile; Coal
C-4579 Core	3042.70	0.11	Sandstone, light grey, fine, moderately sorted, silica and dolomite cemented. Some porosity observed. The sandstone is brecciated and mobilized darker sand fills the cracks between the fragments. This darker sand (with possibly higher clay content) is also silica and dolomite cemented. Some fragment contacts show sinusoidal sutures, due to pressure solution and fracturing.

CORE CHIPS, SIDEWALL CORES AND CUTTINGS

Lithology and Total Organic Carbon measurements

TABLE NO.: 5.
WELL NO.: 6/3-2

Sample	Depth (m)	TOC	Lithology
C-4600 Core, seal peal	3042.40-3042.65	0.27	Sandstone, fine to medium, moderately sorted, hard, well cemented. ?Quartz cement. Slightly micaceous and pyritic. No hydrocarbon staining observed.
C-4481	3040-3055	0.80	50% Claystone, grey, greenish grey, brownish grey, micromicaceous
		0.01	30% Chalk/Limestone, white, sandy
		3.69	10% Claystone, black, fissile or stringy
			10% Sand/Sandstone, subangular to angular
			Sm.am. Siderite; brown, yellowish brown, blocky; Coal; Claystone, reddish brown; Chalk/-Limestone, pinkish white
C-4580 Core	3055.60	0.12	Sandstone, medium mainly Quartz grains, showing Quartz ongrowth. Some intergranular clay present, probably kaolinite. In local areas pores are filled with clay minerals. Mica and ?glauconite observed. The porosity varies within the sample, ranging from moderate to poor. The rock is bioturbated. No hydrocarbon staining observed.
C-4581 Core	3063.50	0.08	Sandstone, fine to medium, well sorted, subangular to angular. Mainly Quartz but also some feldspar present. Dolomite and ?Silica cemented. No lamination observed. Strong bioturbation. No hydrocarbon staining of grains.

CORE CHIPS, SIDEWALL CORES AND CUTTINGS

Lithology and Total Organic Carbon measurements

TABLE NO.: 5.
WELL NO.: 6/3-2

Sample	Depth (m)	TOC	Lithology
C-4482	3055-3070		40% Claystone, grey, greenish grey, brownish grey, blocky 40% Sand/Sandstone, fine to medium, moderately sorted, angular to subangular 20% Chalk/Limestone, white Sm.am. Claystone, reddish brown; Tuff, light grey to light brownish grey; Siderite; Coal
C-4483	3070-3085		30% Claystone, grey greenish grey, brownish grey, blocky 20% Claystone, dark grey, dark brownish grey, blocky, noncalcareous, often pyritic 10% Claystone, black, fissile, probably caved material 10% Chalk, white, light grey 30% Sand/Sandstone, angular to subangular, medium Sm.am. Coal; Claystone, reddish brown; Siderite, yellowish brown
C-4582 Core	3078.70	0.11	Sandstone, fine to medium, angular to subangular. Mainly Quartz, but also some feldspar present. Small amounts of calcite cement occur. Silica cement probably also present, in addition intergranular clay minerals (probably kaolinite). No lamination. Strong bioturbation. No hydrocarbon staining.

CORE CHIPS, SIDEWALL CORES AND CUTTINGS

IKU

Lithology and Total Organic Carbon measurements

TABLE NO.: 5.
WELL NO.: 6/3-2

Sample	Depth (m)	TOC	Lithology
C-4583 Core	3094.70	0.14	Sandstone, very fine to medium, moderately sorted, angular to subangular grains. Some cement, mainly silica, but some dolomite and intergranular clay cement (probably kaolinite) also observed. Faint disrupted laminae locally present. Strong bioturbation. No hydrocarbon staining.
C-4484	3085-3100		40% Claystone, greyish brown, blocky, micromicaceous 30% Chalk/Limestone, white 30% Sand, mainly Quartz, angular to subangular, medium Sm.am. Claystone, greenish grey; Claystone, reddish brown; Claystone, black, fissile
C-4584 Core	3109.7	0.17	Sandstone, very fine to fine, angular to subangular, moderately sorted. With silica cement and abundant clay (kaolinite) cement. Local faint laminae observed. Strong bioturbation. Glauconite present. No staining.
C-4485	3100-3115	2.17 0.58 1.09	50% Claystone, grey, noncalcareous, micromicaceous, subfissile, calcareous 20% Claystone, greenish grey to light greenish grey 10% Claystone, greyish red, noncalcareous and occasionally calcareous 20% Sand, medium to coarse, mainly Quartz. As single grains. Sm.am. Chalk/Limestone, white, brittle; Claystone, dark grey, stringy

CORE CHIPS, SIDEWALL CORES AND CUTTINGS

Lithology and Total Organic Carbon measurements

TABLE NO.: 5.
WELL NO.: 6/3-2

Sample	Depth (m)	TOC	Lithology
C-4584 Core	3124.50	0.17	Sandstone, very fine to fine, angular to subangular, moderately sorted. The rock is relatively loose, and porosity is higher than above. Silica cement and some intergranular clay observed. Only traces of a previous lamination, due to strong bioturbation. Glauconite present. No hydrocarbon staining observed.
C-4486	3115-3130		50% Casing cement 10% Claystone, greyish red, noncalcareous blocky 10% Claystone, brownish grey, noncalcareous
		3.19	10% Claystone, dark grey, blocky, noncalcareous
		0.87	10% Claystone, greenish grey, noncalcareous 10% Sand, medium mainly Quartz Sm.am. Claystone, fissile, black; Coal
C-4586 Core	3139.90	0.17	Sandstone, fine to very fine, moderately sorted, angular to subangular silica and clay (kaolinite) cemented. Traces of previous lamination due to heavy bioturbation. No glauconite observed. No hydrocarbon staining.

CORE CHIPS, SIDEWALL CORES AND CUTTINGS

IKU

Lithology and Total Organic Carbon measurements

TABLE NO.: 5.
WELL NO.: 6/3-2

Sample	Depth (m)	TOC	Lithology
C-4487	3130-3145		60% Casing cement 10% Sand, medium mainly Quartz, occurring as single angular to subangular grains 10% Claystone, greyish red, mostly noncalcareous, blocky 10% Claystone, dark grey, noncalcareous, blocky 10% Claystone, brownish grey, noncalcareous, blocky Sm.am. Siderite; Chalk/Limestone, white, blocky; Claystone, block
C-4587 Core	3155.70	0.12	Sandstone, very fine to fine, angular to subangular. Mainly Quartz, but some Feldspar and Glauconite present. Continuous faint parallel lamination observed with ½-1 cm spacing. Bioturbation not as strong as above. No hydrocarbon staining.
C-4488	3145-3160	0.71 2.68	40% Casing cement 20% Claystone, brownish grey, noncalcareous, blocky 10% Claystone, very dark grey to dark grey, 10% Claystone, grey, greenish grey, blocky 10% Claystone, brownish grey 10% Sand, medium, occasionally Sandstone, well cemented Sm.am. Claystone, black, micaceous; Coal; Chalk, white; Marl, reddish brown

CORE CHIPS, SIDEWALL CORES AND CUTTINGS

Lithology and Total Organic Carbon measurements

TABLE NO.: 5.
WELL NO.: 6/3-2

Sample	Depth (m)	TOC	Lithology
C-4588 Core	3170.00	0.10	Sandstone, fine, angular to subangular. Moderate sorting. Mainly Quartz, but also with some Mica and Feldspar. Some Quartz grains have brown coating, probably derived from the source rock. Silica and ?dolomite cemented. The rock is strongly bioturbated. No hydrocarbon staining.
C-4489	3160-3175		30% Sand/Sandstone, medium, mainly as single grains 30% Claystone, grey to greenish grey 20% Claystone, brownish grey, noncalcareous 10% Casing cement
		0.32	10% Marl, reddish brown, subfissile Sm.am. Coal; Chalk, white; Claystone, black
C-4490	3175-3190		40% Claystone, greenish grey, grey, blocky
		0.93	40% Claystone, brownish grey, noncalcareous
		1.72	20% Claystone, greyish red, noncalcareous Sm.am. Chalk/Limestone, white; Claystone, dark grey, black; Coal; Pyrite; Marl, reddish brown
C-4589 Core	3194.10	0.05	Sandstone, fine to coarse, with rock fragments up to 5 mm. Angular to subangular. Low porosity due to extensive calcite cementing. Some intergranular clay giving the rock a faint green colour. Laminated with green Claystone, rich in mica.

CORE CHIPS, SIDEWALL CORES AND CUTTINGS

Lithology and Total Organic Carbon measurements

TABLE NO.: 5.
WELL NO.: 6/3-2

Sample	Depth (m)	TOC	Lithology
C-4491	3190-3205	0.27	60% Sand, fine to coarse, angular to subangular, mainly Quartz with yellowish brown coating, occasionally calcite, cemented 20% Claystone, dark reddish grey, often silty, calcareous, grading to Marl 10% Claystone, greenish grey, noncalcareous
		3.52	10% Claystone, dark grey, fissile, micromicaceous Sm.am. Chalk, white, pink; Coal
C-4492	3205-3220	0.14	70% Sand, fine to coarse, angular to subangular 20% Claystone, dark reddish grey, calcareous, very micaceous 10% Claystone, dark grey, fissile Sm.am. Chalk/Limestone, white; Marl, reddish brown; Claystone, black, fissile Claystone, grey
C-4493	3220-3235	0.02	60% Sand/Sandstone, fine to coarse, angular to subangular, occasionally well calcite cemented 20% Claystone, dark reddish grey, micaceous, silty, noncalcareous 10% Marl, reddish brown 10% Claystone, dark grey to black, micromicaceous, occasionally calcareous Sm.am. Marl, white to reddish white

CORE CHIPS, SIDEWALL CORES AND CUTTINGS

IKU

Lithology and Total Organic Carbon measurements

TABLE NO.: 5.
WELL NO.: 6/3-2

Sample	Depth (m)	TOC	Lithology
C-4494	3235-3250		60% Sand/Sandstone, fine to coarse, angular to subrounded, mainly Quartz, with yellowish brown, coating
		0.46	30% Claystone, grey, greenish grey, noncalcareous
			10% Claystone, greyish red, noncalcareous or slightly calcareous
			Sm.am. Claystone, dark grey, fissile; Chalk, white; Coal
C-4495	3250-3265		70% Sand/Sandstone, fine to coarse, angular to subrounded, mainly Quartz, with yellowish brown staining
		0.49	20% Claystone, green to greenish grey, noncalcareous
			10% Claystone, dark greyish red, micaceous, silty, noncalcareous to slightly calcareous
			Sm.am. Claystone, black, fissile or stringy; Coal
C-4496	3265-3280		60% Sand/Sandstone, fine to coarse, angular to subangular, mainly Quartz, with yellowish brown staining
			20% Chalk, white to reddish brown
			20% Claystone, dark greyish red, reddish brown, micaceous, noncalcareous or slightly calcareous
		2.78	Sm.am. Claystone, very dark grey to black, fissile
			Sm.am. Marl, red; Coal; Claystone, grey to greenish grey

CORE CHIPS, SIDEWALL CORES AND CUTTINGS

IKU

Lithology and Total Organic Carbon measurements

TABLE NO.: 5.
WELL NO.: 6/3-2

Sample	Depth (m)	TOC	Lithology
C-4499	3310-3325	0.25	50% Sand/Sandstone, fine to coarse, with yellowish brown stained grains 30% Chalk; Limestone, white to pink 10% Claystone, dark greyish red, noncalcareous to slightly calcareous 10% Claystone, grey, dark grey to greenish grey, noncalcareous Sm.am. Marl, reddish brown; Coal
C-4500	3325-3340		100% Chalk/Limestone, white, brittle moderately soft, blocky Sm.am. Claystone, dark greyish red; Claystone, grey, greenish grey, brownish grey; Sand, with yellowish brown coating
C-4501	3340-3355	0.18	100% Chalk/Limestone, white to light grey, occasionally with laminae Sm.am. Claystone, dark greyish red; Claystone, grey, greenish grey, brownish grey
C-4503	3370-3385		100% Chalk/Limestone, white to light grey, occasionally pink Sm.am. Claystone, grey, greenish grey, dark grey
C-4514	3535-3550		Contaminated sample. Probably Chalk/Limestone.
C-4575 swc	4030	1.34	Limestone/Marl, very dark grey, probably with high organic content. Thin Limestone laminae present. Subfissile to blocky, soft.

CORE CHIPS, SIDEWALL CORES AND CUTTINGS

Lithology and Total Organic Carbon measurements

TABLE NO.: 5.
WELL NO.: 6/3-2

Sample	Depth (m)	TOC	Lithology
C-4576 swc	4040	0.42	Limestone/Marl, very dark grey to dark brownish grey, with abundant clay and organic material. Relatively soft.
C-4590 Core	4089.20-4089.40	0.07	Sandstone, fine to medium, angular to subangular, with some feldspar and mica. Brown to reddish brown staining of grains, giving the rock an overall pink colour. Abundant kaolinite which together with silica is the main cementing material. Fine, closely spaced, parallell lamination.

TABLE 6.

D A T A F R O M R O C K E V A L P Y R O L Y S I S

IKU No.	DEPTH m/ft	S1	S2	S3	TOC (%)	HYDR. INDEX	OXYGEN INDEX	PETROLEUM POTENTIAL	PROD. INDEX S1/(S1+S2)	TEMP. MAX (C)
		(mg/g ROCK)				(mg/g TOC)		S1+S2		
C 4336	1265	0.65	7.11	8.18	5.26	135	156	7.76	0.08	424
		CUT Clst very dk brn gry								
C 4336	1265	0.84	5.06	4.07	2.55	198	160	5.90	0.14	(416)
		CUT Clst lt brn gry/lt gry								
C 4339	1316	0.50	5.82	4.87	3.45	169	141	6.32	0.08	429
		CUT Clst very dk brn								
C 4378	1630	0.16	0.12	4.52	0.33	36	1370	0.28	0.57	432
		CUT Clst brn gry								
C 4378	1630	0.21	0.22	2.36	0.90	24	262	0.43	0.49	***
		CUT Clst dk brn gry								
C 4399	1810	0.18	2.34	2.37	1.91	123	124	2.52	0.07	432
		CUT Clst brn gry								
C 4405	1900	0.26	3.15	2.23	2.06	153	108	3.41	0.08	431
		CUT Clst brn								
C 4411	2005	0.27	5.82	1.70	3.17	184	54	6.09	0.04	431
		CUT Clst dk brn gry/dk gry								
C 4417	2095	0.22	3.69	1.32	2.94	126	45	3.91	0.06	435
		CUT Clst dk brn gry/dk gry								
C 4424	2200	0.11	0.18	1.49	0.69	26	216	0.29	0.38	***
		CUT Clst lt grn gry/grn gry								
C 4566	2283	0.18	0.10	0.55	0.29	34	190	0.28	0.64	***
		SWC Clst gry								
C 4431	2305	0.27	1.03	2.43	0.41	251	593	1.30	0.21	423
		CUT Tuff								
C 4435	2365	0.31	2.50	0.90	1.52	164	59	2.81	0.11	434
		CUT Clst gry								
C 4567	2402	0.20	0.63	0.53	1.02	62	52	0.83	0.24	420
		SWC Clst gry								
C 4440	2440	0.33	2.02	0.94	1.66	122	57	2.35	0.14	432
		CUT Clst dk gry								
C 4568	2490	0.13	0.12	1.32	0.41	29	322	0.25	0.52	***
		SWC Clst gry								
C 4444	2500	0.15	0.34	0.35	0.88	39	40	0.49	0.31	***
		CUT Clst med to dk gry								
C 4445	2515	0.15	0.17	0.61	0.79	22	77	0.32	0.47	(433)
		CUT Clst dk gry								
C 4446	2530	0.09	0.00	1.79	0.24	0	746	0.09	1.00	***
		CUT Chlk/Lst								
C 4446	2530	0.21	0.54	0.89	1.23	44	72	0.75	0.28	***
		CUT Clst dk red gry								
C 4447	2545	0.08	0.01	1.70	0.23	4	739	0.09	0.89	***
		CUT Chlk/Lst								
C 4452	2620	0.15	0.01	1.66	0.22	5	755	0.16	0.94	***
		CUT Chlk/Lst								
C 4454	2650	0.09	0.02	1.81	0.26	8	696	0.11	0.82	***
		CUT Chlk/Lst								

TABLE 6.

D A T A F R O M R O C K E V A L P Y R O L Y S I S

IKU No.	DEPTH m/ft	S1 (mg/g ROCK)	S2 (mg/g ROCK)	S3 (mg/g ROCK)	TOC (%)	HYDR. INDEX (mg/g TOC)	OXYGEN INDEX (mg/g TOC)	PETROLEUM POTENTIAL S1+S2	PROD. INDEX S1/S1+S2	TEMP. MAX (C)
C 4457	2695	0.08	0.00	0.91	0.08	0	1138	0.08	1.00	***
		CUT Chlk/Lst								
C 4459	2725	0.08	0.00	0.84	0.02	0	4200	0.08	1.00	***
		CUT Chlk								
C 4461	2755	0.04	0.01	1.25	0.15	7	833	0.05	0.80	***
		CUT Chlk/Lst								
C 4460	2760	0.11	0.00	0.81	0.16	0	506	0.11	1.00	***
		CUT Chlk/Lst								
C 4463	2785	0.10	0.01	0.88	0.09	11	978	0.11	0.91	***
		CUT Chlk/Lst								
C 4577	2800.70	0.10	0.03	1.10	0.08	38	1375	0.13	0.77	***
		CORE Chlk/Lst								
C 4465	2805	0.22	2.42	1.56	1.94	125	80	2.64	0.08	430
		CUT Clst dk gry/dk brn gry								
C 4465	2815	0.12	0.36	0.82	0.79	46	104	0.48	0.25	***
		CUT Clst gry grn,brn gry								
C 4467	2845	0.15	1.79	1.65	1.71	105	96	1.94	0.08	(427)
		CUT Clst dk gry/dk brn gry								
C 4578	2857.90	0.07	0.01	1.22	0.12	8	1017	0.08	0.88	***
		CORE Chlk/Lst								
C 4469	2875	0.10	0.03	1.85	0.30	10	617	0.13	0.77	***
		CUT Chlk/Lst								
C 4471	2905	0.15	0.01	2.00	0.29	3	690	0.16	0.94	***
		CUT Chlk/Lst								
C 4473	2935	0.15	0.02	2.77	0.21	10	1319	0.17	0.88	***
		CUT Chlk/Lst								
C 4474	2950	0.09	0.04	1.91	0.07	57	2729	0.13	0.69	***
		CUT Chlk/Lst								
C 4569	2956	0.33	0.49	1.81	0.65	75	278	0.82	0.40	***
		SWC Chlk/Lst								
C 4570	2966	0.12	0.11	1.12	0.26	42	431	0.23	0.52	***
		SWC Chlk/Lst								
C 4476	2980	0.10	0.07	1.18	0.30	23	393	0.17	0.59	***
		CUT Chlk/Lst								
C 4571	2993	0.12	0.03	0.84	0.29	10	290	0.15	0.80	***
		SWC Marl								
C 4477	2995	0.13	0.00	2.16	0.28	0	771	0.13	1.00	***
		CUT Chlk/Lst								
C 4572	3009.50	0.95	1.22	0.78	2.74	45	28	2.17	0.44	***
		SWC Clst very dk gry								
C 4478	3010	0.10	0.03	1.86	0.26	12	715	0.13	0.77	***
		CUT Clst dk red brn								
C 4478	3010	1.05	8.76	2.83	3.20	274	88	9.81	0.11	434
		CUT Clst blk								
C 4573	3024	0.32	1.41	1.35	0.99	142	136	1.73	0.18	429
		SWC Tuff								

TABLE 6.

D A T A F R O M R O C K E V A L P Y R O L Y S I S

IKU No.	DEPTH m/ft	S1	S2	S3	TOC (%)	HYDR. INDEX	OXYGEN INDEX	PETROLEUM POTENTIAL	PROD. INDEX S1/(S1+S2)	TEMP. MAX (C)
		(mg/g ROCK)				(mg/g TOC)		S1+S2		
C 4479	3025	1.46	11.71	2.18	3.46	338	63	13.17	0.11	433
		CUT Clst very dk gry								
C 4479	3025	0.98	7.35	2.51	2.43	302	103	8.33	0.12	433
		CUT Clst dk gry								
C 4574	3026	0.23	0.46	1.26	0.74	62	170	0.69	0.33	***
		SWC Tuff								
C 4480	3040	0.25	1.20	0.75	0.65	185	115	1.45	0.17	436
		CUT Tuff lt gry/lt brn gry								
C 4600	3042.65	0.09	0.05	0.39	0.25	20	156	0.14	0.64	***
		SEAL PEAL, sst								
C 4579	3042.70	0.19	0.05	0.77	0.11	45	700	0.24	0.79	***
		CORE Sst								
C 4481	3055	0.11	0.27	1.67	0.80	34	209	0.38	0.29	***
		CUT Clst gry								
C 4481	3055	1.53	15.43	0.34	3.69	418	9	16.96	0.09	434
		CUT Clst blk								
C 4481	3055	0.11	0.02	1.34	0.01	***	13400	0.13	0.85	***
		CUT Chlk/Lst								
C 4580	3055.60	0.12	0.02	0.49	0.12	17	408	0.14	0.86	***
		CORE Sst								
C 4581	3063.50	0.07	0.00	0.32	0.08	0	400	0.07	1.00	***
		CORE Sst								
C 4582	3078.50	0.10	0.00	0.36	0.11	0	327	0.10	1.00	***
		CORE Chlk/Lst								
C 4483	3085	0.46	3.43	1.74	1.88	182	93	3.89	0.12	432
		CUT Clst dk gry/dk brn gry								
C 4483	3085	1.39	13.07	1.75	3.66	357	48	14.46	0.10	433
		CUT Clst blk/fissile								
C 4583	3094.90	0.10	0.00	0.49	0.14	0	350	0.10	1.00	***
		CORE Sst								
C 4584	3109.70	0.08	0.00	0.64	0.17	0	376	0.08	1.00	***
		CORE Sst								
C 4485	3115	0.10	0.08	2.23	1.09	7	205	0.18	0.56	***
		CUT Clst gry red								
C 4485	3115	0.13	0.12	3.21	0.58	21	553	0.25	0.52	***
		CUT Clst grn gry								
C 4485	3115	0.05	0.03	0.00	2.17	1	0	0.08	0.63	***
		CUT Clst gry								
C 4585	3124.50	0.13	0.03	0.34	0.26	12	131	0.16	0.81	***
		CORE Chlk/Lst								
C 4486	3130	0.31	0.78	0.85	3.19	24	27	1.09	0.28	433
		CUT Clst dk gry								
C 4586	3139.90	0.13	0.00	0.48	0.17	0	282	0.13	1.00	***
		CORE Sst								
C 4587	3155.70	0.12	0.00	0.40	0.12	0	333	0.12	1.00	***
		CORE Sst								
C 4488	3160	0.12	0.36	0.99	0.71	51	139	0.48	0.25	***
		CUT Clst brn								

TABLE 6.

D A T A F R O M R O C K E V A L P Y R O L Y S I S

IKU No.	DEPTH m/ft	S1 (mg/g ROCK)	S2 (mg/g ROCK)	S3 (mg/g ROCK)	TOC (%)	HYDR. INDEX (mg/g TOC)	OXYGEN INDEX (mg/g TOC)	PETROLEUM POTENTIAL S1+S2	PROD. INDEX S1/(S1+S2)	TEMP. MAX (C)
C 4488	3160	0.62	6.69	1.11	2.68	250	41	7.31	0.08	432
		CUT Clst dk gry								
C 4488	3160	0.32	2.28	1.69	1.49	153	113	2.60	0.12	433
		CUT Clst gry w/dk m-mic								
C 4588	3170	0.13	0.00	0.20	0.10	0	200	0.13	1.00	***
		CORE Sst								
C 4489	3175	0.14	0.06	0.65	0.32	19	203	0.20	0.70	***
		CUT Sst								
C 4490	3190	0.16	0.64	0.71	0.93	69	76	0.80	0.20	431
		CUT Clst brn gry								
C 4490	3190	0.23	1.57	1.22	1.72	91	71	1.80	0.13	432
		CUT Clst grn red								
C 4589	3194.10	0.04	0.00	0.68	0.05	0	1360	0.04	1.00	***
		CORE Sst								
C 4491	3205	0.06	0.00	0.68	0.02	0	3400	0.06	1.00	***
		CUT Clst dk red gry								
C 4491	3205	0.08	0.01	0.93	0.27	4	344	0.09	0.89	***
		CUT Sst								
C 4491	3205	1.81	12.85	0.46	3.52	365	13	14.66	0.12	435
		CUT Clst dk gry								
C 4492	3220	0.05	0.00	0.93	0.14	0	664	0.05	1.00	***
		CUT Sst								
C 4493	3235	0.06	0.00	0.65	0.02	0	3250	0.06	1.00	***
		CUT Sst								
C 4495	3265	0.07	0.14	0.48	0.49	29	98	0.21	0.33	***
		CUT Clst grn/grn gry								
C 4496	3280	0.88	7.76	0.36	2.78	279	13	8.64	0.10	432
		CUT Clst very dk gry to blk								
C 4499	3325	0.14	0.00	0.67	0.25	0	268	0.14	1.00	***
		CUT Sst								
C 4501	3355	0.21	0.00	0.54	0.18	0	300	0.21	1.00	***
		CUT Chlk/Lst								
C 4575	4030	16.58	1.33	1.03	1.34	99	77	17.91	0.93	441
		SWC Lst/marl very dk gry								
C 4576	4040	3.10	0.43	1.00	0.42	102	238	3.53	0.88	435
		SWC Lst/Marl dk gry								
C 4590	4089.40	0.20	0.00	0.53	0.07	0	757	0.20	1.00	***
		CORE Sst								

DATE : 18 - 7 - 86.

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Visual Kerogen Analysis

TABLE NO.: 7.
WELL NO.: 6/3-2

Sample	Depth (m)	Composition of residue	Particle size	Preservation palynomorphs	Thermal maturation index	Remarks
C-4339	1305-1316 Clst;dk brnsh gy	Am(97%),Cy,P+S	F-M-L	Fair	1+	Dominated by fine-particulate amorphous organic matter and medium sized to large dark granulate aggregates containing algal/bacterial remains and some pyrite.
C-4405	1885-1900 Clst; med dk brnsh gy	Am(80%),W(5-10%), P+S(5%),Cut,Cy,W,R!	F-M-L	Fair	1+	Dominated by degraded amorphous and granulate aggregates. Significant amounts of terrestrial palynomorphs and structural woody material. Pyrite frequent.
C-4411	1990-2005 Clst;dk gy	Am(95%),P+S,W,R!	M-L	Poor-Fair	1+ (2-)	Dominated by amorphous medium and large sized brown to dark granulate aggregates. Palynomorphs are rare, and few structured woody phytoclasts are recorded.

ABBREVATIONS

Am	Amorphous	Cy	Cysts, algae	W	Woody material	F	Fine
He	Herbaceous	P	Pollen grains	C	Coal	M	Medium
Cut	Cuticles	S	Spores	R!	Reworked	L	Large

Si = sieved material
* = Small organic residue

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Visual Kerogen Analysis

TABLE NO.: 7.
WELL NO.: 6/3-2

Sample	Depth (m)	Composition of residue	Particle size	Preservation palynomorphs	Thermal maturation index	Remarks
C-4566 swc	2283 Clst; (grnsh) gy	Am,P,Cut?,W,R!	F-M		1?	*Si: Residue totally dominated of heavy minerals. A few woody particles, cuticle fragments? and palynomorphs, together with small amorphous aggregates are recorded.
C-4435	2350-2365 Clst;gy	Am(85%),P+S(5%),W(5%) Cut,Cy,R!	F-M-L	Fair	1+/2-	Dominated by fine-particulate amorphous matter, thin light flakey and medium sized to large granulate material containing algal/bacterial remains. Terrestrial palynomorphs and structured woody phytoclasts present in significant amount. Pyrite framboids very frequent.
C-4567 swc	2402 Clst; med gy	Am(90%),R!(5%),Cy,P+S, W	F-M-(L)	Good	1+	*Si: Dominated of fine-particulate amorphous matter and medium-sized granulate aggregates containing pyrite and algal/-bacterial remains.

ABBREVATIONS

Am	Amorphous	Cy	Cysts, algae	Si = sieved material		F	Fine
He	Herbaceous	P	Pollen grains	* = Small organic residue		M	Medium
Cut	Cuticles	S	Spores	W	Woody material	L	Large
				C	Coal		
				R!	Reworked		

IKU

Visual Kerogen Analysis

TABLE NO.: 7.
WELL NO.: 6/3-2

Sample	Depth (m)	Composition of residue	Particle size	Preservation palynomorphs	Thermal maturation index	Remarks
C-4440	2425-2440 Clst;dk gy	Am(85-90%),P+S(5%),W(5%) Cy,R!	F-M-L	Fair-Good	1+	Dominated by fine-particulate light grey amorphous matter, thin flakey material and granulate aggregates of variable size. Some terrestrial derived present. Pyrite frequent.
C-4577 Core	2800,70 Chlk/Lst	Am,Cy,P+S,W,R!	F-M	Good	1+	*Si: Organic residue too small to give quantitative estimates, however, fine-particulate amorphous matter and granulate aggregates may dominate. Both structured light brown woody materia and reworked woody phytoclasts recorded. Pollen, spores and dinoflagellate cysts present.

111

ABBREVATIONS

Si = sieved material
* = Small organic residue

Am	Amorphous	Cy	Cysts, algae	W	Woody material	F	Fine
He	Herbaceous	P	Pollen grains	C	Coal	M	Medium
Cut	Cuticles	S	Spores	R!	Reworked	L	Large

IKU

Visual Kerogen Analysis

TABLE NO.: 7.
WELL NO.: 6/3-2

Sample	Depth (m)	Composition of residue	Particle size	Preservation palynomorphs	Thermal maturation index	Remarks
C-4578 Core	2857,90 Chlk/Lst	Am,Cy,P+S,W,R!	F-M	Good	1+	*Si: Organic residue is too small to give quantitative estimates. Fine-particulate amorphous material is recorded together with medium granulate aggregates. Reworked woody fragments are relatively common, structured woody material is barely present.
C-4473	2920-35 Chlk/Lst.	Am,Cy,P+S,W,R!	F-M	Fair-Good	1+/2-	Organic residue is too small to give quantitative estimates. Amorphous organic matter occurs together with palynomorphs, structured woody material and inert reworked fragments. Pyrite present.

ABBREVATIONS

Am	Amorphous	Cy	Cysts, algae	Si = sieved material		F	Fine
He	Herbaceous	P	Pollen grains	* = Small organic residue		M	Medium
Cut	Cuticles	S	Spores	W	Woody material	L	Large
				C	Coal		
				R!	Reworked		

IKU

Visual Kerogen Analysis

TABLE NO.: 7.
WELL NO.: 6/3-2

Sample	Depth (m)	Composition of residue	Particle size	Preservation palynomorphs	Thermal maturation index	Remarks
C-4569 swc	2956 Chlk/Lst	Am,Cy,P+S,W,R!	F-M	Good	1+	*Si: Organic residue is too small to give quantitative estimates, however, fine-particulate amorphous matter and medium granulate aggregates seem to dominate. Small reworked black woody particles are relatively frequent, structured brown woody fragments are rare.
C-4571 swc	2993 Mrl;rds gy	A,W.R!	F-M		N.D.P.	*Si: Organic residue is too small to give quantitative estimate. Amorphous material is mot common.
C-4572 swc	3009.50 Clst;v dk gy	Am(85%),W(10%),Cut,Cy P,R!	F-M-L	Fair	1+/2-	Dominated by fine-particulate amorphous matter and granulate aggregates with abundant pyrite framboids. Degraded cellular fragments are relatively common together with light brown woody structured particles.

ABBREVATIONS

Si = sieved material
* = Small organic residue

Am	Amorphous	Cy	Cysts, algae	W	Woody material	F	Fine
He	Herbaceous	P	Pollen grains	C	Coal	M	Medium
Cut	Cuticles	S	Spores	R!	Reworked	L	Large

IKU

Visual Kerogen Analysis

TABLE NO.: 7.
WELL NO.: 6/3-2

Sample	Depth (m)	Composition of residue	Particle size	Preservation palynomorphs	Thermal maturation index	Remarks
C-4478	2995-3010 Clst;blk	Am(95%),Cy,P,S,W,R!	F-M-L	Poor	2-	Dominated by fine particulate amorphous matter, thin flaky material and granulate aggregates of variable size. Pyrite very frequent.
C-4479 (1)	3010-3025 Clst;black v dk gy	Am(95%),Cy,P+S,W,R!	F-M-L	Poor-Fair	1+	Totally dominated by fine-particulate greyish amorphous matter and brown to dark granulate aggregates, frequently containing bacterial/-algal remains. Palynomorphs very rare. Microforaminifera recorded. Pyrite frequent.
C-4479 (2)	3010-3025 Clst;dk gy	Am(95%),Cy,P+S,W,R!	(F)-M-L	Fair	1+ (2-)	As for sample described above but with mostly medium sized and large granulate aggregates. In addition flakey material. Minor fine-particulate greyish amorphous matter.

ABBREVATIONS

Si = sieved material
* = Small organic residue

Am	**Amorphous**	**Cy**	**Cysts, algae**	**W**	**Woody material**	**F**	**Fine**
He	**Herbaceous**	**P**	**Pollen grains**	**C**	**Coal**	**M**	**Medium**
Cut	**Cuticles**	**S**	**Spores**	**R!**	**Reworked**	**L**	**Large**

Visual Kerogen Analysis

TABLE NO.: 7.
WELL NO.: 6/3-2

Sample	Depth (m)	Composition of residue	Particle size	Preservation palynomorphs	Thermal maturation index	Remarks
C-4485	3100-3115 Clst;gy	Am(90%),P+S(5%),Cy,W,R!	F-M-L	Fair-Good	1+ (2-)	Dominated by fine-particulate greyish amorphous matter and medium sized to large granulate aggregates containing algal/-bacterial remains. Pollen and spores relatively common. Structured woody particles present, but rare. Pyrite very frequent. With some reworked Cretaceous (?) dinoflagellate cysts.
C-4486	3115-3130 Clst;dk gy	Am(90%),Cut,Cy,P+S,R!	F-M-L	Good	1+/2-	Dominated by fine-particulate amorphous matter and granulate aggregates. Pollen and spores relatively common. Rare, but well preserved, cuticle sheet and woody fragments present.
C-4488 (1)	3145-3160 Clst;med gy w/thin lam	Am(90%),P+S(5-10%),W(5%),R!	F-M-L	Fair-Good	1+/2-	Dominated by degraded fine-particulate amorphous matter and brown to dark granulate aggregates of variable size. Terrestrial derived material relatively common. Pyrite very abundant.

ABBREVATIONS

Am	Amorphous	Cy	Cysts, algae	W	Woody material	F	Fine
He	Herbaceous	P	Pollen grains	C	Coal	M	Medium
Cut	Cuticles	S	Spores	R!	Reworked	L	Large

Si = sieved material
* = Small organic residue

IKU

Visual Kerogen Analysis

TABLE NO.: 7.
WELL NO.: 6/3-2

Sample	Depth (m)	Composition of residue	Particle size	Preservation palynomorphs	Thermal maturation index	Remarks
C-4488 (2)	3145-3160 Clst;dk gy	Am(90-95%),P+S,W,R!	F-M-L	Fair-Good	1+/2-	As for sample C-4488 above, but with fewer palynomorphs and less structured woody particles. Tasmanitids and microforaminifera recorded. (Both samples show a relative high proportion of large granulate aggregates).
C-4490	3175-3190 Clst;brn gy	Am(97%),Cy,P+S,R!	F-M-L	Fair-Good	1+/2-	Dominated by degraded fine-particulate amorphous matter and medium sized to large brown and dark granulate aggregates containing algal/-bacterial remains and some pyrite.
C-4491	3190-3205 Clst; dk redsh. gy	Am,W,R!	M	No palynomorphs observed.	NDP	Organic residue too small to give any quantitative estimate. Few amorphous granulate aggregates, structured woody particles and black inert fragments recorded.

ABBREVATIONS

Si = sieved material
* = Small organic residue

Am	Amorphous	Cy	Cysts, algae	W	Woody material	F	Fine
He	Herbaceous	P	Pollen grains	C	Coal	M	Medium
Cut	Cuticles	S	Spores	R!	Reworked	L	Large

IKU

Visual Kerogen Analysis

TABLE NO.: 7.
WELL NO.: 6/3-2

Sample	Depth (m)	Composition of residue	Particle size	Preservation palynomorphs	Thermal maturation index	Remarks
C-4575 swc	4030 Lst/Mrl v dk gy	Am:90%,P+S:5%,W:5%,Cut:? R!	F-M-L	Poor	2?	Dominated of amorphous material and degraded cellular fragments of possible terrestrial origin. Degraded pollen-remains are relatively common.
C-4576 swc	4040 Lst/Mrl; dk gy	Am(80%),W(10%),P+S(5%),R!	F-M-L	Poor	2?	As for sample C-4575, but with a higher proportion of degraded cellular material.

ABBREVATIONS

Am	Amorphous	Cy	Cysts, algae	Si	= sieved material	F	Fine
He	Herbaceous	P	Pollen grains	*	= Small organic residue	M	Medium
Cut	Cuticles	S	Spores	W	Woody material	L	Large
				C	Coal		
				R!	Reworked		

Well Identification:6/3-2
Reference number:22.1826

Table 8: (1/2)

VITRINITE REFLECTANCE DATA

IKU NO	LOCATION	DEPTH (M)	VITRINITE REFLECTANCE	PP	STANDARD DEVIATION	FLUORE-SCENCE
C 4339	----	1316	0.37 (6)	Y	0.06	1-3
			0.77 (6)	N	0.13	
			1.18 (1)	N	0.00	
C 4372	----	1540	0.31 (19)	Y	0.10	1-3
			0.82 (1)	N	0.00	
C 4399	----	1810	0.26 (9)	Y	0.05	2-4
			0.85 (3)	N	0.12	
C 4405	----	1900	0.30 (11)	Y	0.08	2-4
			0.57 (2)	N	0.11	
C 4411	----	2005	0.33 (20)*	Y	0.09	3-4
C 4417	----	2095	0.32 (3)	Y	0.11	2-3
C 4431	----	2305	0.39 (3)	Y	0.17	3-4
			0.77 (2)	N	0.04	
C 4467	----	2402.0	0.43 (2)	N	0.22	2-4
			0.95 (2)	N	0.05	
			1.86 (1)	N	0.00	
C 4440	----	2440	0.34 (18)*	Y	0.09	3-4
			1.19 (2)	N	0.05	
C 4444	----	2500	0.54 (14)R	Y	0.13	4?
			1.20 (6)	N	0.19	
C 4465	----	2815	0.34 (11)	Y	0.05	2-4
			0.56 (7)	N	0.04	
			1.03 (1)	N	0.00	
C 4572	----	3009.5	0.34 (6)	Y	0.07	2-3
(Ex)			0.22 (4)B	N	0.00	
			0.69 (7)	N	0.11	
C 4478	----	3010	0.47 (5)	Y	0.06	3
			1.13 (1)	N	0.00	
C 4479	----	3025	0.31 (19)	Y	0.07	3-5
			0.66 (1)	N	0.00	

*=Readings are reasonably representative
R=This principal population contains reworked material
N.D.P.=No determination possible
B=Average reflectance value may be slightly low due to bitumen staining or poor preservation.
Ex=Sample was extracted prior to reflectance determination due to problems with the mounting resin

Well Identification:6/3-2
Reference number:22.1826
(2/2)

Table 8 continued:

VITRINITE REFLECTANCE DATA

IKU NO	LOCATION	DEPTH (M)	VITRINITE REFLECTANCE	PP	STANDARD DEVIATION	FLUORE-SCENCE
C 4481	----	3055	0.38 (12)	Y	0.10	2-4
			0.77 (7)	N	0.06	
			1.07 (1)	N	0.00	
C 4485	----	3115	0.35 (13)	Y	0.09	2-4
			0.83 (4)	N	0.13	
C 4490	----	3190	0.42 (16)	Y	0.07	2
			0.72 (3)	N	0.06	
			1.16 (1)	N	0.00	

*=Readings are reasonably representative
R=This principal population contains reworked material
N.D.P.=No determination possible
B=Average reflectance value may be slightly low due to bitumen staining or poor preservation

Table 9: Well 6/3-2. Stable carbon isotopes, $\delta^{13}C$ (o/oo PDB).

Sample	Depth (m)	SAT	ARO	HET (polar compounds)	ASPH	KER	EOM	CV
C-4481	3055	-31.25	-30.86	-31.02	-29.67	-28.44	-30.72	-1.10
C-4569	2956	-28.24	-27.46	-32.55	-27.92	0.00	-29.06	-1.16
C-4574	3026	-29.16	-28.57	-33.10	-29.04	0.00	0.00	-1.30
C-4580	3055.60	-28.37	-28.01	-32.69	-28.74	0.00	-29.03	-2.06
C-4582	3078.70	-28.76	-28.95	-30.00	-29.38	0.00	-29.10	-3.16
C-4600	3042.40-3042.65	-28.67	-28.09	-27.60	-29.15	0.00	-29.31	-1.47

Reanalysed samples: del 13C (% PDB).

C-4481	ARO	-30.85	-30.87	-30.86
C-4481	KER	-28.40	-28.47	-28.44
C-4569	SAT	-28.23	-28.24	-28.24
C-4600	ASPH	-29.14	-29.16	-29.15

STANDARD DEVIATION: +- 0.03%

Project no.: 22.1826
Well ident.: 6/3-2

T A B L E 10a.

WEIGHT OF EOM AND CHROMATOGRAPHIC FRACTIONS
Hydrocarbon stainings on limestones,sandstones and tuff.

Iatroscan data

IKU-No	DEPTH (m)	Rock Extr. (g)	EOM (mg)	Sat. (mg)	Aro. (mg)	Polar (mg)	Asph. (mg)	TOC (%)
C 4452	2620	11.5	2.10	0.28	0.25	1.43	0.10	0.22
			Chlk/lst. TLC.					
C 4577	2800.70	12.3	4.80	0.67	0.81	1.99	1.81	0.16
		Core.		Chlk/lst.				
C 4569	2956	0.2	3.20	0.16	0.20	1.35	1.39	0.30
		SWC.		Chlk/lst.				
C 4574	3026	6.8	6.00	0.56	0.84	2.72	1.75	0.85
		SWC.		Tuff.				
C 4600	3042.65	3.8	0.90	0.15	0.14	0.53	0.08	0.20
		Core.	Seal peal.		Sst.			
C 4580	3055.60	5.1	9.10	0.53	0.70	3.98	3.66	0.19
		Core.		Sst.				
C 4582	3078.70	6.2	4.30	0.44	0.26	2.30	1.25	0.16
		Core.		Sst.				
C 4584	3109.70	9.4	0.80	0.05	0.05	0.58	0.07	0.20
		Core.		Sst.				
C 4588	3170	12.3	0.40	0.01	0.01	0.37	0.01	0.13
		Core.	Triassic.	Sst.				

Project no.: 22.1826
Well ident.: 6/3-2

T A B L E 10b.

WEIGHT OF EOM AND CHROMATOGRAPHIC FRACTIONS
Claystones.

Iatroscan data

IKU-No	DEPTH (m)	Rock Extr. (g)	EOM (mg)	Sat. (mg)	Aro. (mg)	Polar (mg)	Asph. (mg)	TOC (%)
C 4478	3010	0.4	2.40	0.40	0.67	1.11	0.20	2.16
C 4479	3025	3.6	14.90	2.28	1.80	12.36	3.20	3.46
		Clst blk .Grav. caved						
C 4479	3025	0.7	1.90	0.39	0.74	0.53	0.23	2.43
		Clst dk.						
C 4481	3055	3.6	2.60	0.31	0.73	1.46	0.03	2.73
		Caved						
C 4488	3160	2.7	0.80	0.13	0.27	0.38	0.01	2.32
		Caved						
C 4491	3205	1.2	2.70	0.75	0.85	0.95	0.12	3.48
		Caved						

Grav - gravimetric determination of weights

Project no.: 22.1826
Well ident.: 6/3-2

T A B L E 10c.

CONCENTRATION OF EOM AND CHROMATOGRAPHIC FRACTIONS

(Weight ppm of rock)

Hydrocarbon stainings

IKU-No	DEPTH (m)	Iatroscan data EOM	Sat.	Aro.	Polar	Asph.
C 4452	2620	182	24	22	124	9
		Chlk/lst. TLC.				
C 4577	2800.70	391	55	66	162	147
		Core.	Chlk/lst.			
C 4569	2956	16842	842	1053	7105	7316
		SWC.	Chlk/lst.			
C 4574	3026	877	82	123	398	256
		SWC.	Tuff.			
C 4600	3042.65	234	39	36	138	21
		Core. Seal peal.		Sst.		
C 4580	3055.60	1802	105	139	788	725
		Core.	Sst.			
C 4582	3078.70	689	71	42	369	200
		Core.	Sst.			
C 4584	3109.70	85	5	5	62	7
		Core.	Sst.			
C 4588	3170	32	1	1	30	1
		Core.	Sst.			

Project no.: 22.1826
Well ident.: 6/3-2

T A B L E 10d.

CONCENTRATION OF EOM AND CHROMATOGRAPHIC FRACTIONS

(Weight ppm of rock)

Claystones

IKU-No	DEPTH (m)	Iatroscan data EOM	Sat.	Aro.	Polar	Asph.
C 4478	3010	5714	952	1595	2643	476
C 4479	3025	4116	630	497	3414	884
		Clst blk . Grav. Caved				
C 4479	3025	2714	557	1057	757	329
		Clst dk.				
C 4481	3055	714	85	201	401	8
		Caved				
C 4488	3160	293	48	99	139	4
		Caved				
C 4491	3205	2269	630	714	798	101
		Caved				

Grav - gravimetric determination of weights

Project no.: 22.1826
Well ident.: 6/3-2

T A B L E 10e.

CONCENTRATION OF EOM AND CHROMATOGRAPHIC FRACTIONS

(mg/g TOC)

Hydrocarbon stainings

IKU-No	DEPTH (m)	Iatroscan data EOM	Sat.	Aro.	Polar	Asph.
C 4452	2620	82.9	11.05	9.86	56.42	3.95
			Chlk/lst. TLC.			
C 4577	2800.70	244.3	34.10	41.23	101.28	92.12
		Core.		Chlk/lst.		
C 4569	2956	5614.0	280.70	350.88	2368.42	2438.60
		SWC.		Chlk/lst.		
C 4574	3026	103.2	9.63	14.45	46.78	30.10
		SWC.		Tuff.		
C 4600	3042.65	117.2	19.53	18.23	69.01	10.42
		Core.	Seal peal.		Sst.	
C 4580	3055.60	948.4	55.24	72.95	414.80	381.45
		Core.		Sst.		
C 4582	3078.70	430.7	44.07	26.04	230.37	125.20
		Core.		Sst.		
C 4584	3109.70	42.5	2.65	2.65	30.79	3.72
		Core.		Sst.		
C 4588	3170	24.9	0.62	0.62	23.06	0.62
		Core.		Sst.		

Project no.: 22.1826
Well ident.: 6/3-2

T A B L E 10f.

CONCENTRATION OF EOM AND CHROMATOGRAPHIC FRACTIONS

(mg/g TOC)

Claystones

IKU-No	DEPTH (m)	Iatroscan data EOM	Sat.	Aro.	Polar	Asph.
C 4478	3010	264.6	44.09	73.85	122.35	22.05
C 4479	3025	119.0	18.20	14.37	98.68	25.55
		Clst blk . Grav. Caved				
C 4479	3025	111.7	22.93	43.50	31.16	13.52
		Clst dk.				
C 4481	3055	26.2	3.12	7.35	14.69	0.30
		Caved				
C 4488	3160	12.6	2.05	4.26	6.00	0.16
		Caved				
C 4491	3205	65.2	18.11	20.53	22.94	2.90
		Caved				

Grav - gravimetric determination of weights

Project no.: 22.1826
Well ident.: 6/3-2

T A B L E 10g.

COMPOSITION OF MATERIAL EXTRACTED FROM THE ROCK

Hydrocarbon stainings

			Iatroscan data					
IKU-No	DEPTH	Sat --- EOM %	Aro --- EOM %	Polar --- EOM %	SAT --- Aro x 100	Asph. --- EOM %	Polar --- Asph. x 100
	(m)						
C 4452	2620	13.33	11.90	68.10	112.00	4.76	1430.00
			Chlk/lst.	TLC.			
C 4577	2800.70	13.96	16.88	41.46	82.72	37.71	109.94
		Core.		Chlk/lst.			
C 4569	2956	5.00	6.25	42.19	80.00	43.44	97.12
		SWC.		Chlk/lst.			
C 4574	3026	9.33	14.00	45.33	66.67	29.17	155.43
		SWC.		Tuff.			
C 4600	3042.65	16.67	15.56	58.89	107.14	8.89	662.50
		Core.	Seal peal.		Sst.		
C 4580	3055.60	5.82	7.69	43.74	75.71	40.22	108.74
		Core.		Sst.			
C 4582	3078.70	10.23	6.05	53.49	169.23	29.07	184.00
		Core.		Sst.			
C 4584	3109.70	6.25	6.25	72.50	100.00	8.75	828.57
		Core.		Sst.			
C 4588	3170	2.50	2.50	92.50	100.00	2.50	3700.00
		Core.		Sst.			

Grav.= Gravimetric weight determination

TLC =Thin-layer chromatography

Project no.: 22.1826
Well ident.: 6/3-2

T A B L E 10h.

COMPOSITION OF MATERIAL EXTRACTED FROM THE ROCK

Claystones

Iatroscan data

IKU-No	DEPTH (m)	Sat EOM %	Aro EOM %	Polar EOM %	SAT / Aro x 100	Asph. EOM %	Polar / Asph. x 100
C 4478	3010	16.67	27.92	46.25	59.70	8.33	555.00
C 4479	3025	15.30	12.08	82.95	126.67	21.48	386.25
		Clst blk. Grav. Caved					
C 4479	3025	20.53	38.95	27.89	52.70	12.11	230.43
		Clst dk.					
C 4481	3055	11.92	28.08	56.15	42.47	1.15	4866.67
		Caved					
C 4488	3160	16.25	33.75	47.50	48.15	1.25	3800.00
		Caved					
C 4491	3205	27.78	31.48	35.19	88.24	4.44	791.67
		Caved					

Grav.= Gravimetric weight determination

TLC =Thin-layer chromatography

T A B L E 11a.

TABULATION OF DATA FROM THE GASCHROMATOGRAMS

Hydrocarbon stainings

IKU No.	DEPTH (m)	PRISTANE / PHYTANE = A	PRISTANE / n-C17 = B	PHYTANE / n-C18	A / B	n-C17 / n-C27	CPI
C 4452	2620	3.0	0.8	0.5	1.6	15.7	1.1
			Chlk/lst. TLC.				
C 4577	2800.70	1.5	0.9	0.4	2.1	1.1	1.1
		Core.	Chlk/lst.				
C 4569	2956	0.8	0.8	0.7	1.2	0.9	1.1
		SWC.	Chlk/lst.				
C 4574	3026	1.6	0.9	0.6	1.5	3.0	1.1
		SWC.	Tuff.				
C 4600	3042.65	2.2	1.0	0.4	2.3	0.4	1.0
		Core.	Seal peal.	Sst.			
C 4580	3055.60	1.2	0.8	0.5	1.8	1.9	1.1
		Core.	Sst.				
C 4582	3078.70	1.3	0.8	0.6	1.4	2.6	1.1
		Core.	Sst.				
C 4584	3109.70	1.3	1.1	0.6	1.9	1.9	1.1
		Core.	Sst.				
C 4588	3170	0.5	0.8	1.0	0.8	0.6	1.0
		Core.	Sst.				

DATE : 15 - 7 - 86.

T A B L E 11b.

TABULATION OF DATA FROM THE GASCHROMATOGRAMS
Claystones.

Claystones

IKU No.	DEPTH (m)	PRISTANE / PHYTANE A	PRISTANE / n-C17 B	PHYTANE / n-C18	A / B	n-C17 / n-C27	CPI
C 4478	3010	1.2	0.8	0.7	1.2	1.9	1.1
C 4479	3025	2.0	1.2	0.8	1.5	2.3	1.0
		Clst blk. Grav. Caved					
C 4479	3025	1.9	1.3	0.7	1.9	2.2	1.0
		Clst dk.					
C 4481	3055	1.4	0.9	0.7	1.2	1.9	1.1
		Caved					
C 4488	3160	1.4	1.0	0.8	1.3	1.7	1.2
		Caved					
C 4491	3205	1.6	1.0	0.8	1.3	1.9	1.1
		Caved					

DATE : 15 - 7 - 86.

Table 11c: MP-indices from aromatic hydrocarbons.
Indigenous hydrocarbons. Well 6/3-2.

Sample no.	Depth (m RKB)	Sample type	MPI-1	MPI-2
C-4478 (blk)	2995-3010	Cu	0.8(1)	0.6(7)
C-4479 (dk gy)	3010-3025	Cu	0.8(8)	0.6(6)
C-4479 (blk)	3010-3025	Cu	0.7(9)	0.5(9)
C-4481 (blk)	3040-3055	Cu	0.7(8)	0.6(5)
C-4488 (dk gy)	3145-3160	Cu	0.8(4)	0.5(8)
C-4491 (dk gy)	3190-3205	Cu	0.7(5)	0.5(3)

Table 11d: MP-indices from aromatic hydrocarbons.
Non-indigenous hydrocarbons. Well 6/3-2.

Sample no.	Depth (m RKB)	Sample type	MPI-1	MPI-2
C-4452	2605-2620	Cu	N.D.P.	N.D.P.
C-4577	2800.70	Core	N.D.P.	N.D.P.
C-4569	2956	swc	N.D.P.	N.D.P.
C-4574	3026	swc	N.D.P.	N.D.P.
C-4600	3042.65	Seal peal	0.9(4)	0.8(4)
C-4580	3055.60	Core	N.D.P.	N.D.P.
C-4582	3078.70	Core	N.D.P.	N.D.P.
C-4584	3124.50	Core	N.D.P.	N.D.P.
C-4588	3170	Core	N.D.P.	N.D.P.

N.D.P. - No Determination Possible
( ) - insignificant siffre

Table 11e

Background data from GC analysis of
saturated hydrocarbons

IKU - Institutt for kontinentalsokkelundersokelser og petroleumtekn.

HP 5730A

Channel:3 Title: HP-5730 Date 8/ 7/86 Time 9:16
Analysis:826C4452S Sample Name:STATOI_ 6/3-2 SAT
Sample 1 Injection 1

PK.#	R/T	Height	Area	Identity	Type
2	9.800	102347	569680	n-C13	O
8	12.797	597449	4072410	n-C14	O
14	15.741	610267	3726985	n-C15	O
20	18.573	464750	3442248	n-C16	O
25	21.309	406641	1858501	n-C17	O
26	21.560	218672	1449848	Pristane	O
32	23.901	231261	978287	n-C18	O
33	24.195	71660	477013	Phytane	O
36	26.371	83486	373151	n-C19	M
39	28.760	58746	246332	n-C20	LO
40	31.043	49705	190703	n-C21	FO
43	33.224	46649	212069	n-C22	
45	35.315	43681	162544	n-C23	
46	37.325	39595	168321	n-C24	
47	39.256	34575	161249	n-C25	
50	41.123	29871	129966	n-C26	
51	42.920	25922	102749	n-C27	
52	44.643	20646	89955	n-C28	
53	46.328	19986	77043	n-C29	
54	47.955	12891	66370	n-C30	O
56	49.517	13699	56892	n-C31	LO
57	52.557	6940	34978	n-C33	
59	54.333	4843	33921	n-C34	
60	56.429	2690	19544	n-C35	
Total		5619646	40128880		

Sample Type: SA Scale Factor: 1.000 Amount: 1.000 Bottle: 1
Method: TB Calibration: TB Type: UC

5wAnalysis:3 826C4569S,1,,10w
Created at 10:04 on 09/Jul/86

IKU - Institutt for kontinentalsokkelundersokelser og petroleumtekn.

HP 5730A

Channel:3 Title: HP-5730 Date 3/ 7/86 Time 15: 8
Analysis:826C4569S Sample Name:STATOI_ 6/3-2 SAT
Sample 1 Injection 1

PK.£	R/T	Height	Area	Identity	Type
1	15.755	1827	5980	n-C15	
2	18.597	9310	30808	n-C16	
6	21.341	18720	68646	n-C17	
7	21.592	10623	53635	Pristane	O
10	23.960	28837	103087	n-C18	
11	24.285	11967	69631	Phytane	M
13	26.467	31988	158983	n-C19	OM
16	28.861	28772	142117	n-C20	LO
17	31.155	24423	95919	n-C21	FO
19	33.336	22943	111722	n-C22	FO
21	35.443	19769	72697	n-C23	
22	37.453	18697	83546	n-C24	
23	39.384	19662	87431	n-C25	
24	41.245	21314	88154	n-C26	
27	43.053	20868	80609	n-C27	
28	44.787	19407	99489	n-C28	FO
31	46.461	20757	135140	n-C29	O
32	47.928	3024	16932	n-C30	O
35	49.645	15218	63909	n-C31	
37	52.701	9100	42938	n-C33	LO
38	54.509	5347	36783	n-C34	
39	56.664	3120	26014	n-C35	
40	59.272	2251	26798	n-C36	O
Total		425832	2153424		

Sample Type: SA Scale Factor: 1.000 Amount: 1.000 Bottle: 1
Method: TB Calibration: TB Type: UC

IKU - Institutt for kontinentalsokkelundersokelser og petroleumtekn.

HP 5730A

Channel:3 Title: HP-5730 Date 7/ 7/86 Time 11:36
Analysis:826C4577S Sample Name:STATOIL 6/3-2 SAT
Sample 1 Injection 1

PK.#	R/T	Height	Area	Identity	Type
1	12.763	17083	54190	n-C14	
4	15.699	62271	215154	n-C15	LO
7	18.552	86599	394996	n-C16	O
13	21.299	104529	427454	n-C17	O
14	21.555	60566	383301	Pristane	O
21	23.923	127968	577740	n-C18	O
22	24.237	59154	1432682	Phytane	O
23	26.429	132393	942421	n-C19	O
26	28.813	125343	689676	n-C20	O
28	31.107	90704	510643	n-C21	O
31	33.283	85760	412269	n-C22	LO
32	35.379	83776	368404	n-C23	LO
33	37.395	91024	560433	n-C24	FO
34	39.336	90719	412202	n-C25	LO
37	41.208	97830	445384	n-C26	FO
41	43.005	95038	824970	n-C27	O
43	44.744	94061	616810	n-C28	O
46	46.424	95572	1170441	n-C29	O
48	48.045	76955	1173917	n-C30	O
49	49.613	76573	427262	n-C31	O
51	51.123	56961	329958	n-C32	LO
53	52.643	44543	215804	n-C33	
54	54.445	30912	523841	n-C34	
55	59.149	12152	357682	n-C36	O
Total		2295480	18682480		

Sample Type: SA Scale Factor: 1.000 Amount: 1.000 Bottle: 1
Method: TB Calibration: TB Type: UC

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HP 5730A

Channel:3 Title: HP-5730 Date 6/ 7/86 Time 18:31
Analysis:826C4478B Sample Name:STATOI_ 6/3-2 SAT
Sample 1 Injection 1

PK.£	R/T	Height	Area	Identity	Type
2	15.731	21222	73101	n-C15	
5	18.595	65800	237619	n-C16	O
10	21.347	112510	434461	n-C17	O
11	21.603	78359	458381	Pristane	O
16	23.976	111014	436868	n-C18	O
17	24.285	64671	377887	Phytane	O
22	26.488	100790	554922	n-C19	LOM
24	28.872	106192	542467	n-C20	O
27	31.160	95938	459542	n-C21	O
29	32.963	4052	39241	n-C22	LO
32	35.443	78435	378986	n-C23	
34	37.453	76985	408517	n-C24	
35	39.384	74025	342726	n-C25	LO
38	41.251	65312	385637	n-C26	O
42	43.048	59921	863619	n-C27	O
43	44.781	55481	304194	n-C28	O
47	46.456	52429	756117	n-C29	O
48	48.072	43364	414417	n-C30	O
50	49.640	46412	224961	n-C31	LO
51	51.149	38950	173897	n-C32	
54	52.685	31672	159205	n-C33	O
57	54.483	20345	172378	n-C34	LO
60	56.648	14647	173493	n-C35	OM
62	59.208	8813	94935	n-C36	
63	60.040	831	4195	n-C38	
64	62.349	6125	57760	n-C37	
Total		1855484	13283780		

Sample Type: SA Scale Factor: 1.000 Amount: 1.000 Bottle: 1
Method: TB Calibration: TB Type: UC

IKU - Institutt for kontinentalsokkelundersokelser og petroleumtekn.

HP 5730A

Channel:3 Title: HP-5730 Date 6/ 7/86 Time 20:60
Analysis:826C4479B Sample Name:STATOI_ 6/3-2 SAT
Sample 1 Injection 1

PK.£	R/T	Height	Area	Identity	Type
3	9.837	17659	54095	n-C13	
9	12.787	81975	611850	n-C14	0
13	15.725	134911	716547	n-C15	0
17	18.584	148324	631149	n-C16	0
21	21.336	149896	605496	n-C17	0
22	21.597	133080	743241	Pristane	LO
25	23.949	131981	451875	n-C18	
26	24.264	76054	377531	Phytane	
31	26.451	114677	555627	n-C19	0
36	28.840	121208	718218	n-C20	0
38	31.128	100439	468118	n-C21	LO
40	32.893	4439	45794	n-C22	LO
43	35.400	85836	424279	n-C23	0
45	37.411	86431	331721	n-C24	FO
47	39.347	75154	635710	n-C25	0
48	41.208	74284	315433	n-C26	0
53	43.011	70240	1158959	n-C27	0
54	44.744	61832	383183	n-C28	0
57	46.419	67021	959633	n-C29	0
59	48.035	59295	748399	n-C30	0
61	49.597	60531	538645	n-C31	0
64	51.123	60856	316723	n-C32	0
67	52.648	43979	274654	n-C33	0
71	54.445	32946	259366	n-C34	LO
72	56.600	19067	195264	n-C35	
74	59.176	13869	269273	n-C36	0
75	62.301	9374	273810	n-C37	FO
Total		2781343	20749720		

Sample Type: SA Scale Factor: 1.000 Amount: 1.000 Bottle: 1
Method: TB Calibration: TB Type: UC

IKU - Institutt for kontinentalsokkelundersokelser og petroleumtekn.

HP 5730A

Channel:3 Title: HP-5730 Date 4/ 7/86 Time 10:28
Analysis:826C4481D Sample Name:STATOI_ 6/3-2 SAT
Sample 1 Injection 1

PK.#	R/T	Height	Area	Identity	Type
1	9.851	15878	48938	n-C13	
5	12.792	80571	372294	n-C14	O
10	15.731	159144	686131	n-C15	O
15	18.595	193814	755399	n-C16	O
20	21.341	221602	914133	n-C17	O
21	21.597	173946	1139255	Pristane	O
25	23.955	191036	790056	n-C18	O
26	24.264	119163	769538	Phytane	O
31	26.451	173091	1008454	n-C19	O
35	28.845	165934	946984	n-C20	O
38	31.128	149286	606507	n-C21	O
40	33.309	143243	632526	n-C22	
42	35.405	135125	655090	n-C23	
43	37.421	135552	679262	n-C24	FO
45	39.347	122215	849526	n-C25	O
47	41.219	114082	488014	n-C26	O
53	43.011	115119	1859275	n-C27	O
54	44.744	105185	651417	n-C28	O
58	46.419	110236	532494	n-C29	O
61	48.035	91680	1207465	n-C30	O
63	49.597	98135	878794	n-C31	O
65	51.112	82280	491826	n-C32	O
68	52.643	60757	412029	n-C33	O
71	54.445	40640	527155	n-C34	LO
72	56.579	27261	324213	n-C35	M
73	59.176	17064	263659	n-C36	FO
Total		4014110	31859600		

Sample Type: SA Scale Factor: 1.000 Amount: 1.000 Bottle: 1
Method: TB Calibration: TB Type: UC

IKU - Institutt for kontinentalsokkelundersokelser og petroleumtekn.

HP 5730A

Channel:3 Title: HP-5730 Date 7/ 7/86 Time 21:26
Analysis:826C4488D Sample Name:STATOI_ 6/3-2 SAT
Sample 1 Injection 1

PK.£	R/T	Height	Area	Identity	Type
3	12.803	28406	102034	n-C14	LO
6	15.747	77702	305334	n-C15	O
11	18.616	117637	499082	n-C16	O
16	21.368	137093	532395	n-C17	O
17	21.629	113776	642393	Pristane	LO
21	23.992	127129	486353	n-C18	O
22	24.312	78206	506018	Phytane	O
25	26.499	112556	510320	n-C19	OM
30	28.888	104758	529929	n-C20	O
33	31.187	92703	454563	n-C21	LO
35	33.373	85744	425730	n-C22	FO
37	35.475	81960	352224	n-C23	FO
41	37.485	80617	375220	n-C24	FO
43	39.421	74666	343798	n-C25	
45	41.283	71049	311514	n-C26	O
49	43.096	79732	1296648	n-C27	O
50	44.824	73476	471205	n-C28	O
54	46.499	87667	1097339	n-C29	O
56	48.109	72148	999582	n-C30	O
58	49.688	79442	827902	n-C31	O
60	51.192	62504	656284	n-C32	O
63	52.733	51769	404344	n-C33	O
65	54.531	30191	216838	n-C34	
67	56.696	22878	264872	n-C35	OM
68	59.267	13566	138966	n-C36	
69	62.387	10383	90269	n-C37	
Total		2547313	19415970		

Sample Type: SA Scale Factor: 1.000 Amount: 1.000 Bottle: 1
Method: TB Calibration: TB Type: UC

IKU - Institutt for kontinentalsokkelundersokelser og petroleumtekn.

HP 5730A

Channel:3 Title: HP-5730 Date 4/ 7/86 Time 13: 3
Analysis:826C4479D Sample Name:STATOI_ 6/3-2 SAT
Sample 1 Injection 1

PK.#	R/T	Height	Area	Identity	Type
1	12.784	4360	13558	n-C14	
4	15.715	24927	86026	n-C15	
7	18.573	48930	168583	n-C16	LO
10	21.315	61367	224155	n-C17	
11	21.571	58944	287319	Pristane	
17	23.939	64259	235722	n-C18	O
18	24.248	33980	232870	Phytane	O
22	26.440	57224	266381	n-C19	LO
25	28.835	58281	267132	n-C20	LO
26	31.128	47980	185140	n-C21	FO
28	33.309	45695	215333	n-C22	FO
30	35.405	42926	195582	n-C23	
32	37.411	38207	205883	n-C24	O
33	39.347	30786	162647	n-C25	
34	41.219	31977	125223	n-C26	FO
39	43.016	28375	125885	n-C27	LO
42	44.749	24778	95856	n-C28	O
45	46.429	29718	300813	n-C29	O
46	48.045	24026	157409	n-C30	LO
48	49.619	27075	115481	n-C31	LO
50	51.133	25503	118680	n-C32	
51	52.669	19696	94358	n-C33	
53	54.472	14892	122161	n-C34	LO
54	56.627	10245	118472	n-C35	O
55	59.181	6213	49811	n-C36	
56	62.312	4354	40475	n-C37	O
Total		1022623	5665008		

Sample Type: SA Scale Factor: 1.000 Amount: 1.000 Bottle: 1
Method: TB Calibration: TB Type: UC

SwAnalysis:3 826C4491D,1,,10w
Created at 10:06 on 09/Jul/86

IKU - Institutt for kontinentalsokkelundersokelser og petroleumtekn.

HP 5730A

Channel:3 Title: HP-5730 Date 6/ 7/86 Time 23: 9
Analysis:826C4491D Sample Name:STATOI_ 6/3-2 SAT
Sample 1 Injection 1

PK.£	R/T	Height	Area	Identity	Type
2	12.771	30378	109748	n-C14	
6	15.715	74971	444402	n-C15	O
9	18.573	101721	357382	n-C16	LO
16	21.325	115425	444836	n-C17	O
17	21.576	82311	465678	Pristane	LO
21	23.939	96380	372444	n-C18	O
22	24.253	62450	395969	Phytane	O
25	26.445	80693	284225	n-C19	
30	28.835	91818	547618	n-C20	O
32	31.123	79290	307856	n-C21	O
36	32.931	3908	33200	n-C22	O
39	35.400	70363	296642	n-C23	FO
43	37.405	70653	276232	n-C24	O
48	39.341	60150	304616	n-C25	
50	41.208	61726	237953	n-C26	FO
54	43.005	60573	423322	n-C27	O
56	44.744	50464	251961	n-C28	O
60	46.413	54763	400347	n-C29	O
62	48.040	44925	185876	n-C30	LO
64	49.608	51742	221664	n-C31	LO
66	51.123	45195	179365	n-C32	LO
69	52.648	34582	164740	n-C33	LO
70	54.435	23397	159537	n-C34	O
71	56.589	18598	254284	n-C35	M
73	59.176	10923	215427	n-C36	LO
74	62.253	8051	304280	n-C37	FO
Total		1953295	11727010		

Sample Type: SA Scale Factor: 1.000 Amount: 1.000 Bottle: 1
Method: TB Calibration: TB Type: UC

Analysis:3 826C4574S,1,1

IKU - Institutt for kontinentalsokkelundersokelser og petroleumtekn.

HP 5730A

Channel:3 Title: HP-5730 Date 3/ 7/86 Time 18:23
Analysis:826C4574S Sample Name:STATOIL 6/3-2 SAT
Sample 1 Injection 1

PK.#	R/T	Height	Area	Identity	Type
2	12.835	27391	99620	n-C14	
6	15.773	72224	643744	n-C15	LO
8	18.627	106635	377356	n-C16	LO
14	21.379	126442	497434	n-C17	O
15	21.629	91772	573797	Pristane	O
21	24.008	115089	477446	n-C18	O
22	24.312	59994	683327	Phytane	O
24	26.509	106910	726836	n-C19	OM
29	28.899	97113	610820	n-C20	O
32	31.187	85485	341712	n-C21	O
34	33.368	76680	335548	n-C22	O
36	35.469	63145	466354	n-C23	O
37	37.480	58155	260068	n-C24	
38	39.411	51723	244346	n-C25	
39	41.277	45932	185090	n-C26	FO
44	43.075	42445	239882	n-C27	O
47	44.813	38081	213189	n-C28	O
51	46.493	39824	495117	n-C29	O
52	47.960	13928	85378	n-C30	O
55	49.683	33247	139663	n-C31	LO
57	52.733	23439	122674	n-C33	LO
60	54.568	15620	152549	n-C34	LO
61	56.701	10724	163419	n-C35	M
Total		1826969	12409930		

Sample Type: SA Scale Factor: 1.000 Amount: 1.000 Bottle: 1
Method: TB Calibration: TB Type: UC

5wAnalysis:3 826C4600S,1,10w
Created at 10:08 on 09/Jul/86

IKU - Institutt for kontinentalsokkelundersokelser og petroleumtekn.

HP 5730A

Channel:3 Title: HP-5730 Date 3/ 7/86 Time 12:48
Analysis:826OC4600 Sample Name:STATOI_ 6/3-2 SAT
Sample 1 Injection 1

PK.£	R/T	Height	Area	Identity	Type
1	12.813	13361	47537	n-C14	FO
5	15.757	46905	160572	n-C15	
9	18.621	76741	316326	n-C16	LO
14	21.379	96304	362252	n-C17	O
15	21.635	59868	358098	Pristane	O
18	23.997	99966	372537	n-C18	O
19	24.301	35063	367099	Phytane	O
21	26.504	87133	408989	n-C19	LO
25	28.893	77092	335066	n-C20	LO
28	31.181	76222	324777	n-C21	LO
30	33.368	95541	470881	n-C22	FO
32	35.464	126381	547829	n-C23	LO
33	37.485	168971	723362	n-C24	O
34	39.432	200574	868822	n-C25	
36	41.304	229323	988743	n-C26	LO
38	43.107	216108	1161070	n-C27	O
40	44.829	211225	975512	n-C28	O
45	46.520	219908	1010297	n-C29	O
50	49.704	197308	880240	n-C31	O
55	51.208	159739	792293	n-C32	O
57	52.749	127938	600309	n-C33	LO
59	54.568	76665	495478	n-C34	LO
60	56.728	49472	401882	n-C35	O
62	59.320	29840	289350	n-C36	
63	62.472	18796	212350	n-C37	
Total		3451930	19590280		

Sample Type: SA Scale Factor: 1.000 Amount: 1.000 Bottle: 1
Method: TB Calibration: TB Type: UC

5wAnalysis:3 826C4580S,1,10w
Created at 10:08 on 09/Jul/86

IKU - Institutt for kontinentalsokkelundersokelser og petroleumtekn.

HP 5730A

Channel:3 Title: HP-5730 Date 6/ 7/86 Time 10:41
Analysis:826C4580S Sample Name:STATOI_ 6/3-2 SAT
Sample 1 Injection 1

PK.#	R/T	Height	Area	Identity	Type
1	12.709	5712	18577	n-C14	
7	18.493	97479	342749	n-C16	O
13	21.245	159373	590555	n-C17	
14	21.496	102591	1086284	Pristane	FO
18	23.875	216841	918895	n-C18	O
19	24.179	93481	707834	Phytane	O
22	26.376	187008	1318399	n-C19	OM
26	28.755	141381	1310016	n-C20	O
29	31.037	113471	806058	n-C21	O
31	33.213	104132	658604	n-C22	O
33	35.304	97525	522935	n-C23	O
35	37.315	92367	554843	n-C24	LO
36	39.245	81823	372727	n-C25	
38	41.107	82021	331187	n-C26	FO
42	42.909	82250	391252	n-C27	O
44	44.637	80831	487634	n-C28	O
46	46.317	81563	356695	n-C29	LO
49	47.933	64762	277810	n-C30	LO
51	49.496	70195	290178	n-C31	O
53	51.011	50281	217459	n-C32	LO
54	52.515	42609	201803	n-C33	
56	54.291	25800	170718	n-C34	O
57	56.392	17591	140620	n-C35	O
58	58.941	11867	101119	n-C36	
59	61.997	8874	91937	n-C37	
Total		2584074	19104580		

Sample Type: SA Scale Factor: 1.000 Amount: 1.000 Bottle: 1
Method: TB Calibration: TB Type: UC

SwAnalysis:3 826C4582S,1,10w
Created at 10:05 on 09/Jul/86

IKU - Institutt for kontinentalsokkelundersokelser og petroleumtekn.

HP 5730A

Channel:3 Title: HP-5730 Date 4/ 7/86 Time 8:19
Analysis:826C4582S Sample Name:STATOI_ 6/3-2 SAT
Sample 1 Injection 1

PK.£	R/T	Height	Area	Identity	Type
1	12.768	10312	35656	n-C14	
3	15.709	67082	230268	n-C15	
7	18.573	120475	419401	n-C16	LO
12	21.325	163722	627997	n-C17	O
13	21.581	101874	731250	Pristane	O
16	23.955	174739	717582	n-C18	O
17	24.259	75536	920128	Phytane	O
19	26.461	150369	1083688	n-C19	OM
22	28.851	133935	1011750	n-C20	O
24	31.139	132699	966386	n-C21	O
28	33.331	154413	1057773	n-C22	O
30	35.432	151254	978347	n-C23	O
32	37.437	127266	538557	n-C24	O
34	39.368	85226	484417	n-C25	O
36	41.229	67356	421501	n-C26	O
39	43.027	60581	268536	n-C27	LO
40	44.765	52795	213237	n-C28	O
44	46.440	57277	245102	n-C29	LO
47	48.056	41514	166575	n-C30	
49	49.624	51605	218487	n-C31	LO
51	51.144	37081	159974	n-C32	O
54	52.675	32362	190506	n-C33	O
57	54.451	17945	134602	n-C34	LO
59	56.595	12993	135332	n-C35	M
61	59.165	7407	61332	n-C36	FOM
62	62.301	5552	124858	n-C37	O
Total		2604335	21411590		

Sample Type: SA Scale Factor: 1.000 Amount: 1.000 Bottle: 1
Method: TB Calibration: TB Type: UC

SwAnalysis:3 826C4584S,1,10w
Created at 10:07 on 09/Jul/86

IKU - Institutt for kontinentalsokkelundersokelser og petroleumtekn.

HP 5730A

Channel:3 Title: HP-5730 Date 7/ 7/86 Time 13:49
Analysis:826C4584S Sample Name:STATOI_ 6/3-2 SAT
Sample 1 Injection 1

PK.#	R/T	Height	Area	Identity	Type
1	15.749	10335	37273	n-C15	
4	18.595	40202	133645	n-C16	LO
8	21.352	87057	324657	n-C17	O
9	21.603	56968	347197	Pristane	O
11	23.981	120079	475384	n-C18	O
13	24.296	44574	262522	Phytane	O
16	26.477	87499	382493	n-C19	M
20	28.872	62206	276897	n-C20	LO
22	31.160	55904	259622	n-C21	O
23	33.341	55294	321864	n-C22	FO
26	35.437	48591	218531	n-C23	
27	37.453	50124	245485	n-C24	LO
28	39.384	45695	214982	n-C25	
29	41.251	47008	196780	n-C26	
31	43.053	44959	173969	n-C27	
32	44.781	40938	210115	n-C28	FO
35	46.461	45371	272433	n-C29	O
37	48.093	32328	144577	n-C30	LO
39	49.656	38546	158149	n-C31	LO
40	52.712	21669	121003	n-C33	FO
43	54.504	14494	158037	n-C34	LO
44	56.669	9509	163505	n-C35	OM
45	62.424	4620	52782	n-C37	
Total		1219983	6646715		

Sample Type: SA Scale Factor: 1.000 Amount: 1.000 Bottle: 1
Method: TB Calibration: TB Type: UC

SwAnalysis:3 826C4588S,1,10w
Created at 10:07 on 09/Jul/86

IKU - Institutt for kontinentalsokkelundersokelser og petroleumtekn.

HP 5730A

Channel:3 Title: HP-5730 Date 7/ 7/86 Time 19:23
Analysis:826C4588S Sample Name:STATOI_ 6/3-2 SAT
Sample 1 Injection 1

PK.£	R/T	Height	Area	Identity	Type
1	18.555	6242	22007	n-C16	
4	21.293	20772	70665	n-C17	
5	21.560	10386	54821	Pristane	
9	23.923	31881	119980	n-C18	0
10	24.237	11759	115259	Phytane	0
13	26.424	24789	105601	n-C19	LO
15	28.819	19754	84626	n-C20	0
17	31.112	20688	92947	n-C21	0
18	33.299	24007	135076	n-C22	0
19	35.395	25213	107729	n-C23	
20	37.411	26655	102431	n-C24	
21	39.341	27326	122310	n-C25	
22	41.213	31775	124801	n-C26	
25	43.011	33381	123682	n-C27	
27	44.749	31946	125341	n-C28	
29	46.424	33529	189649	n-C29	FO
30	48.045	30455	111813	n-C30	LO
31	49.619	26819	109349	n-C31	
34	51.128	19162	75380	n-C32	LO
35	52.669	16301	70910	n-C33	
36	54.461	9087	50464	n-C34	
37	56.605	5713	43623	n-C35	
38	59.187	3635	31432	n-C36	0
Total		528978	2432020		

Sample Type: SA Scale Factor: 1.000 Amount: 1.000 Bottle: 1
Method: TB Calibration: TB Type: UC

Table 12: Ratios calculated from pyrolysis-GC.

Sample no.	Depth (m RKB)	(m+p)-xylene / n-octene	O-xylene / n-octene	m-napth / ΣnC_{13}-ene/ane	iso-C_{14} / ΣnC_{13}-ene/ane	pr-1-ene / ΣnC_{17}-ene/ane
C-4478	3010	0.6(6)	0.5(8)	0.2(8)	0.1(2)	0.1(1)
C-4479	3025	0.8(1)	0.8(1)	0.5(2)	0.1(4)	0.2(5)
C-4573	3025	0.6(2)	0.5(4)	0.2(6)	0.1(4)	0.2(9)
C-4481	3055	0.6(4)	0.6(4)	0.3(2)	0.1(7)	0.2(4)
C-4576	4040	1.6(4)	1.4(0)	0.9(3)	0.2(6)	0.9(0)

Table 13: Semiquantitative data from pyrolysis-GC.

HEIGHT

Sample no.	Depth	C_1	C_2-C_5	C_6-C_{14}	C_{15+}
C-4478	3010	81856	3447212	3374777	1062866
C-4479	3025	255480	4701257	8846713	5617209
C-4573	3024	115349	2666200	4073846	2462491
C-4481	3055	206834	3557310	11842630	8580575
C-4576	4040	399889	728139	1304565	217122

AREA

Sample no.	Depth	C_1	C_2-C_5	C_6-C_{14}	C_{15+}
C-4478	3010	1493166	9033033	20680440	10741330
C-4479	3025	5444727	22601720	63327890	76341960
C-4573	3024	1242161	9798406	25928580	28234480
C-4481	3055	6269599	29990260	80806420	105206300
C-4576	4040	1996193	3030837	9075271	2178920

PERCENT

Sample no.	Depth	C_1	C_2-C_5	C_6-C_{14}	C_{15+}
C-4478	3010	3.56	21.52	49.28	25.60
C-4479	3025	3.22	13.35	37.41	45.10
C-4573	3024	1.89	14.94	39.54	43.06
C-4481	3055	2.79	13.32	35.90	46.73
C-4576	4040	12.15	18.45	55.24	13.26

Table 14a: Molecular ratios from sterane and terpane mass chromatograms. Maturity ratios.

IKU code	Depth (m RKB)	αβ/αβ+βα[1)]	%22S[2)]	%20S[3)]	%ββ[4)]
C-4600	3042.40-3042.65	0.89	59.9	62.4	39.8
C-4479	3010-3025	0.89	59.1	61.7	45.7
C-4481	3040-3055	0.87	55.2	60.4	41.2
C-4569	2956	0.89	61.8	70.1	40.0
C-4582	3048-3070	0.88	59.6	58.7	41.5

1) E/E+F in m/z 191
   * only from C_{31} homologs
2) Average % distribution between first and second eluting isomers of extended hopanes (G-M in m/z 191)
3) 2(r+s)/(q+t+2(r+s)) in m/z 217
4) q/q+t in m/z 217

Table 14b: Molecular ratios from terpane and sterane mass chromatograms. Maturity and source characteristic ratios.

IKU no.	Depth (m RKB)	Q/E[1)]	Tm/Ts[2)]	X/E[3)]	Z/E[4)]	a/a+j[5)]
C-4600	3042.40-3042.65	0.10	1.57	0.04	ca. 0	0.56
C-4479	3010-3025	0.07	1.70	0.06	-	0.70
C-4481	3040-3055	0.06	1.50	0.09	0.12	0.64
C-4569	2956	0.34	1.42	0.04	-	0.58
C-4582	3078.70	0.22	2.00	0.06	-	0.59

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 bisnorhopane (Z/E in m/z 191)
5) Relative abundance of C_{27} rearranged steranes (a/a+j in m/z 217)

Table 15

List of peak heights and peak areas
in mass chromatograms

Table 15a

Peak areas and heights from m/z 191 mass chromatograms

Peak heights and areas from m/z 191 mass chromatograms

IKU No.: C-4569
Depth: 2956.0 m swc

Peak identities	Peak heights	Peak areas
P	22.5	86.0
Q	9.5	37.5
R	5.0	33.5
S	5.5	20.0
T	2.0	15.5
A	6.5	21.0
B	9.0	38.0
Z	-	-
C	31.0	177.5
X	1.5	3.5
D	3.5	15.5
E	31.5	188.0
F	3.5	23.0
G	12.5	71.5
H	9.0	58.5
J1	6.0	44.5
J2	4.5	33.0
K1	3.5	29.0
K2	2.5	19.5
L1	-	-
L2	-	-

Peak heights and areas from m/z 191 mass chromatograms

IKU No.: C-4481
Depth: 3055 m

Peak identities	Peak heights	Peak areas
P	14.5	48.5
Q	5.5	17.0
R	6.0	34.0
S	4.5	16.0
T	2.5	9.5
A	14.0	49.5
B	24.5	89.0
Z	13.0	63.0
C	67.0	459.5
X	10.0	43.0
D	8.5	31.5
E	139.5	780.0
F	18.0	75.0
G	61.5	393.0
H	44.5	301.0
J1	32.5	250.5
J2	24.0	197.0
K1	27.0	238.0
K2	17.0	155.5
L1	16.5	164.5
L2	9.5	103.5

Peak heights and areas from m/z 191 mass chromatograms

IKU No.: C-4479
Depth: 3025 m

Peak identities	Peak heights	Peak areas
P	17.0	63.0
Q	7.0	21.5
R	6.5	36.5
S	6.0	18.5
T	2.5	12.5
A	11.5	41.0
B	21.0	79.0
Z	-	-
C	59.0	394.0
X	6.0	25.5
D	6.0	24.5
E	126.0	658.5
F	13.5	65.5
G	45.0	270.0
H	30.5	196.0
J1	26.5	188.5
J2	17.5	128.0
K1	18.5	168.0
K2	12.5	105.5
L1	11.5	110.0
L2	6.0	61.5

Peak heights and areas from m/z 191 mass chromatograms

IKU No.: C-4600
Depth: 3042.40-3042.65 m (Seal Peal)

Peak identities	Peak heights	Peak areas
P	16.5	65.5
Q	9.0	30.0
R	6.0	36.0
S	9.0	30.5
T	2.5	14.5
A	16.5	61.5
B	26.5	101.0
Z	-	-
C	74.0	511.5
X	4.0	15.5
D	10.0	36.5
E	112.5	612.0
F	14.0	69.5
G	37.5	211.0
H	25.0	156.5
J1	20.0	133.5
J2	12.0	90.5
K1	11.0	88.5
K2	7.5	58.5
L1	6.5	55.5
L2	3.0	23.0

Peak heights and areas from m/z 191 mass chromatograms.

IKU No.: C-4582
Depth: 3078.7 m swc

Peak identities	Peak heights	Peak areas
P	17.0	65.0
Q	9.0	32.0
R	5.5	34.0
S	8.0	27.0
T	2.0	15.5
A	6.0	23.5
B	13.5	55.5
Z	-	-
C	29.0	168.0
X	1.5	5.5
D	3.0	10.0
E	43.0	239.5
F	5.0	23.5
G	18.0	102.5
H	12.5	70.0
J1	9.5	59.5
J2	5.5	41.0
K1	5.5	42.0
K2	3.5	25.5
L1	3.0	27.5
L2	1.5	11.5

Table 15b

Peak areas and heights from m/z 217 and 218

Peak heights and peak areas from m/z 217 and 218 mass chromatograms

IKU No.: C-4569
Depth: 2956.0 m swc

	m/z 217		m/z 218	
Peak identities	Peak heights	Peak areas	Peak heights	Peak areas
a	3.5	14.5	1.0	3.5
b	2.0	10.0	0.5	3.0
c	1.0	3.0	0.5	0.5
e	1.5	4.5	1.0	2.5
f	1.5	10.0	0.5	1.5
g	2.0	12.0	1.0	3.0
h	3.5	14.0	4.0	15.5
i	-	-	3.0	10.5
j	2.5	13.5	1.5	8.5
k	2.0	12.0	1.0	7.5
n	2.0	11.0	3.0	12.0
o	1.5	6.0	2.5	10.0
p	2.0	10.5	1.0	6.0
q	2.0	11.0	1.0	5.5
r	3.5	16.0	4.5	20.0
s	2.5	15.0	4.0	21.0
t	3.0	19.5	2.0	11.5
u	4.0	22.5	6.0	31.0
v	2.0	10.0	3.0	12.0

Peak heights and peak areas from m/z 217 and 218 mass chromatograms

IKU No.: C-4481
Depth: 3055 m

	m/z 217		m/z 218	
Peak identities	Peak heights	Peak areas	Peak heights	Peak areas
a	48.5	210.0	13.0	53.5
b	32.5	135.5	8.5	34.5
c	13.0	54.5	3.0	9.5
e	21.5	86.0	8.0	53.5
f	19.0	115.0	6.0	24.5
g	19.5	143.0	7.0	31.0
h	40.0	189.5	28.0	130.0
i	15.5	83.0	18.0	87.0
j	28.5	125.5	15.5	78.5
k	30.5	198.5	14.5	110.0
n	13.0	103.5	19.0	88.0
o	13.5	58.0	17.5	70.5
p	18.0	99.5	10.5	62.0
q	18.5	103.0	10.0	60.0
r	19.0	99.0	22.5	108.5
s	12.0	26.5	20.0	108.0
t	26.5	169.5	15.0	98.5
u	8.0	34.5	12.5	51.0
v	5.0	15.5	4.0	16.0

Peak heights and peak areas from m/z 217 and 218 mass chromatograms

IKU No.: C-4479
Depth: 3025 m

	m/z 217		m/z 218	
Peak identities	Peak heights	Peak areas	Peak heights	Peak areas
a	20.0	88.0	5.5	21.5
b	15.0	58.5	3.5	13.5
c	6.0	23.0	1.0	4.0
e	8.5	34.0	4.0	25.0
f	6.0	44.5	3.0	19.5
g	9.0	65.0	3.0	11.5
h	19.5	91.5	14.0	60.0
i	7.0	39.0	9.5	45.0
j	8.5	40.0	5.0	25.5
k	13.0	77.5	5.5	42.0
n	5.0	40.0	7.5	35.0
o	5.5	21.0	8.0	31.0
p	7.0	36.5	4.0	23.0
q	9.5	50.5	4.5	24.0
r	9.0	45.5	11.5	52.0
s	7.0	37.0	11.0	57.0
t	11.0	68.0	6.0	43.0
u	5.0	23.0	6.5	28.0
v	2.0	6.0	2.0	8.0

Peak heights and peak areas from m/z 217 and 218 mass chromatograms

IKU No.: C-4600

Depth: 3042.40-3042.65 m (Seal Peal)

	m/z 217		m/z 218	
Peak identities	Peak heights	Peak areas	Peak heights	Peak areas
a	10.0	40.0	2.5	10.5
b	6.5	26.5	1.5	7.5
c	2.5	9.0	0.5	1.5
e	3.0	11.5	2.5	11.0
f	3.0	20.0	1.5	12.5
g	5.0	32.5	2.0	7.0
h	14.5	61.5	12.5	53.0
i	-	-	-	-
j	8.0	37.0	4.5	22.5
k	6.0	38.5	2.5	20.5
n	4.5	27.5	7.0	34.5
o	3.0	9.5	6.0	28.0
p	4.5	23.5	2.5	15.5
q	6.5	34.0	4.0	25.0
r	7.0	41.0	9.5	50.0
s	5.5	33.0	9.5	51.0
t	9.5	55.5	5.5	45.0
u	4.0	17.0	5.5	24.0
v	2.0	7.0	2.5	8.0

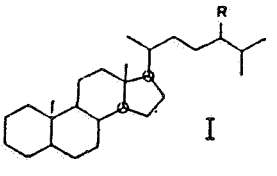
Peak heights and peak areas from m/z 217 and 218 mass chromatograms

IKU NO.: C-4582
Depth: 3078.7 m swc

	m/z 217		m/z 218	
Peak identities	Peak heights	Peak areas	Peak heights	Peak areas
a	7.0	30.0	2.0	8.0
b	4.5	19.5	1.0	4.4
c	2.0	8.5	0.5	1.5
e	3.0	12.0	1.5	7.0
f	2.0	11.5	1.0	4.5
g	3.5	20.5	1.5	7.0
h	7.5	31.0	7.0	27.0
i	-	-	3.5	16.5
j	4.5	18.5	2.5	11.0
k	4.0	21.5	2.0	16.0
n	2.5	13.0	3.5	15.0
o	2.0	6.5	3.0	13.0
p	2.5	14.5	1.5	10.0
q	3.5	18.0	2.0	11.0
r	3.5	19.5	4.5	20.0
s	2.5	11.0	4.0	22.0
t	5.5	33.5	3.0	18.0
u	3.0	16.0	4.5	21.0
v	1.5	8.0	2.0	8.0

Mass chromatograms representing steranes

a	13β(H),17α(H)-diasterane (20S)	$C_{27}H_{48}$	(III,R=H)
b	13β(H),17α(H)-diasterane (20R)	$C_{27}H_{48}$	(III,R=H)
c	13α(H),17β(H)-diasterane (20S)	$C_{27}H_{48}$	(IV,R=H)
d	13α(H),17β(H)-diasterane (20R)	$C_{27}H_{48}$	(IV,R=H)
e	13β(H),17α(H)-diasterane (20S)	$C_{28}H_{50}$	(III,R=CH_3)
f	13β(H),17α(H)-diasterane (20R)	$C_{28}H_{50}$	(III,R=CH_3)
g	13α(H),17β(H)-diasterane (20S)	$C_{28}H_{50}$	(IV,R=CH_3)
	+ 14α(H),17α(H)-sterane (20S)	$C_{27}H_{48}$	(I,R=H)
h	13β(H),17α(H)-diasterane (20S)	$C_{29}H_{52}$	(III,R=C_2H_5)
	+ 14β(H),17β(H)-sterane (20R)	$C_{27}H_{48}$	(II,R=H)
i	14β(H),17β(H)-sterane (20S)	$C_{27}H_{48}$	(II,R=H)
	+ 13α(H),17β(H)-diasterane (20R)	$C_{28}H_{50}$	(IV,R=CH_3)
j	14α(H),17α(H)-sterane (20R)	$C_{27}H_{48}$	(I,R=H)
k	13β(H),17α(H)-diasterane (20R)	$C_{29}H_{52}$	(III,R=C_2H_5)
l	13α(H),17β(H)-diasterane (20S)	$C_{29}H_{52}$	(III,R=C_2H_5)
m	14α(H),17α(H)-sterane (20S)	$C_{28}H_{50}$	(I,R=CH_3)
n	13α(H),17β(H)-diasterane (20R)	$C_{29}H_{52}$	(III,R=C_2H_5)
	+ 14β(H),17β(H)-sterane (20R)	$C_{28}H_{50}$	(II,R=CH_3)
o	14β(H),17β(H)-sterane (20S)	$C_{28}H_{50}$	(II,R=CH_3)
p	14α(H),17α(H)-sterane (20R)	$C_{28}H_{50}$	(I,R=CH_3)
q	14α(H),17α(H)-sterane (20S)	$C_{29}H_{52}$	(I,R=C_2H_5)
r	14β(H),17β(H)-sterane (20R)	$C_{29}H_{52}$	(II,R=C_2H_5)
	+ unknown sterane		
s	14β(H),17β(H)-sterane (20S)	$C_{29}H_{52}$	(II,R=C_2H_5)
t	14α(H),17α(H)-sterane (20R)	$C_{29}H_{52}$	(I,R=C_2H_5)
u	5α(H)-sterane	$C_{21}H_{36}$	(V,R=C_2H_5)
v	5α(H)-sterane	$C_{22}H_{38}$	(IV,R=C_3H_7)



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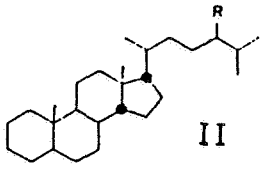

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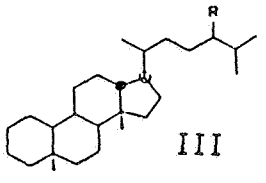

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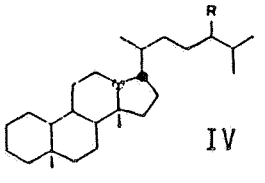

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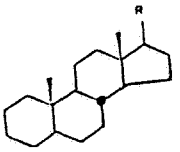
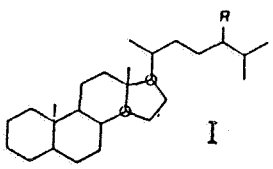


V

Mass chromatograms representing steranes

a	13β(H),17α(H)-diasterane (20S)	$C_{27}H_{48}$	(III,R=H)
b	13β(H),17α(H)-diasterane (20R)	$C_{27}H_{48}$	(III,R=H)
c	13α(H),17β(H)-diasterane (20S)	$C_{27}H_{48}$	(IV,R=H)
d	13α(H),17β(H)-diasterane (20R)	$C_{27}H_{48}$	(IV,R=H)
e	13β(H),17α(H)-diasterane (20S)	$C_{28}H_{50}$	(III,R=CH_3)
f	13β(H),17α(H)-diasterane (20R)	$C_{28}H_{50}$	(III,R=CH_3)
g	13α(H),17β(H)-diasterane (20S)	$C_{28}H_{50}$	(IV,R=CH_3)
	+ 14α(H),17α(H)-sterane (20S)	$C_{27}H_{48}$	(I,R=H)
h	13β(H),17α(H)-diasterane (20S)	$C_{29}H_{52}$	(III,R=C_2H_5)
	+ 14β(H),17β(H)-sterane (20R)	$C_{27}H_{48}$	(II,R=H)
i	14β(H),17β(H)-sterane (20S)	$C_{27}H_{48}$	(II,R=H)
	+ 13α(H),17β(H)-diasterane (20R)	$C_{28}H_{50}$	(IV,R=CH_3)
j	14α(H),17α(H)-sterane (20R)	$C_{27}H_{48}$	(I,R=H)
k	13β(H),17α(H)-diasterane (20R)	$C_{29}H_{52}$	(III,R=C_2H_5)
l	13α(H),17β(H)-diasterane (20S)	$C_{29}H_{52}$	(III,R=C_2H_5)
m	14α(H),17α(H)-sterane (20S)	$C_{28}H_{50}$	(I,R=CH_3)
n	13α(H),17β(H)-diasterane (20R)	$C_{29}H_{52}$	(III,R=C_2H_5)
	+ 14β(H),17β(H)-sterane (20R)	$C_{28}H_{50}$	(II,R=CH_3)
o	14β(H),17β(H)-sterane (20S)	$C_{28}H_{50}$	(II,R=CH_3)
p	14α(H),17α(H)-sterane (20R)	$C_{28}H_{50}$	(I,R=CH_3)
q	14α(H),17α(H)-sterane (20S)	$C_{29}H_{52}$	(I,R=C_2H_5)
r	14β(H),17β(H)-sterane (20R)	$C_{29}H_{52}$	(II,R=C_2H_5)
	+ unknown sterane		
s	14β(H),17β(H)-sterane (20S)	$C_{29}H_{52}$	(II,R=C_2H_5)
t	14α(H),17α(H)-sterane (20R)	$C_{29}H_{52}$	(I,R=C_2H_5)
u	5α(H)-sterane	$C_{21}H_{36}$	(V,R=C_2H_5)
v	5α(H)-sterane	$C_{22}H_{38}$	(IV,R=C_3H_7)



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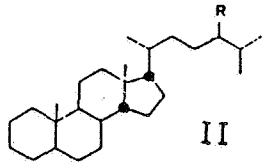

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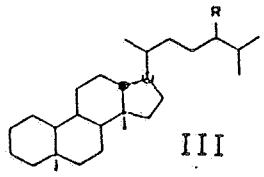

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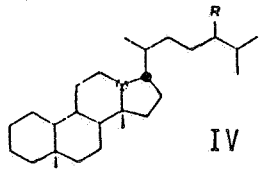

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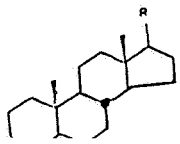


V

FIGURE 12

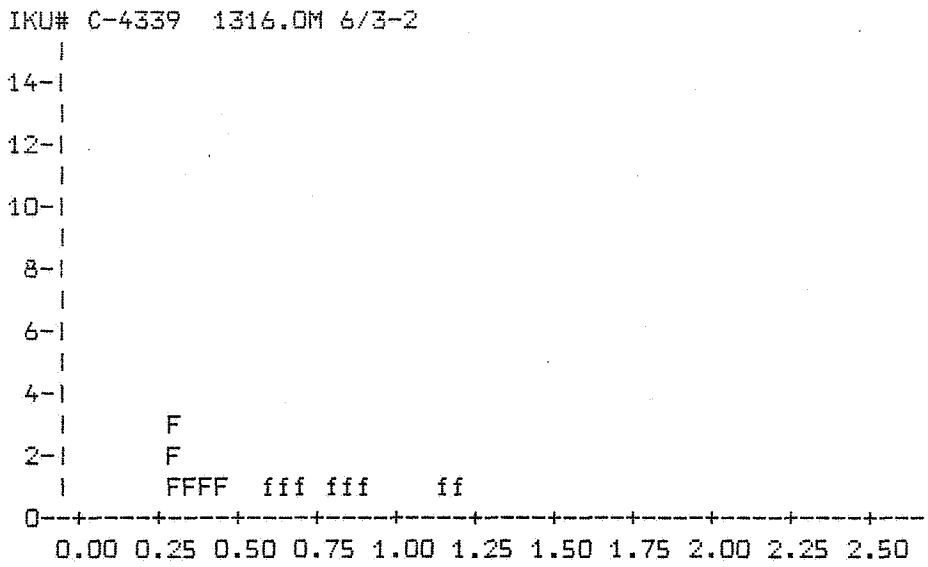
VITRINITE REFLECTANCE HISTOGRAMS

Key:

A	=	Grey-black-brown claystone. Upper case letters indicate values included in the main population. Lower case letters represent values in other populations.
PP	=	Statistical data populations Y = Main population, not neccessarily representative of sample maturity. N = Other populations.
LOW+ HIGH	=	Population limits.
VAL.	=	Number of measurements in that population.

Lithology cross-reference table

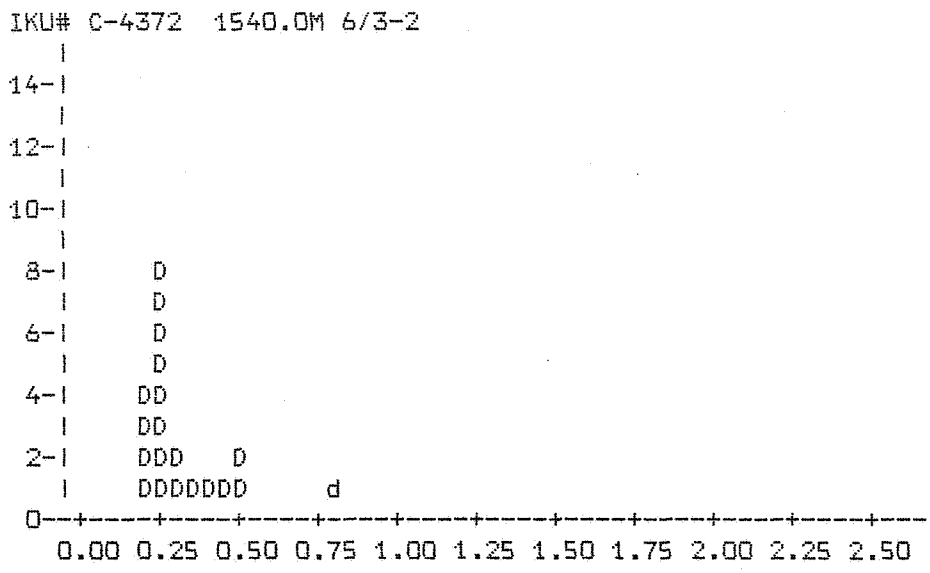
A = Clst. gy
B = Clst. dk gy
C = Clst. gn
D = Clst. bn
E = Clst. rd
F = Clst. calc.
G = Clst. carb.
H = Shale
I = Sandstone
J = Limestone
K = Coal
L = Lignite
M = Carbargillite
N = Siltstone
O = Bit
P = X



PP	LOW	HIGH	LIT	#VAL	MEAN	STDV
Y	0.30	0.46	ALL	6	0.37	0.06
N	0.63	0.94	ALL	6	0.77	0.13
N	1.18	1.21	ALL	1	1.18	0.00
			OVERALL	14	0.66	0.31

ORDERED VALUES FOLLOW:

0.30F 0.31F 0.32F 0.38F 0.43F 0.45F 0.63f 0.66f 0.70f 0.81f 0.89f
0.93f 1.18f 1.21f



PP	LOW	HIGH	LIT	#VAL	MEAN	STDV
Y	0.22	0.55	ALL	19	0.31	0.10
N	0.82	0.83	ALL	1	0.82	0.00
			OVERALL	20	0.34	0.15

ORDERED VALUES FOLLOW:

0.22D 0.23D 0.23D 0.24D 0.25D 0.25D 0.25D 0.25D 0.26D 0.26D 0.27D
0.28D 0.30D 0.33D 0.38D 0.40D 0.46D 0.54D 0.54D 0.82d

IKU# C-4399 1810.0M 6/3-2

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14-|
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12-|
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 8-|
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 6-|
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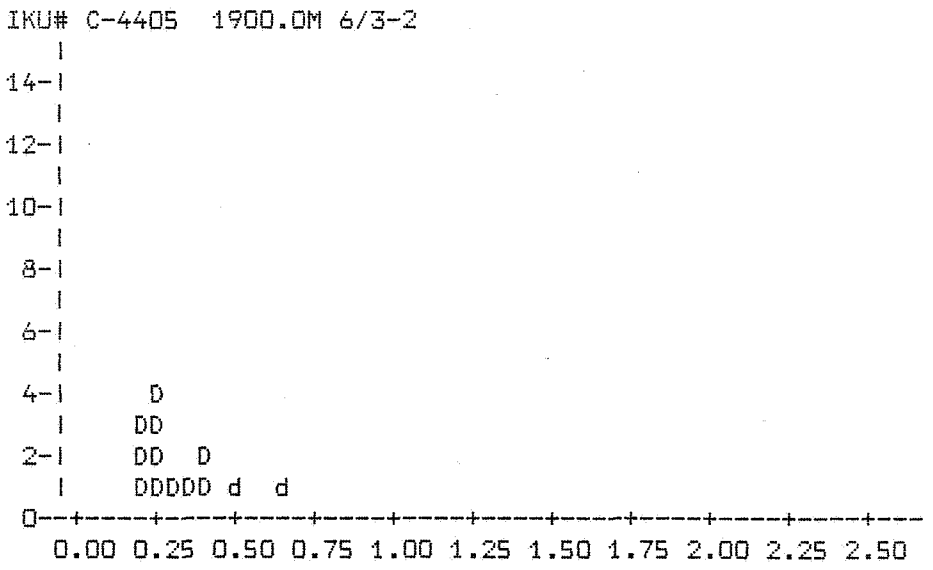
 4-|     D
   |     D
 2-|     DDD
   |     DDDD        dd  d
 0--+----+----+----+----+----+----+----+----+----+----+---
   0.00 0.25 0.50 0.75 1.00 1.25 1.50 1.75 2.00 2.25 2.50
```

PP	LOW	HIGH	LIT	#VAL	MEAN	STDV
Y	0.20	0.36	ALL	9	0.26	0.05
N	0.76	0.99	ALL	3	0.85	0.12
			OVERALL	12	0.40	0.28

ORDERED VALUES FOLLOW:

0.20D 0.20D 0.21D 0.22D 0.25D 0.27D 0.30D 0.31D 0.35D 0.76d 0.80d
0.98d



PP	LOW	HIGH	LIT	#VAL	MEAN	STDV
Y	0.20	0.43	ALL	11	0.30	0.08
N	0.50	0.66	ALL	2	0.57	0.11
			OVERALL	13	0.34	0.13

ORDERED VALUES FOLLOW:

0.20D 0.21D 0.22D 0.26D 0.27D 0.28D 0.29D 0.32D 0.39D 0.42D 0.42D
0.50d 0.65d

```
IKU# C-4411  2005.OM 6/3-2
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14-|
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12-|
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10-|
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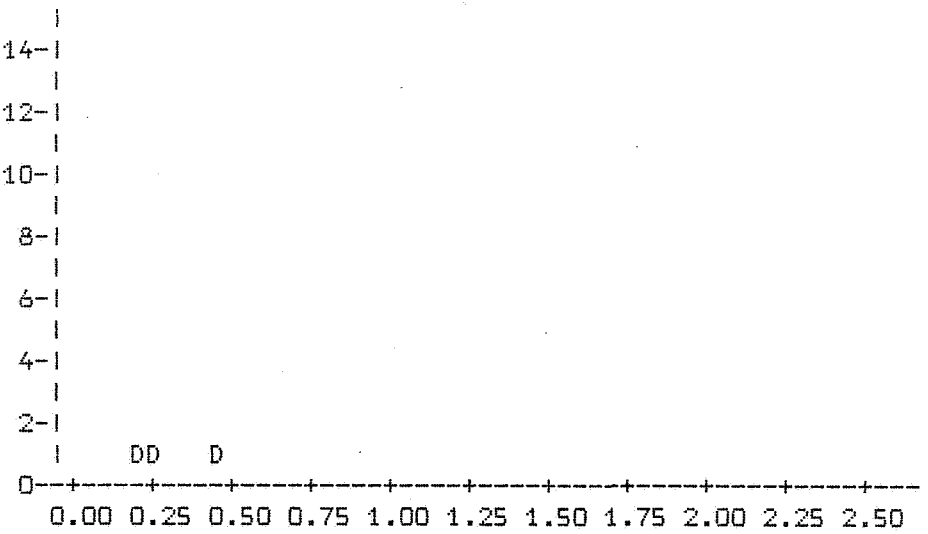
 8-|      D
   |      DD
 6-|      DD
   |      DD
 4-|      DD
   |      DD
 2-|      DD
   |      DD DDDD
 0--+----+----+----+----+----+----+----+----+----+----+---
   0.00 0.25 0.50 0.75 1.00 1.25 1.50 1.75 2.00 2.25 2.50

PP LOW HIGH LIT #VAL MEAN STDV
Y 0.26 0.58 ALL   20 0.33 0.09
           OVERALL 20 0.33 0.09

ORDERED VALUES FOLLOW:

 0.26D 0.26D 0.26D 0.27D 0.28D 0.28D 0.28D 0.29D 0.29D 0.30D 0.31D
 0.31D 0.31D 0.33D 0.33D 0.33D 0.41D 0.46D 0.54D 0.57D
```

IKU# C-4417 2095.0M 6/3-2

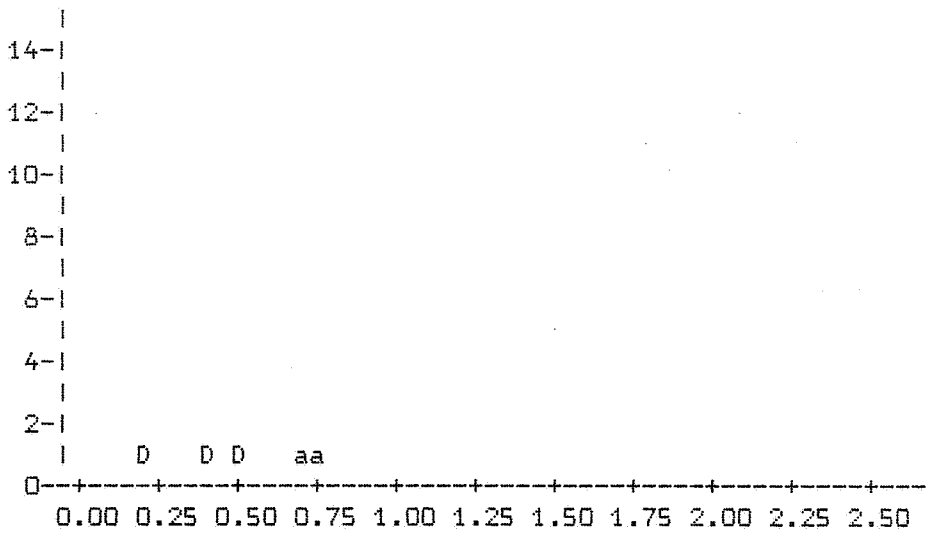


PP	LOW	HIGH	LIT	#VAL	MEAN	STDV
Y	0.23	0.46	ALL	3	0.32	0.11
			OVERALL	3	0.32	0.11

ORDERED VALUES FOLLOW:

0.23D 0.29D 0.45D

IKU# C-4431 2305.0M 6/3-2

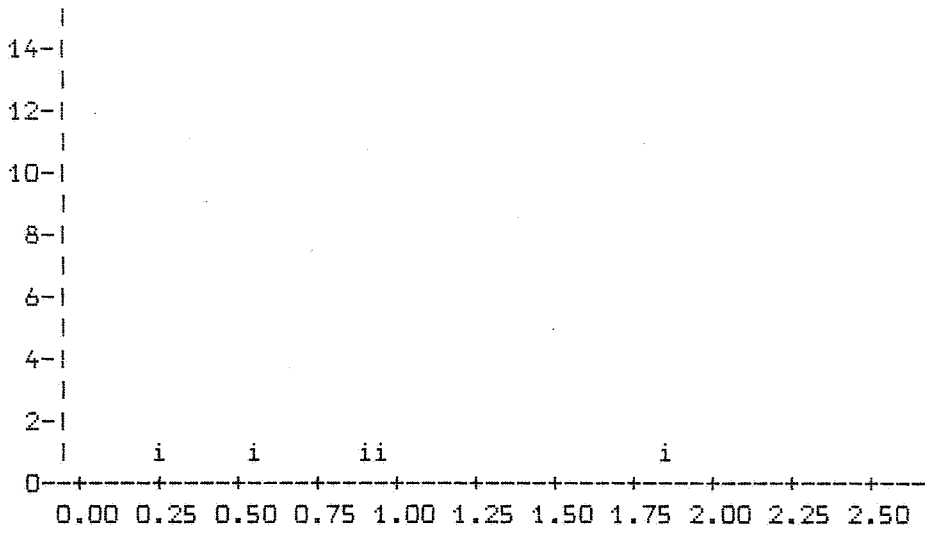


PP	LOW	HIGH	LIT	#VAL	MEAN	STDV
Y	0.20	0.54	ALL	3	0.39	0.17
N	0.74	0.80	ALL	2	0.77	0.04
			OVERALL	5	0.54	0.24

ORDERED VALUES FOLLOW:

0.20D 0.43D 0.53D 0.74a 0.79a

IKU# C-4467 2402.0M 6/3-2



PP	LOW	HIGH	LIT	#VAL	MEAN	STDV
N	0.27	0.59	ALL	2	0.43	0.22
N	0.91	0.99	ALL	2	0.95	0.05
N	1.86	1.87	ALL	1	1.86	0.00
			OVERALL	5	0.92	0.60

ORDERED VALUES FOLLOW:

0.27i 0.58i 0.91i 0.98i 1.86i

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IKU# C-4440  2440.0M 6/3-2
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14-|
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 8-|
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 6-|
   |      DD
 4-|      DD
   |      DD F
 2-|     DDD DD
   |     DDD DD D            ff
 0--+----+----+----+----+----+----+----+----+----+----+---
   0.00 0.25 0.50 0.75 1.00 1.25 1.50 1.75 2.00 2.25 2.50

PP LOW HIGH LIT #VAL MEAN STDV
Y 0.23 0.56 ALL   18 0.34 0.09
N 1.15 1.23 ALL    2 1.19 0.05
          OVERALL 20 0.43 0.27
 .
ORDERED VALUES FOLLOW:

 0.23D 0.24D 0.26D 0.27D 0.28D 0.28D 0.29D 0.31D 0.32D 0.32D 0.32D
 0.34D 0.40F 0.42D 0.42D 0.46D 0.49D 0.55D 1.15f 1.22f
```

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IKU# C-4444  2500.0M 6/3-2
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12-|
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10-|
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 8-|
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 6-|
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 4-|              D
   |           D  D
 2-|           D DD
   |      DDD DDDDD    d  aa d d  d
 0--+----+----+----+----+----+----+----+----+----+----+---
   0.00 0.25 0.50 0.75 1.00 1.25 1.50 1.75 2.00 2.25 2.50

PP LOW HIGH LIT #VAL MEAN STDV
Y 0.27 0.70 ALL   14 0.54 0.13
N 0.94 1.49 ALL    6 1.20 0.19
          OVERALL 20 0.74 0.34

ORDERED VALUES FOLLOW:

 0.27D 0.33D 0.37D 0.49D 0.52D 0.53D 0.54D 0.59D 0.61D 0.62D 0.66D
 0.67D 0.68D 0.69D 0.94d 1.07a 1.13a 1.23d 1.32d 1.48d
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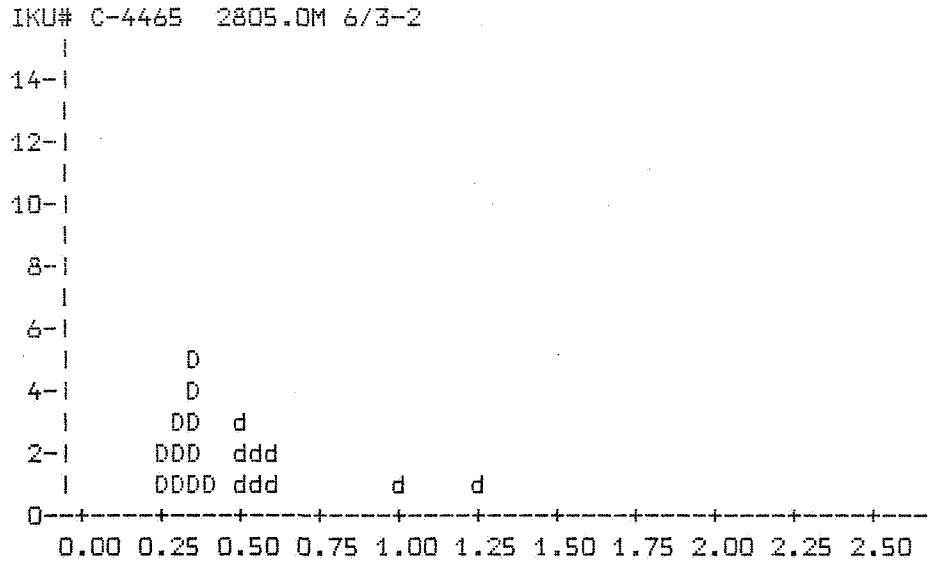
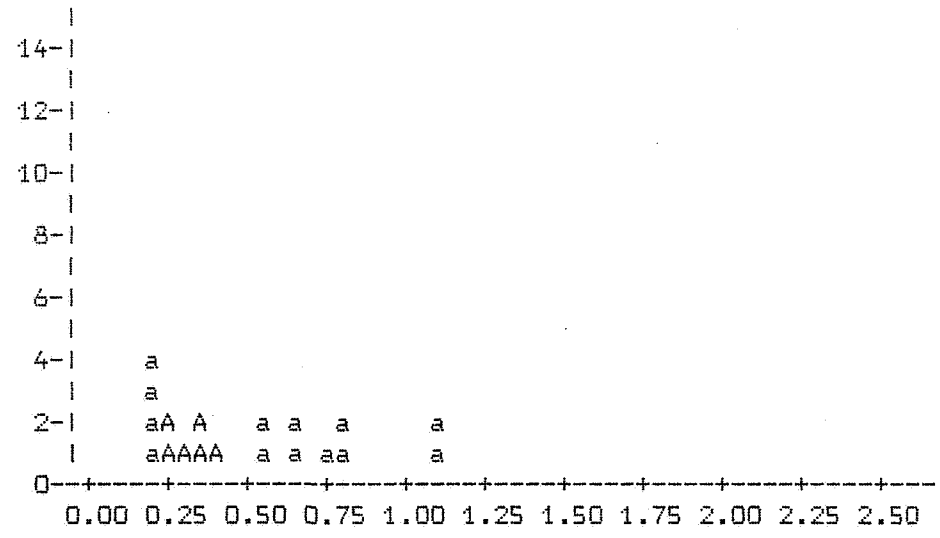


PP	LOW	HIGH	LIT	#VAL	MEAN	STDV
Y	0.26	0.43	ALL	11	0.34	0.05
N	0.51	0.62	ALL	7	0.56	0.04
N	1.03	1.25	ALL	1	1.03	0.00
			OVERALL	20	0.50	0.25

ORDERED VALUES FOLLOW:

0.26D 0.28D 0.31D 0.32D 0.33D 0.37D 0.37D 0.37D 0.37D 0.39D 0.42D
0.51d 0.52d 0.53d 0.55d 0.58d 0.61d 0.61d 1.03d 1.25d

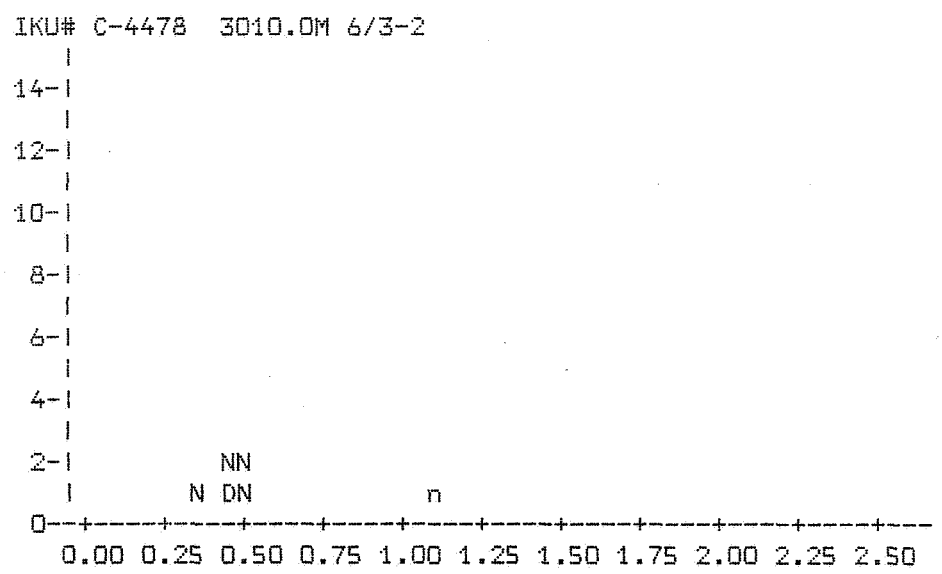
IKU# C-4572 3009.5M 6/3-2



PP	LOW	HIGH	LIT	#VAL	MEAN	STDV
Y	0.25	0.44	ALL	6	0.34	0.07
N	0.21	0.23	ALL	4	0.22	0.00
N	0.55	0.81	ALL	7	0.69	0.11
			OVERALL	19	0.53	0.30

ORDERED VALUES FOLLOW:

0.21a 0.22a 0.22a 0.22a 0.25A 0.28A 0.31A 0.36A 0.38A 0.43A 0.55a
0.56a 0.67a 0.69a 0.79a 0.80a 0.80a 1.11a 1.13a

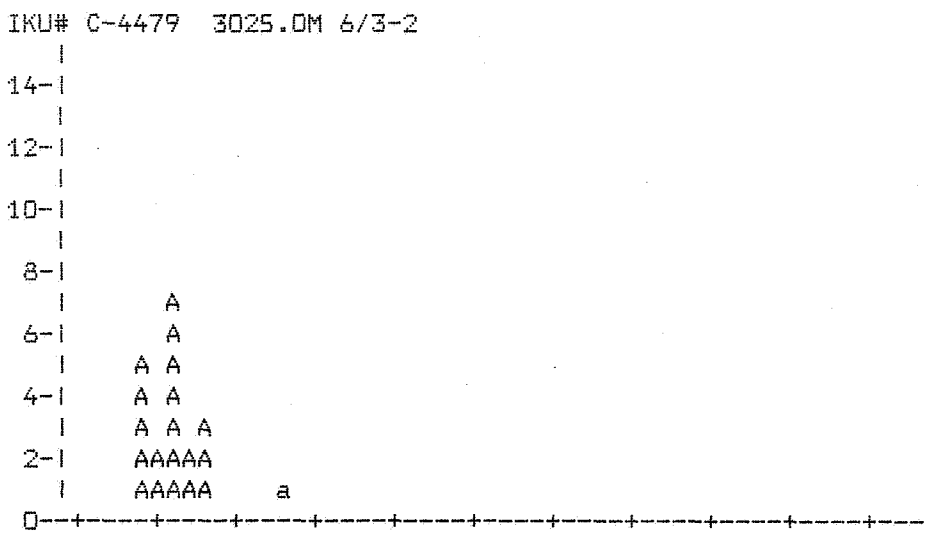


PP	LOW	HIGH	LIT	#VAL	MEAN	STDV
Y	0.36	0.53	ALL	5	0.47	0.06
N	1.13	1.14	ALL	1	1.13	0.00
			OVERALL	6	0.58	0.28

ORDERED VALUES FOLLOW:

0.36N 0.47D 0.48N 0.51N 0.52N 1.13n

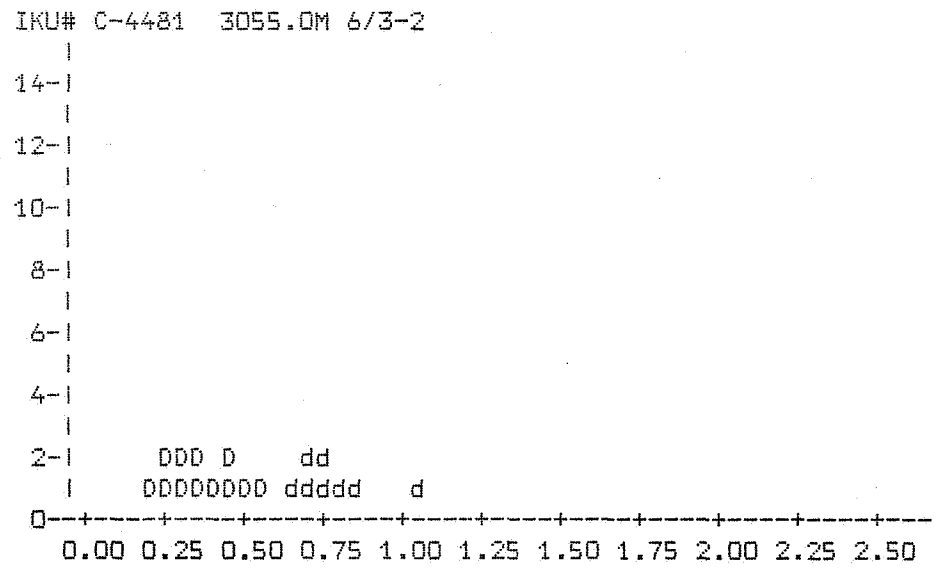
IKU# C-4479 3025.0M 6/3-2



PP	LOW	HIGH	LIT	#VAL	MEAN	STDV
Y	0.20	0.45	ALL	19	0.31	0.07
N	0.66	0.67	ALL	1	0.66	0.00
			OVERALL	20	0.33	0.10

ORDERED VALUES FOLLOW:

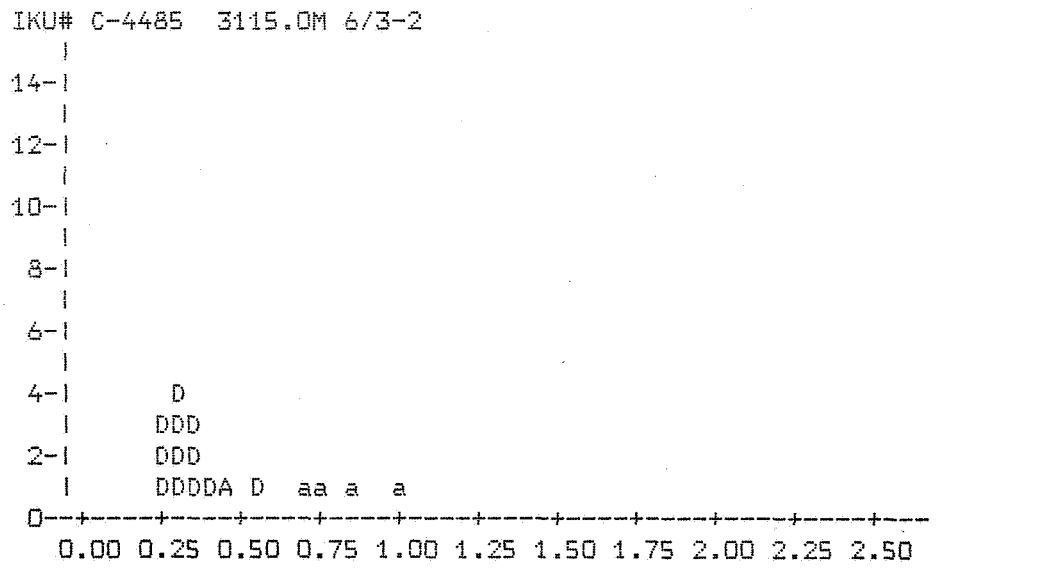
0.20A 0.21A 0.22A 0.23A 0.24A 0.26A 0.28A 0.30A 0.30A 0.32A 0.32A
0.33A 0.33A 0.34A 0.35A 0.36A 0.41A 0.41A 0.44A 0.66a



PP	LOW	HIGH	LIT	#VAL	MEAN	STDV
Y	0.23	0.57	ALL	12	0.38	0.10
N	0.69	0.87	ALL	7	0.77	0.06
N	1.07	1.08	ALL	1	1.07	0.00
			OVERALL	20	0.55	0.24

ORDERED VALUES FOLLOW:

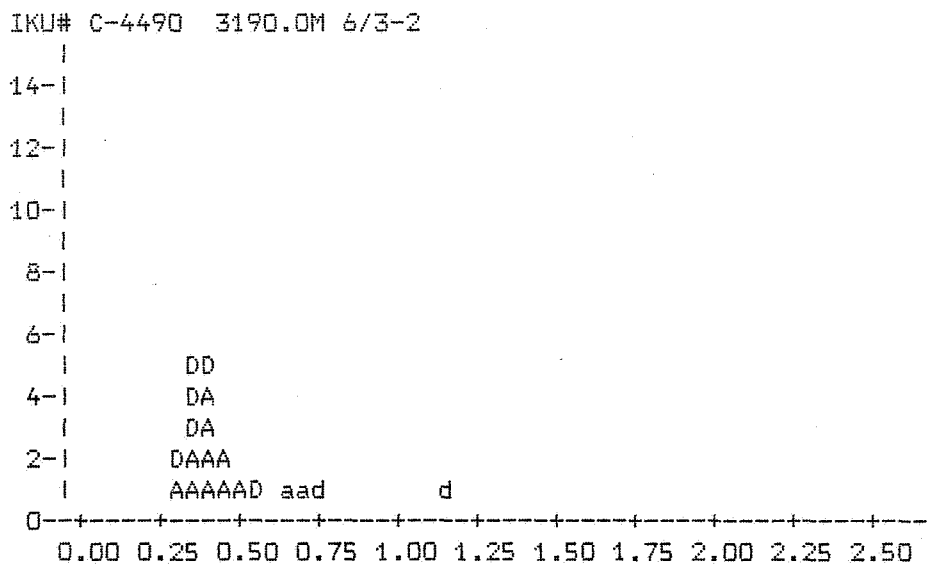
0.23D 0.25D 0.28D 0.32D 0.32D 0.37D 0.39D 0.40D 0.46D 0.47D 0.51D
0.56D 0.69d 0.71d 0.73d 0.75d 0.79d 0.84d 0.86d 1.07d



PP	LOW	HIGH	LIT	#VAL	MEAN	STDV
Y	0.25	0.59	ALL	13	0.35	0.09
N	0.71	1.02	ALL	4	0.83	0.13
			OVERALL	17	0.47	0.23

ORDERED VALUES FOLLOW:

0.25D 0.26D 0.26D 0.30D 0.32D 0.32D 0.32D 0.35D 0.38D 0.38D 0.43D
0.45A 0.58D 0.71a 0.75a 0.86a 1.01a



PP	LOW	HIGH	LIT	#VAL	MEAN	STDV
Y	0.32	0.56	ALL	16	0.42	0.07
N	0.66	0.78	ALL	3	0.72	0.06
N	1.16	1.17	ALL	1	1.16	0.00
			OVERALL	20	0.50	0.20

ORDERED VALUES FOLLOW:

0.32D 0.33A 0.35D 0.35A 0.37A 0.37D 0.38D 0.40A 0.43A 0.43D 0.44A
0.44A 0.48A 0.49A 0.51A 0.55D 0.66a 0.74a 0.77d 1.16d

3

Hydrokarbonkarakterisering og kildebergartsanalyse av øvre jura siltstein i 6/3-2

Kjell Øygard, GEOLAB

Mars 1986

SEKTOR FOR PETROLEUMSTEKNOLOGI

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Gradering

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Tittel Hydrokarbonkarakterisering og kildebergartsanalyse av øvre jura siltstein i 6/3-2		
Oppdragsgiver LET-S	**Prosjekt**	
Dato 19/03-1986	**Antall sider**	**Antall vedlegg**

Stikkord

Kildebergartsanalyse	6/3-2
hydrokarboner	øvre jura

Kort sammendrag

Utarbeidet av

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Godkjent av

21/3-86 Hilary Irwin
Hilary Irwin

21/3-86 Vigdis Wiik Jacobsen
for Snorre Olaussen

Tabell 1. Totalt organisk karbon og Rock-Eval analyse.

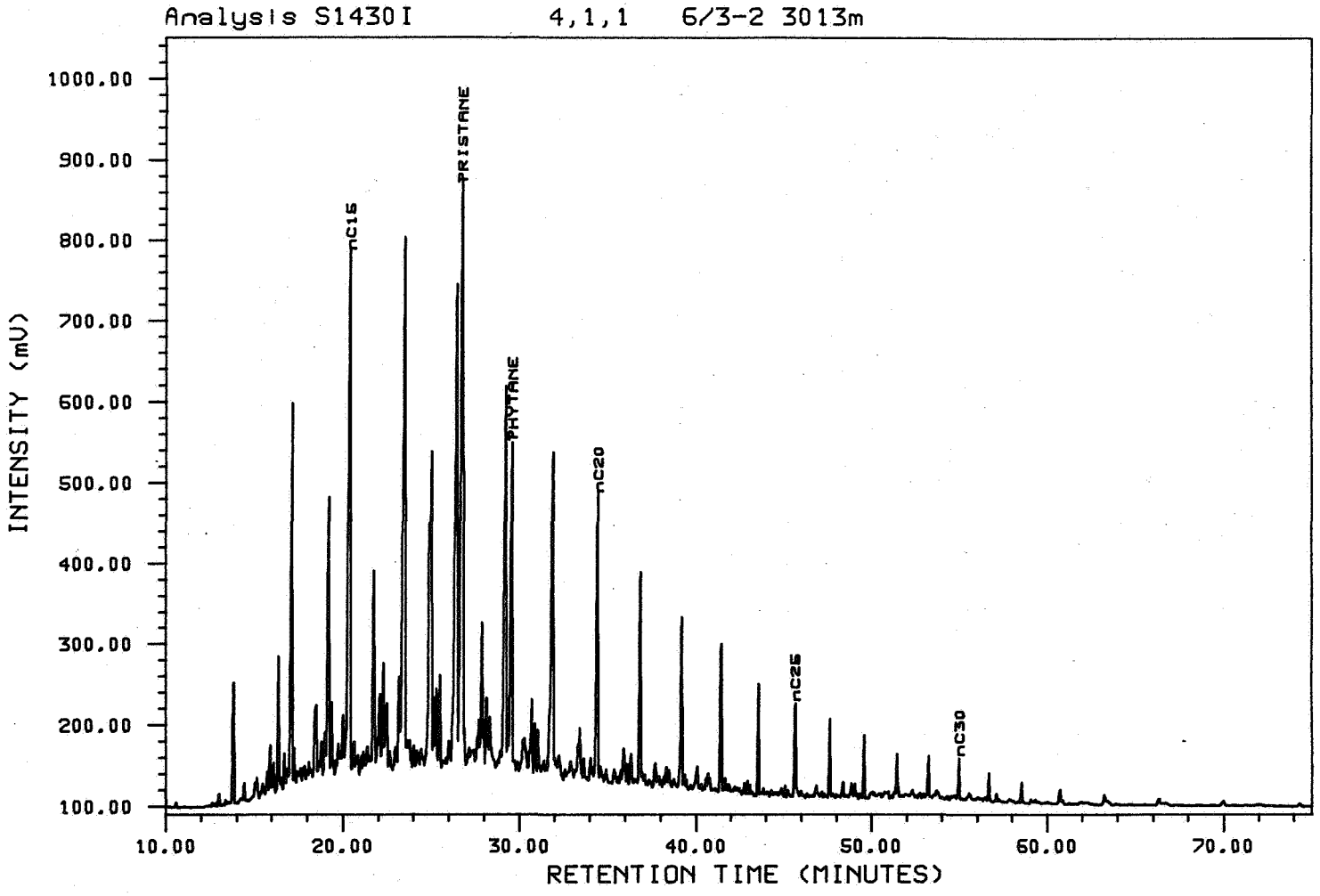
Dyp	S_1	S_2	S_3	T_{max}	TOC	HI	OI	PP	PI
3012	1,28	12,66	0,39	441	4,15	305	9	13,94	0,09
3013	1,27	9,61	0,67	439	3,87	248	17	10,88	0,12
3015	1,17	6,22	1,22	438	2,93	212	42	7,39	0,16
3017	1,34	14,73	1,08	438	4,41	334	24	16,07	0,08
3018	1,16	8,92	0,98	439	2,94	303	33	10,08	0,12

Table 2. Data av ekstrahering og gruppeseparering.

Dyp	EOM	Alifat		Aromat		Total hc		Total ikkje hc		Asfaltener	
	ppm	ppm	%	ppm	%	ppm	%	ppm	%	ppm	%
3013	4150	740	17,8	718	17,3	1458	35,1	2692	64,9	1530	36,9
3015	5143	1113	21,6	907	17,6	2020	39,3	3122	60,7	1297	25,2
3017	5669	884	15,6	1030	18,2	1914	33,8	3754	66,2	1996	35,2

Tabell 3. Tabell av data frå gasskromatogramma.

	Pri /C_{17}	Pyt /C_{18}	Pri /pyt	CPI
3013	1,21	0,86	1,77	1,03
3015	1,24	0,78	1,76	1,03
3017	1,10	0,68	2,04	1,06



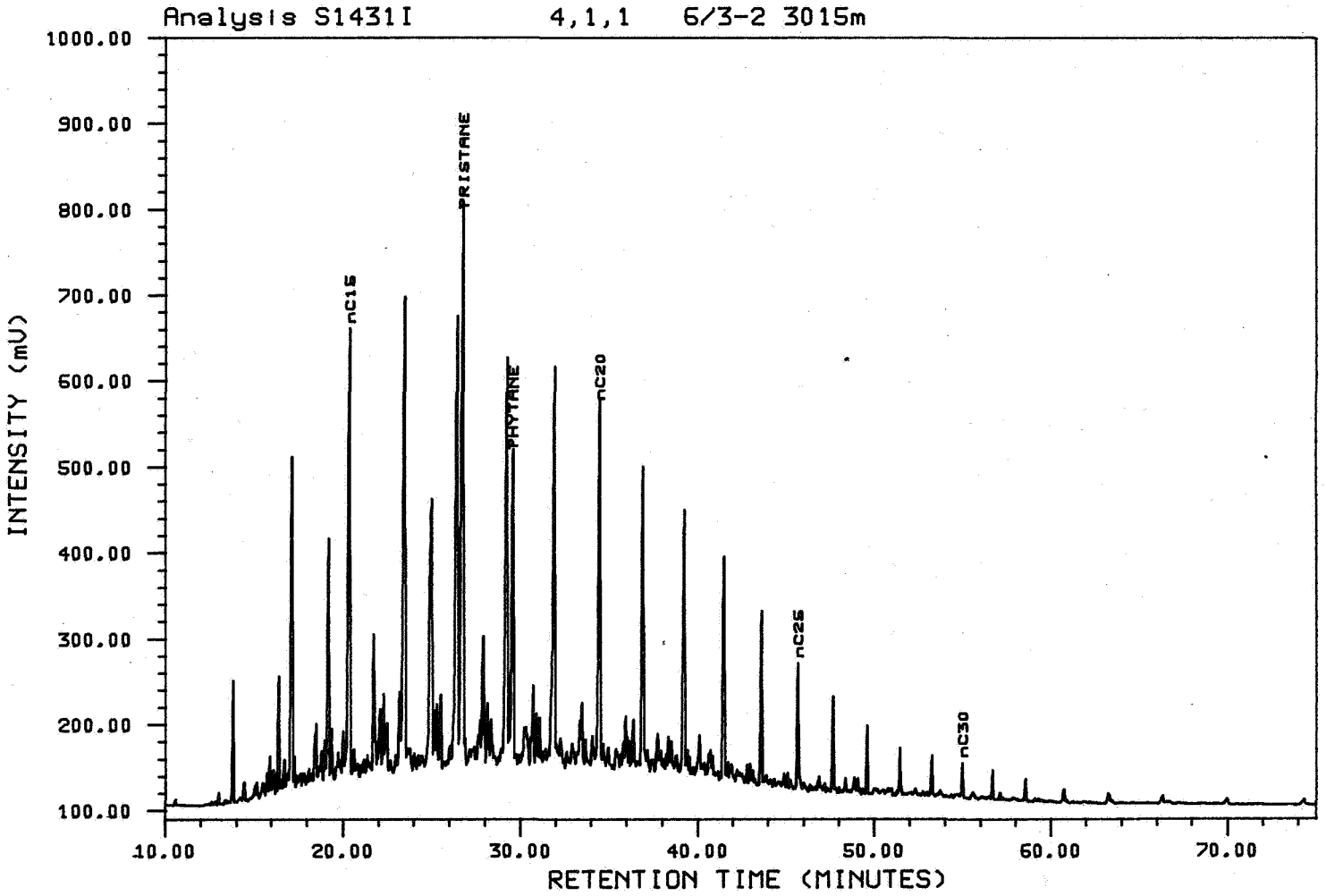


Fig.1. Gasskromatogram av metta fraksjon for prøvene fra 3013 m og 3015 m.

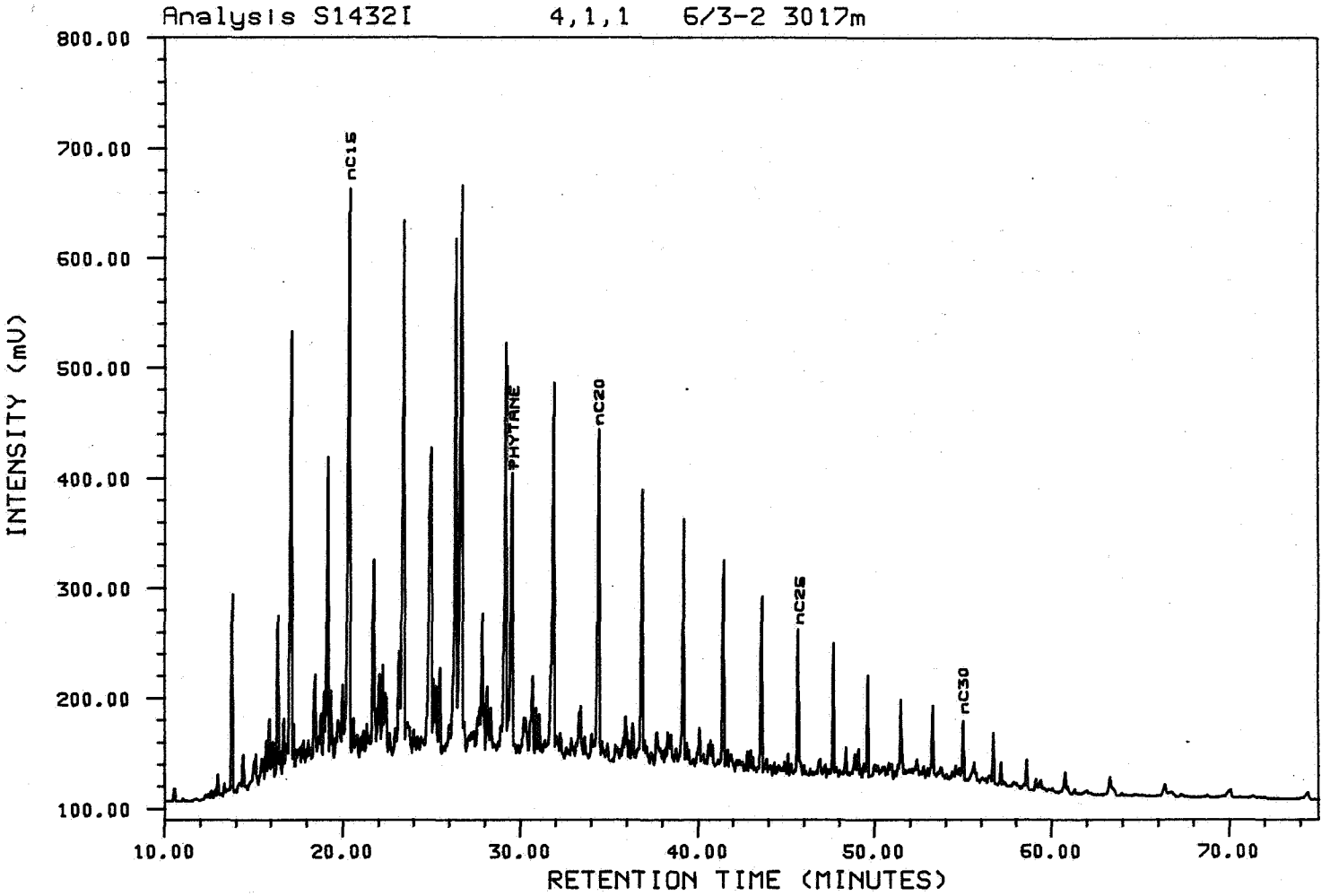


Fig. 2. Gasskromatogram av metta fraksjon for prøven fra 3017 m.